ATLONA
Connecting Technology

PTZ Camera

for HDVS-300 Soft Codec Conferencing System

AT-HDVS-CAM | Atlona Manuals
PTZ Camera

Version Information

Version	Release Date	Notes
1	10/17	Initial release
2	02/18	Restriction for USB cable length

Welcome to Atlona!

Thank you for purchasing this Atlona product. We hope you enjoy it and will take an extra few moments to register your new purchase.

Registration only takes a few minutes and protects this product against theft or loss. In addition, you will receive notifications of product updates and firmware. Atlona product registration is voluntary and failure to register will not affect the product warranty.

To register your product, go to http://www.atlona.com/registration

Sales, Marketing, and Customer Support

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Office: +41 43 508 4321

Sales and Customer Service Hours
Monday - Friday: 09:00 - 17:00 (UTC +1)

Operating Notes

As of this writing, there are no firmware updates for this product. When new firmware is released, update instructions will be included with the firmware and will be appended to this manual.

IMPORTANT: Visit http://www.atlona.com/product/AT-HDVS-CAM for the latest firmware updates and User Manual.

Atlona, Inc. (“Atlona”) Limited Product Warranty

Coverage

Atlona warrants its products will substantially perform to their published specifications and will be free from defects in materials and workmanship under normal use, conditions and service.

Under its Limited Product Warranty, Atlona, at its sole discretion, will either:

- repair or facilitate the repair of defective products within a reasonable period of time, restore products to their proper operating condition and return defective products free of any charge for necessary parts, labor and shipping.

OR

- replace and return, free of charge, any defective products with direct replacement or with similar products deemed by Atlona to perform substantially the same function as the original products.

OR

- refund the pro-rated value based on the remaining term of the warranty period, not to exceed MSRP, in cases where products are beyond repair and/or no direct or substantially similar replacement products exist.

Repair, replacement or refund of Atlona products is the purchaser’s exclusive remedy and Atlona liability does not extend to any other damages, incidental, consequential or otherwise.

This Limited Product Warranty extends to the original end-user purchaser of Atlona products and is non-transferrable to any subsequent purchaser(s) or owner(s) of these products.

Coverage Periods

Atlona Limited Product Warranty Period begins on the date of purchase by the end-purchaser. The date contained on the end-purchaser ‘s sales or delivery receipt is the proof purchase date.

Limited Product Warranty Terms – New Products

- 10 years from proof of purchase date for hardware/electronics products purchased on or after June 1, 2013.
- 3 years from proof of purchase date for hardware/electronics products purchased before June 1, 2013.
- Lifetime Limited Product Warranty for all cable products.

Limited Product Warranty Terms – Refurbished (B-Stock) Products

- 3 years from proof of purchase date for all Refurbished (B-Stock) hardware and electronic products purchased on or after June 1, 2013.

Remedy

Atlona recommends that end-purchasers contact their authorized Atlona dealer or reseller from whom they purchased their products. Atlona can also be contacted directly. Visit www.atlona.com for Atlona’s contact information and hours of operation. Atlona requires that a dated sales or delivery receipt from an authorized dealer, reseller or end-purchaser is provided before Atlona extends its warranty services. Additionally, a return merchandise authorization (RMA) and/or case number, is required to be obtained from Atlona in advance of returns.

Atlona requires that products returned are properly packed, preferably in the original carton, for shipping. Cartons not bearing a return authorization or case number will be refused. Atlona, at its sole discretion, reserves the right to reject any products received without advanced authorization. Authorizations can be requested by calling 1-877-536-3976 (US toll free) or 1-408- 962-0515 (US/international) or via Atlona’s website at www.atlona.com.

Exclusions

This Limited Product Warranty excludes:

- Damage, deterioration or malfunction caused by any alteration, modification, improper use, neglect, improper packaging or shipping (such claims must be presented to the carrier), lightning, power surges, or other acts of nature.

- Damage, deterioration or malfunction resulting from the installation or removal of this product from any installation, any unauthorized tampering with this product, any repairs attempted by anyone unauthorized by Atlona to make such repairs, or any other cause which does not relate directly to a defect in materials and/or workmanship of this product.
- Equipment enclosures, cables, power supplies, batteries, LCD displays, and any accessories used in conjunction with the product(s).
- Products purchased from unauthorized distributors, dealers, resellers, auction websites and similar unauthorized channels of distribution.

Disclaimers

This Limited Product Warranty does not imply that the electronic components contained within Atlona’s products will not become obsolete nor does it imply Atlona products or their electronic components will remain compatible with any other current product, technology or any future products or technologies in which Atlona’s products may be used in conjunction with. Atlona, at its sole discretion, reserves the right not to extend its warranty offering in instances arising outside its normal course of business including, but not limited to, damage inflicted to its products from acts of god.

Limitation on Liability

The maximum liability of Atlona under this limited product warranty shall not exceed the original Atlona MSRP for its products. To the maximum extent permitted by law, Atlona is not responsible for the direct, special, incidental or consequential damages resulting from any breach of warranty or condition, or under any other legal theory. Some countries, districts or states do not allow the exclusion or limitation of relief, special, incidental, consequential or indirect damages, or the limitation of liability to specified amounts, so the above limitations or exclusions may not apply to you.

Exclusive Remedy

To the maximum extent permitted by law, this limited product warranty and the remedies set forth above are exclusive and in lieu of all other warranties, remedies and conditions, whether oral or written, express or implied. To the maximum extent permitted by law, Atlona specifically disclaims all implied warranties, including, without limitation, warranties of merchantability and fitness for a particular purpose. If Atlona cannot lawfully disclaim or exclude implied warranties under applicable law, then all implied warranties covering its products including warranties of merchantability and fitness for a particular purpose, shall provide to its products under applicable law. If any product to which this limited warranty applies is a “Consumer Product” under the Magnuson-Moss Warranty Act (15 U.S.C.A. §2301, ET SEQ.) or other applicable law, the foregoing disclaimer of implied warranties shall not apply, and all implied warranties on its products, including warranties of merchantability and fitness for the particular purpose, shall apply as provided under applicable law.

Other Conditions

Atlona’s Limited Product Warranty offering gives legal rights, and other rights may apply and vary from country to country or state to state. This limited warranty is void if (i) the label bearing the serial number of products have been removed or defaced, (ii) products are not purchased from an authorized Atlona dealer or reseller. A comprehensive list of Atlona’s authorized distributors, dealers and resellers can be found at www.atlona.com.

Important Safety Information

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCT THE RISK OF ELECTRIC SHOCK
DO NOT OPEN ENCLOSURE OR EXPOSE TO RAIN OR MOISTURE.
NO USER-SERVICEABLE PARTS INSIDE REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance instructions in the literature accompanying the product.

The information bubble is intended to alert the user to helpful or optional operational instructions in the literature accompanying the product.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this product near water.
6. Clean only with a dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install or place this product near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of a polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the product.
11. Only use attachments/accessories specified by Atlona.
12. To reduce the risk of electric shock and/or damage to this product, never handle or touch this unit or power cord if your hands are wet or damp. Do not expose this product to rain or moisture.
13. Unplug this product during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the product has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the product, the product has been exposed to rain or moisture, does not operate normally, or has been dropped.

FCC Statement

FCC Compliance and Advisory Statement: This hardware device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: 1) this device may not cause harmful interference, and 2) this device must accept any interference received including interference that may cause undesired operation. This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed or used in accordance with the instructions, may cause harmful interference to radio communications. However there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: 1) reorient or relocate the receiving antenna; 2) increase the separation between the equipment and the receiver; 3) connect the equipment to an outlet on a circuit different from that to which the receiver is connected; 4) consult the dealer or an experienced radio/TV technician for help. Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. Where shielded interface cables have been provided with the product or specified additional components or accessories elsewhere defined to be used with the installation of the product, they must be used in order to ensure compliance with FCC regulations.

Table of Contents

Introduction

The Atlona AT-HDVS-CAM is an enterprise-grade PTZ camera designed for use with the AT-UHD-HDVS-300-KIT in soft codec conferencing applications. It features a USB interface for video and camera control. The HDVS-CAM seamlessly integrates with the HDVS-300-KIT for a complete, automated conferencing system that includes AV and USB extension, plus automatic input selection and display powering when a PC is connected. The HDVS-CAM delivers high performance, professional-quality imaging with video resolutions up to 1080p @ 30 Hz, as well as fast and accurate auto-focusing, and a fast yet quiet pan and tilt mechanism. This PTZ camera is ideal for a wide range of small to medium-sized meeting spaces, classrooms, and training rooms.

Features

- Available video resolutions from 176x144 up to 1080p @ 30 Hz
- Fast and accurate auto focus, plus auto white balance and auto exposure modes
- Fast and quiet pan and tilt mechanism
- USB 2.0 interface for video and camera control
- Multi-element zoom lens with 10x optical zoom and a 60.9° horizontal field of view
- Picture controls available for brightness, color, saturation, contrast, sharpness, and gamma
- TCP/IP, RS-232, USB, and IR control – convenient handheld IR remote control included
- High performance imaging, fine detail, and color rendering with 1/2.8” low-noise, HD CMOS sensor

Package Contents

1 x AT-HDVS-CAM
1 x Wall mounting plate
4 x Mounting screws
1 x IR Remote Control
1 x USB A cable (2 meters)
1 x VISCA to RS-232 DB-9 adapter
1 x AAA battery
1 x Installation Guide

Panel Description

1. **RS-232**
   Connect included VISCA to RS-232 adapter here to control the camera with a third party software or hardware controller.

2. **USB**
   Connect the included USB A cable to this port from the USB port of the AT-UHD-HDVS-300-RX.

3. **LAN**
   Connect to a network switch to control the unit via TCP/IP or webGUI.

4. **DC 12V**
   Connect the included 12V power supply to this port.

Installation

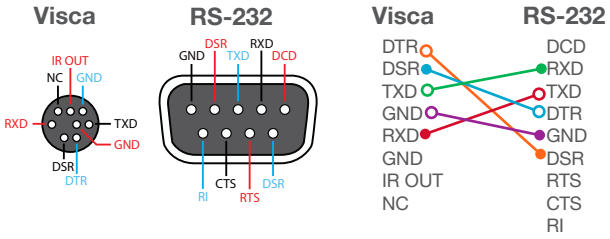
Connection Instructions

1. Connect the Ethernet cable to the LAN port on the back of the AT-HDVS-CAM.
2. Connect the included USB cable to from the **USB** port on the AT-HDVS-CAM, to an available USB port on the AT-UHD-HDVS-300-RX.

NOTE: Atlona strongly discourages the use of USB cables beyond 12 feet (3.5 meters) in length.

3. *Optional* Connect the Visca to RS-232 cable to the Visca port for RS-232 control.
4. Connect the included DC 12V power cable to the unit.

IMPORTANT: The included power supply should always be used when the camera is controlled with the AT-UHD-HDVS-300-C-KIT.



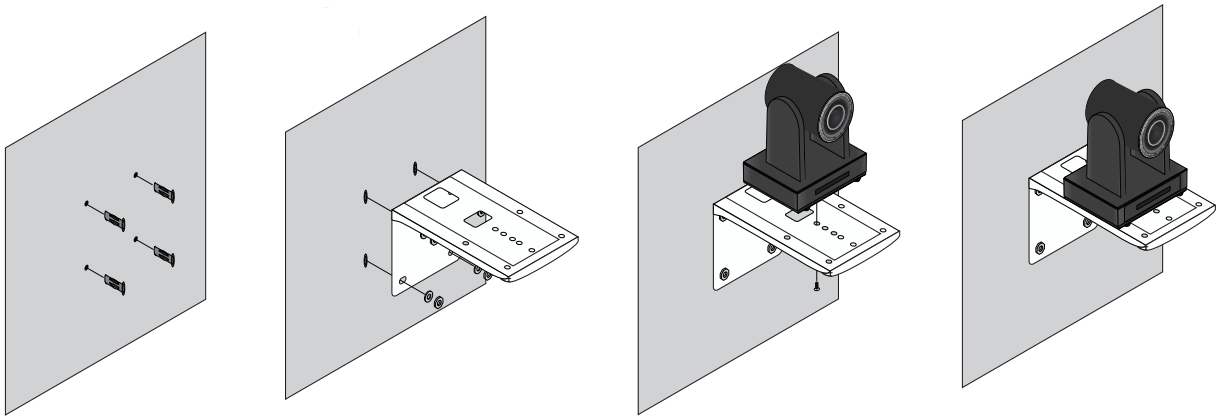
Mounting Instructions

The AT-HDVS-CAM has two installation options, wall mount (included) and ceiling mount (purchased separately).

Wall Mount installation

The install the AT-HDVS-CAM, 4 M6 swelling bolts, 1 1/4 20UNC bolt, 4 M6 nuts & shims, the included wall mount bracket, and the AT-HDVS-CAM are needed.

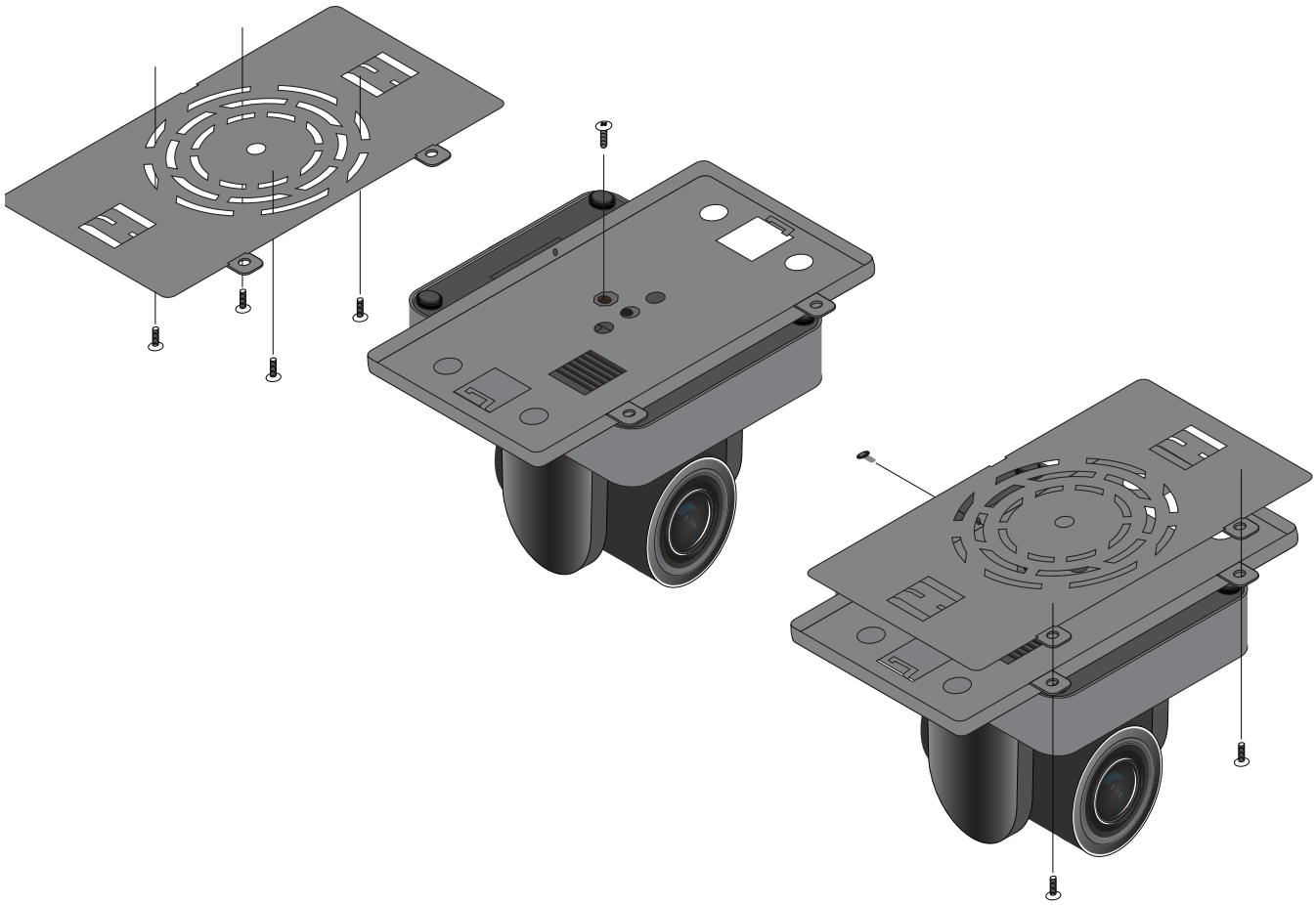
1. Install the M6 swelling bolts in a rectangular pattern on the wall, 100 mm wide and 50 mm high.
2. Attached the wall mount bracket onto the wall, by placing them on the M6 swelling bolts and securing it with the M6 nuts and shims.
3. Once the wall mount bracket is secure on the wall, place the camera on the top of the wall mount bracket and secure it with the 1/4 20UNC bolt.



Ceiling Mount installation

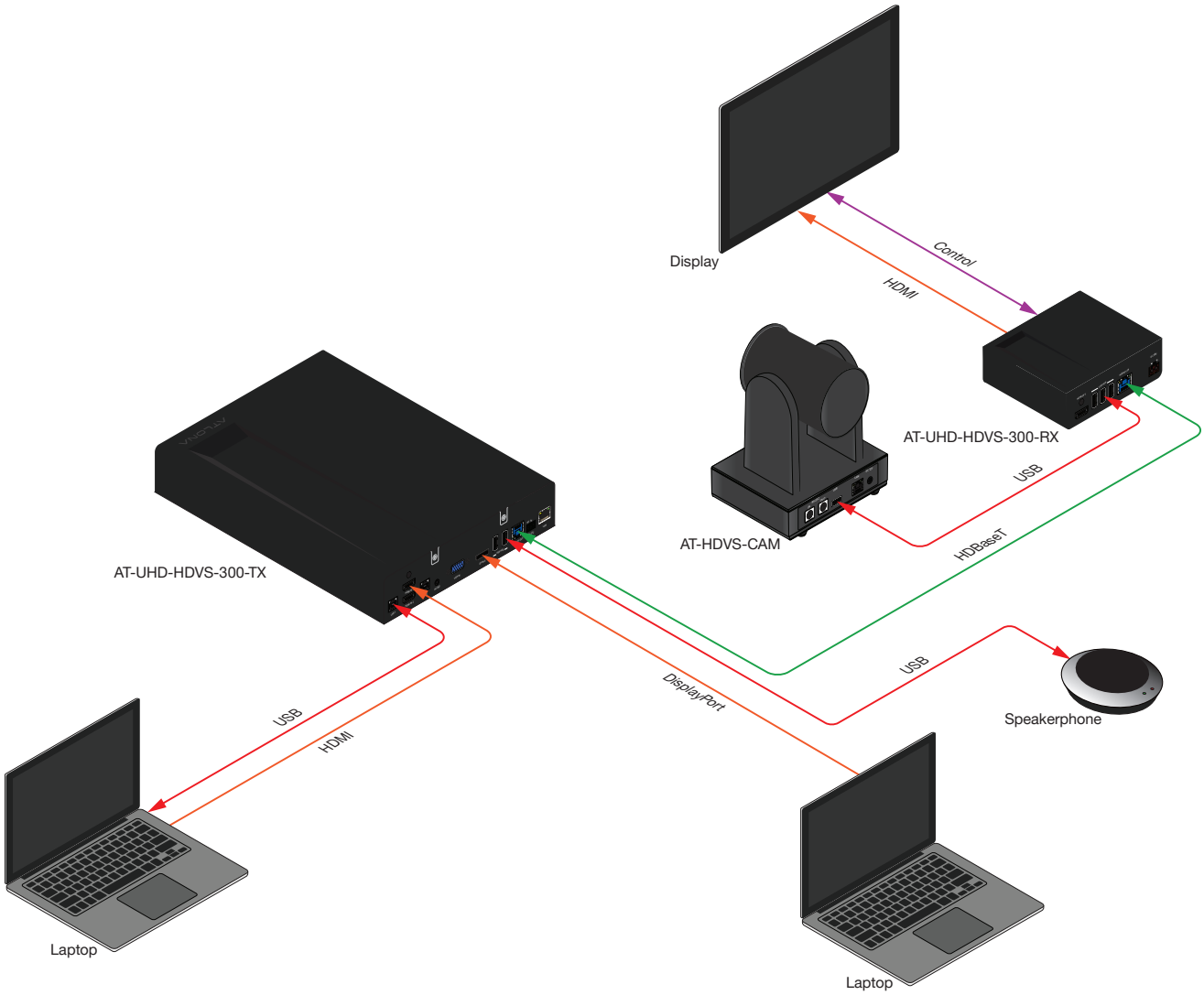
To install the AT-HDVS-CAM, 4 PA3X30 self-tapping screws, 4 PM3X6 screws, 4 screw stoppers, 1 1/4 20UNC screw, the optional ceiling upper and lower covering plates, and the AT-HDVS-CAM are needed.

1. Install the 4 screw stoppers in the ceiling.
2. Connect the upper ceiling covering plate to the screw stoppers using the PA3X30 self-tapping screws.
3. Connect the lower ceiling covering plate to the bottom of the AT-HDVS-CAM using the 1/4 20UNC screw.
4. Mount the lower ceiling covering plate to the upper ceiling plate using 3 PM3X6 bolts.



NOTE: The camera picture will need to be inverted for video to be viewed correctly. View the AT-HDVS-CAM manual for instructions on how to invert video.

Connection Diagram

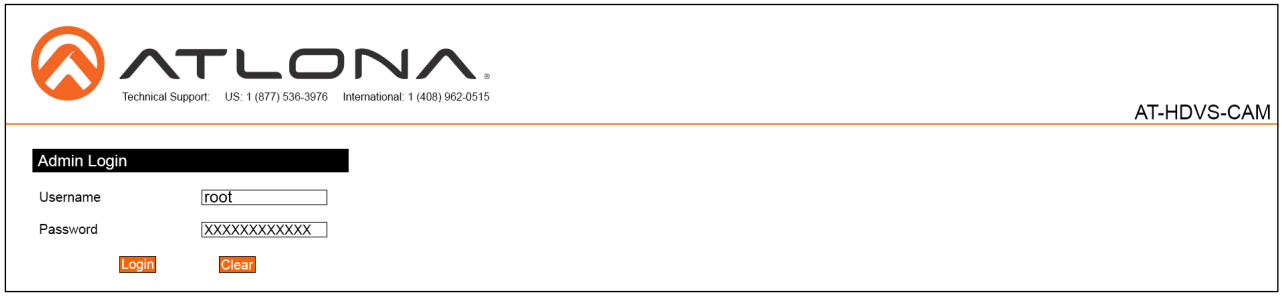


WebGUI

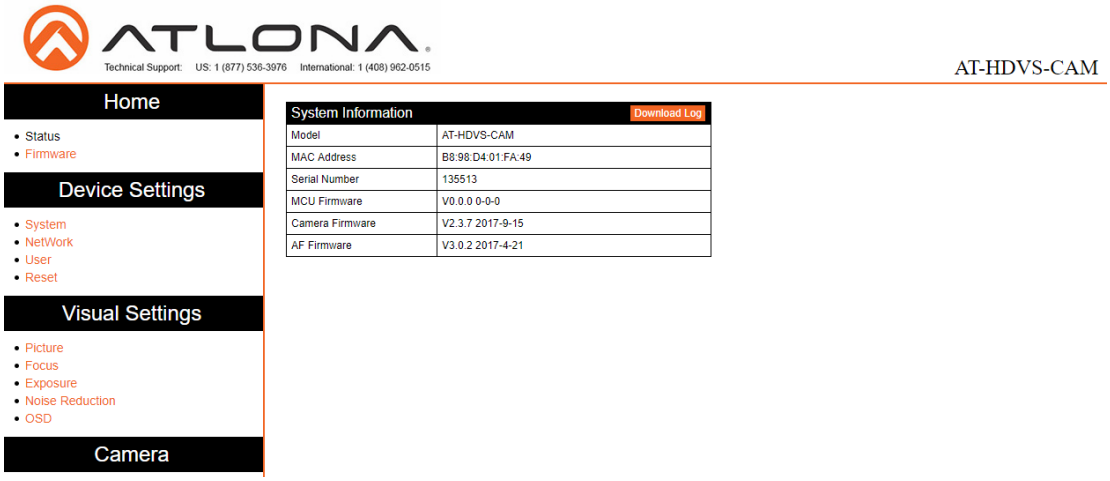
The AT-HDVS-CAM includes a built-in webGUI, which allows easy management and control of all features. Follow the instructions below to access the webGUI.

1. Use an IP scanner to determine the IP address of the AT-HDVS-CAM. The default IP address is printed on an adhesive label, attached to the bottom of the camera base. Each camera has a unique default IP address.
2. Launch a web browser.
3. In the address bar, type the IP address of the AT-HDVS-CAM.
4. Enter the following information on the **Login** page.

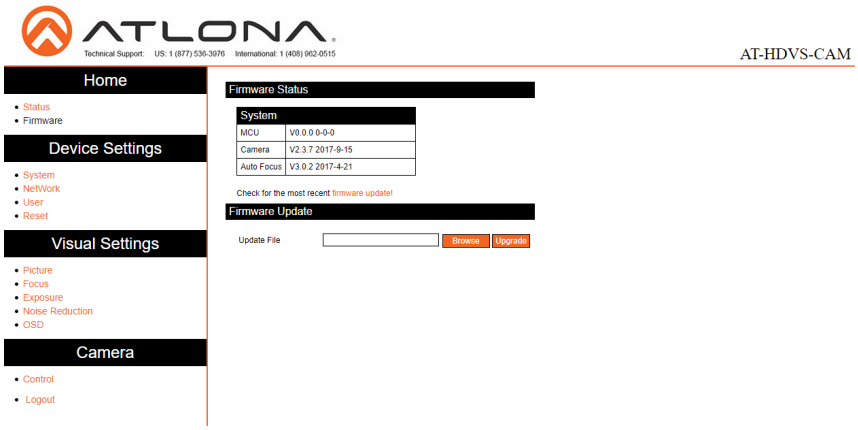
   Login: **root**
   Password: **Atlona**
5. Click the **Login** button.



6 The status page will display, giving all the general information of the AT-HDVS-CAM.



7 Select firmware from the side menu.



System

MCU - Displays the current OSD software.

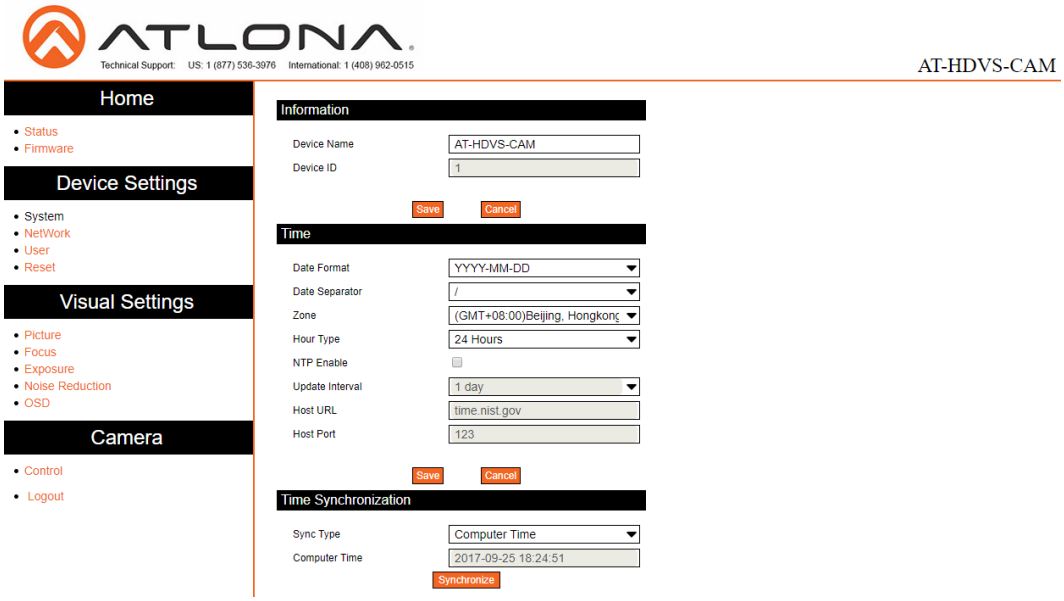
Camera - Displays the current unit software.

Auto Focus - Displays the software for auto focus.

Firmware Update

Browse - Select browse and search the local computer for the firmware.

Update - Load the selected file to the unit.



Information

Device Name - Displays the SKU of the unit.

Device ID - Displays the ID of the AT-HDVS-CAM.

Time

Date Format - Select how the date will display on video and saved files.

Date Separator - Select the symbol to display between date format.

Zone - Select the time zone for the camera.

Hour Type - Select the way the time displays through the day.

NTP Enable - Enable or disable time synchronization.

Update Interval - Decide the amount of time between synchronizations.

Host URL - The unit will synchronize to the time of the url typed in this field.

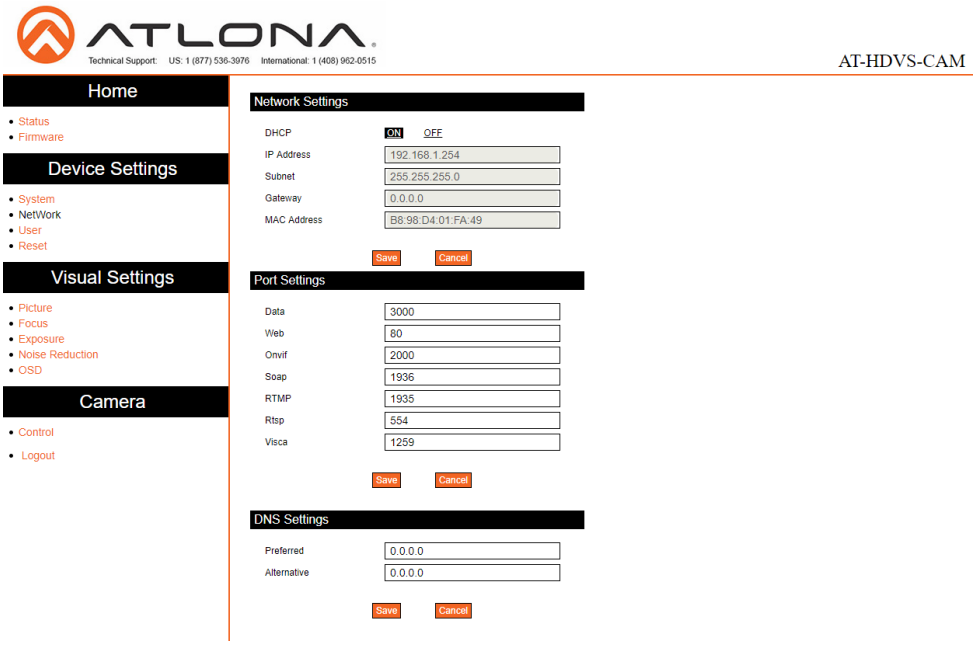
Host Port - Type the port to ensure communication between the camera and the host URL.

Time Synchronization

Sync Type - Decide the device the camera will sync to.

Computer Time - Displays the current time of the selected synchronization type.

8 Select network from the side menu.



Network Settings

DHCP - Switch between DHCP (ON) and static (OFF).

IP Address, Subnet, Gateway - This will display the current IP settings on DHCP. When set to static, fill in the IP address, netmask, gateway, and telnet port.

MAC Address - Displays the MAC Address of the AT-HDVS-CAM.

Port Settings

Data port - Set to a value between 0 and 65535. Default is 3000.

Web Port - Set to a value between 0 and 65535. Default is 80.

Onvif Port - Set to a value between 0 and 65535. Default is 2000.

Soap Port - Set to a value between 0 and 65535. Default is 1936.

RTMP Port - Set to a value between 0 and 65535. Default is 1935.

RTSP Port - Set to a value between 0 and 65535. Default is 554.

Visca Port - Set to a value between 0 and 65535. Default is 3001.

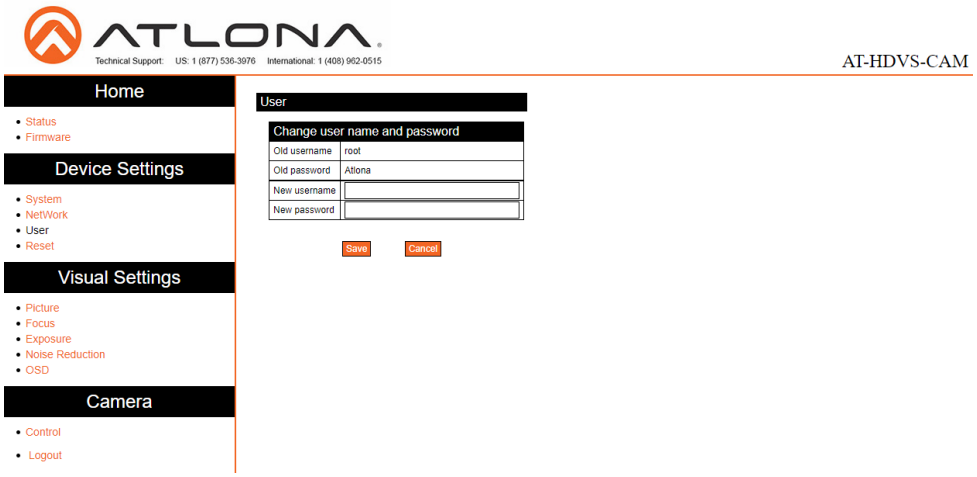
NOTE: The AT-HDVS-CAM will restart automatically after the save button is pressed.

DNS Settings

Preferred - Set the preferred DNS server. Default is 0.0.0.0.

Alternative - Set the alternate DNS server. Default is 0.0.0.0.

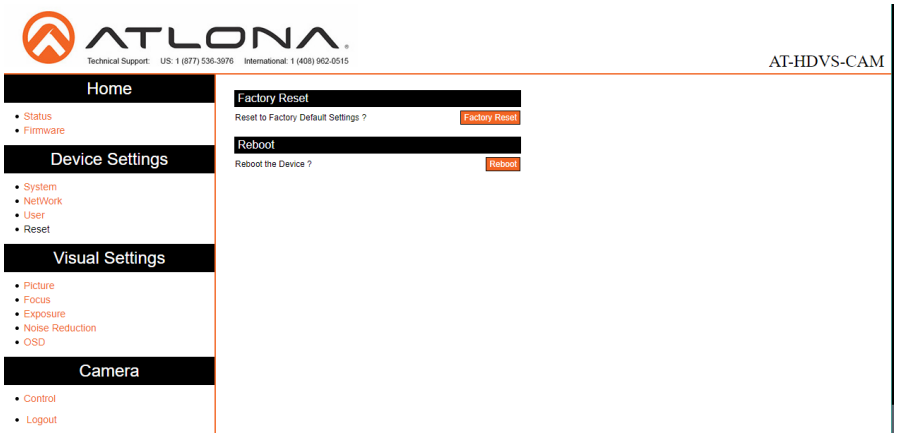
9 Select User from the side menu.



User

Update the username and password of the AT-HDVS-CAM webGUI.

10 Select Reset from the side menu.



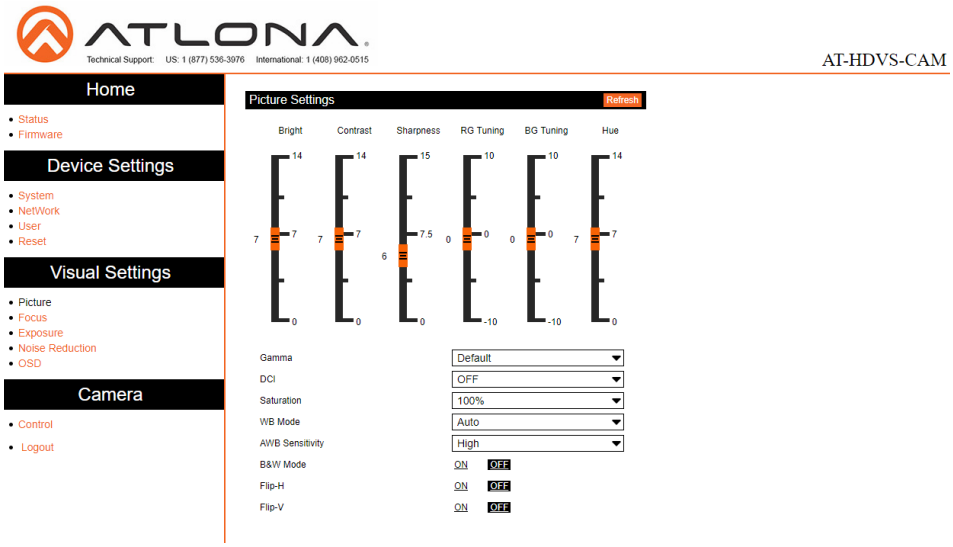
Factory Reset

Factory Reset - Sets the device back to the original factory settings.

Reboot

Reboot - Reboots the AT-HDVS-CAM.

11 Select Picture from the side menu.



Picture Settings

Brightness - Set to a value between 0 and 14. Default is 6.

Contrast - Set to a value between 0 and 14. Default is 8.

Sharpness - Set to a value between 0 and 15. Default is 7.

Gamma - Set the gamma value of the camera. Values are default, 0.45, 0.50, 0.52, and 0.55.

DCI (Dynamic Contrast Improvement) - Set to a value between 1 and 8 or OFF.

Saturation - Set to a value between 60% and 200%. Default is 80%.

WB Mode - Select between Auto, 3000K, 3500K, 4000K, 4500K, 5000K, 5500K, 6000K, 6500K, 7000K, Manual, and OnePush.

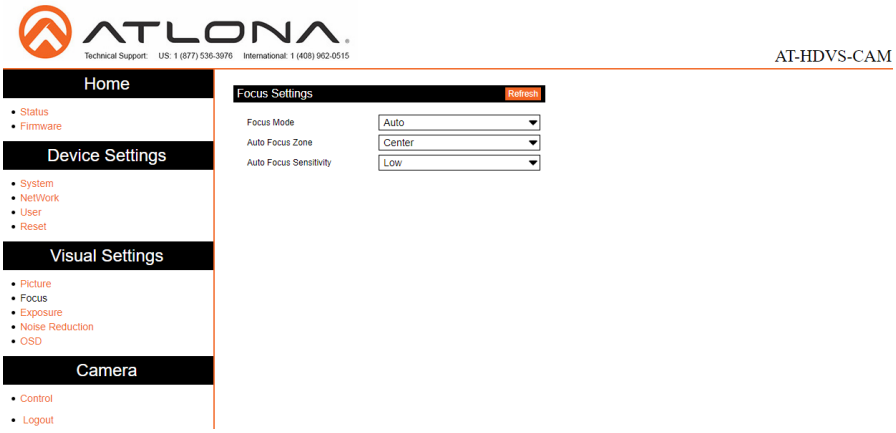
AWB Sensitivity - Select between low, middle, and high.

B & W Mode - Toggle color between black and white (ON) and color (OFF). Default is off.

Flip-H - Flip the picture horizontally. Default is off.

Flip-V - Flip the picture vertically. Default is off.

12 Select Focus from the side menu.



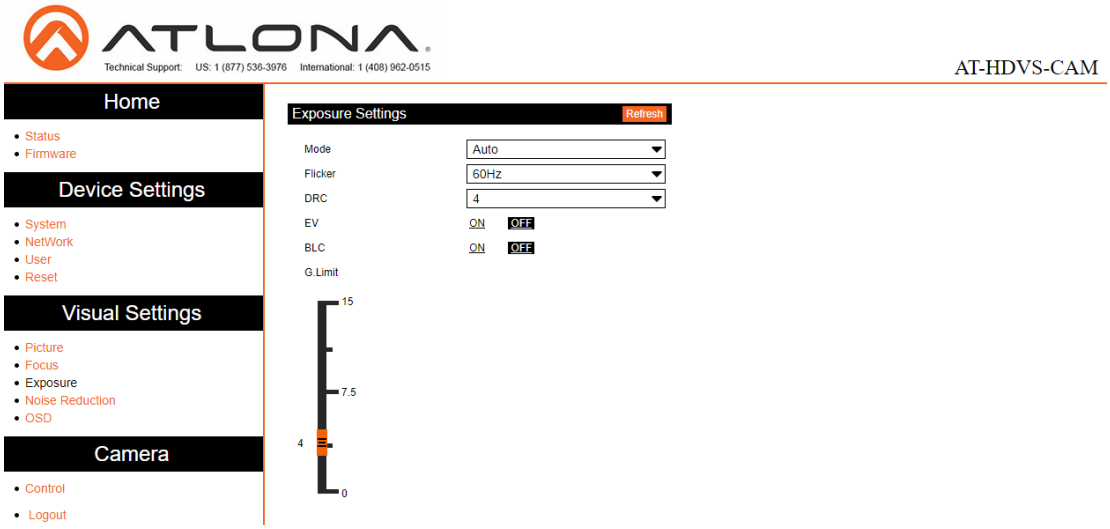
Focus Settings

Focus Mode - Switch between Auto, Manual, or OnePush.

Auto Focus Zone - Switch the zone between Top, Center, Bottom, and All.

Auto Focus Sensitivity - Switch between High, Middle, and Low.

13 Select Exposure from the side menu.



Exposure Settings

Mode - Switch between Auto, Manual, SAE, AAE, and Bright.

Flicker - Switch between OFF, 50Hz, and 60Hz.

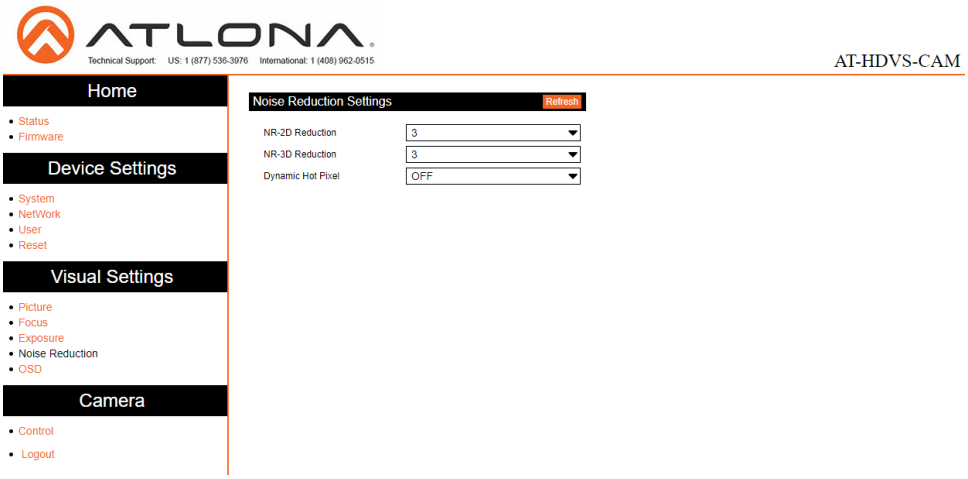
DRC (Dynamic Range) - Set to a value between 1 and 8, or OFF.

EV (Exposure Compensation) - Toggle EV on and off.

BLC (Backlight Compensation) - Toggle backlight compensation on and off.

G.Limit (Gain Limit) - Set to a value between 0 and 15. Default is 3.

14 Select Noise Reduction from the side menu.



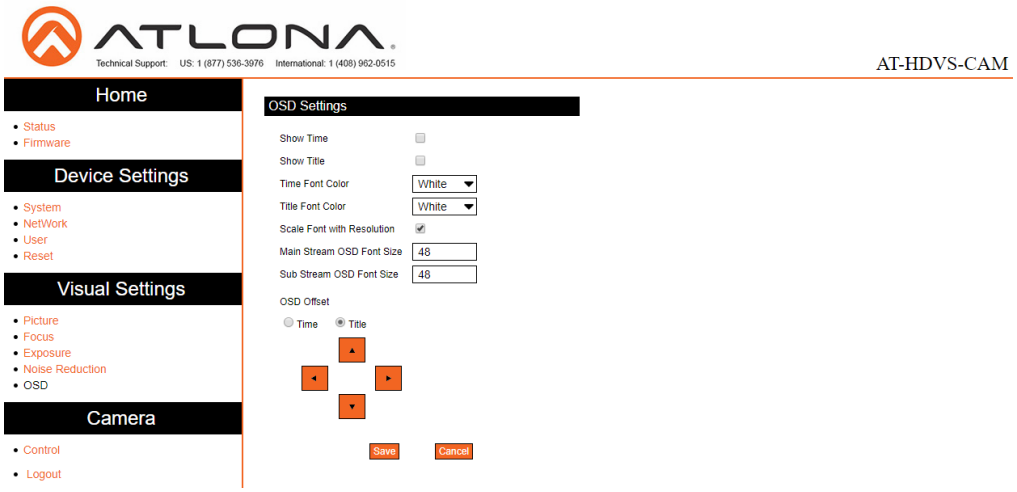
Noise Reduction Settings

NR-2D Reduction - Set to a value between OFF, 1 and 7, or Auto.

NR-3D Reduction - Set to a value between OFF, 1 and 8.

Dynamic Hot Pixel - Set to a value between 1 and 5, or OFF.

15 Select OSD from the side menu.



OSD Settings

Show Time - Toggle the time on and off on the on screen display.

Show Title - Toggle the title on and off on the on screen display.

Time Font Color - Set the time's font color. Values are White, Black, Yellow, Red, and Blue.

Title Font Color - Set the time's font color. Values are White, Black, Yellow, Red, and Blue.

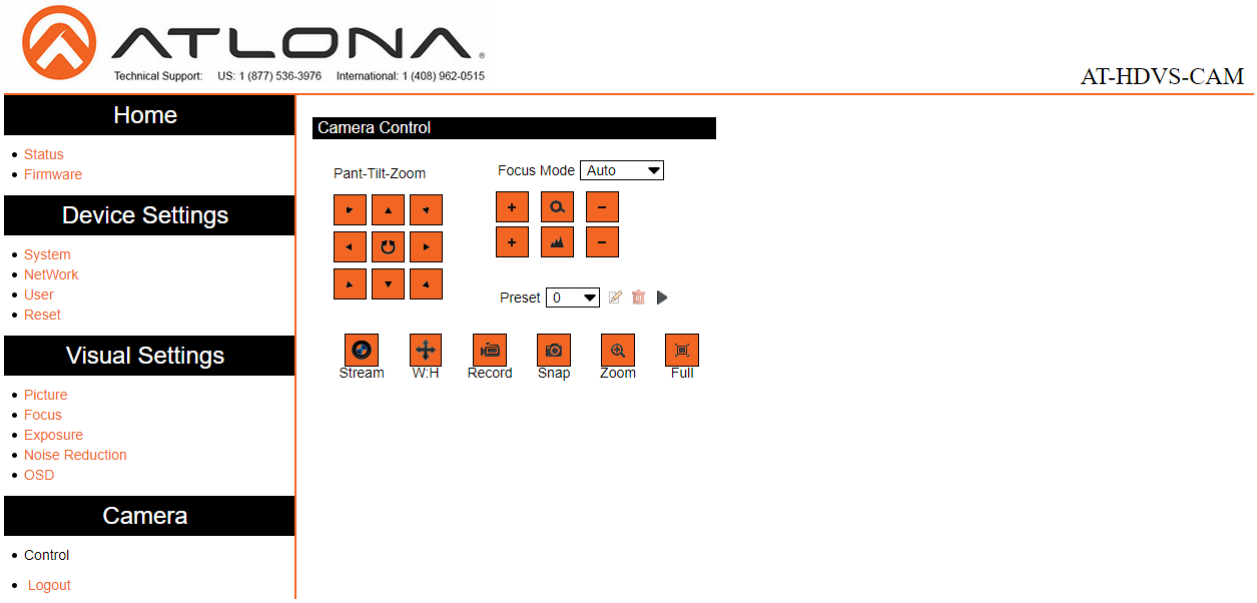
Scale Font with Resolution - Toggle the font scaling on and off.

Main Stream OSD Font Size - Set the font size between 8 and 200.

Sub Stream OSD Font Size - Set the font size between 8 and 200.

OSD Offset - Use the buttons to position the OSD information on the screen.

16 Select Control from the side menu.



Camera Control

Pan-Tilt-Zoom - Use the buttons to adjust the camera's view and position.

Focus Mode - Switch between Auto, Manual, and OnePush. Use the buttons to adjust the focus.

Preset - Set the current position settings to a preset and save.

Video buttons - Adjust video settings with these buttons.

Visca Protocol List

Camera Return Command

ACK/Completion Message		
	Command packet	Note
ACK	z0 41 FF	Returned when the command is accepted
Completion	z0 51 FF	Returned when the command has been executed

z = camera address +8

Error Messages		
	Command packet	Note
Syntax Error	z0 60 02 FF	Returned when the command format is different or when a command with illegal command parameters is accepted
Command Not Executable	z0 61 41 FF	Returned when a command cannot be executed due to current conditions. For example, when commands controlling the focus manually are received during auto focus.

Camera Control Command

Command	Function	Command Packet	Note
AddressSet	Broadcast	88 30 0p FF	p: Address setting
IF_Clear	Broadcast	88 01 00 01 FF	I/F Clear
CommandCancel		8x 21 FF	
CAM_Power	On	8x 01 04 00 02 FF	Power ON/OFF
	Off	8x 01 04 00 03 FF	
CAM_Zoom	Stop	8x 01 04 07 00 FF	
	Tele(Standard)	8x 01 04 07 02 FF	
	Wide(Standard)	8x 01 04 07 03 FF	
	Tele(Variable)	8x 01 04 07 2p FF	p = 0(low) - F(high)
	Wide(Variable)	8x 01 04 07 3p FF	p = 0(low) - F(high)
	Direct	8x 01 04 47 0p 0q 0r 0s FF	pqrs: Zoom Position
CAM_Focus	Stop	8x 01 04 08 00 FF	
	Far(Standard)	8x 01 04 08 02 FF	
	Near(Standard)	8x 01 04 08 03 FF	
	Far(Variable)	8x 01 04 08 2p FF	p = 0(low) - F(high)
	Near(Variable)	8x 01 04 08 3p FF	p = 0(low) - F(high)
	Direct	8x 01 04 48 0p 0q 0r 0s FF	pqrs: Focus Position
	Auto Focus	8x 01 04 38 02 FF	
	Manual Focus	8x 01 04 38 03 FF	
CAM_Zoom Focus	Direct	8x 01 04 47 0p 0q 0r 0s 0t 0u 0v 0w FF	pqrs: Zoom Position tuvw: Focus Position

Visca Protocol List

Command	Function	Command Packet	Note
CAM_WB	Auto	8x 01 04 35 00 FF	
	3000K	8x 01 04 35 01 FF	
	4000k	8x 01 04 35 02 FF	
	One Push mode	8x 01 04 35 03 FF	
	5000k	8x 01 04 35 04 FF	
	Manual	8x 01 04 35 05 FF	
	6500k	8x 01 04 35 06 FF	
CAM_RGain	Reset	8x 01 04 03 00 FF	Manual Control of R Gain
	Up	8x 01 04 03 02 FF	Manual Control of R Gain
	Down	8x 01 04 03 03 FF	Manual Control of R Gain
	Direct	8x 01 04 43 00 00 0p 0q FF	pq: R Gain
CAM_Bgain	Reset	8x 01 04 04 00 FF	Manual Control of B Gain
	Up	8x 01 04 04 02 FF	Manual Control of B Gain
	Down	8x 01 04 04 03 FF	Manual Control of B Gain
	Direct	8x 01 04 44 00 00 0p 0q FF	pq: B Gain
CAM_AE	Full Auto	8x 01 04 39 00 FF	Automatic Exposure mode
	Manual	8x 01 04 39 03 FF	Manual Control mode
	Shutter priority	8x 01 04 39 0A FF	Shutter Priority Automatic Exposure mode
	Iris priority	8x 01 04 39 0B FF	Iris Priority Automatic Exposure mode
	Bright	8x 01 04 39 0D FF	Bright mode
CAM_Shutter	Reset	8x 01 04 0A 00 FF	Shutter Setting
	Up	8x 01 04 0A 02 FF	Shutter Setting
	Down	8x 01 04 0A 03 FF	Shutter Setting
	Direct	8x 01 04 4A 00 00 0p 0q FF	pq: Shutter Position
CAM_Iris	Reset	8x 01 04 0B 00 FF	Iris Setting
	Up	8x 01 04 0B 02 FF	Iris Setting
	Down	8x 01 04 0B 03 FF	Iris Setting
	Direct	8x 01 04 4B 00 00 0p 0q FF	pq: Iris Position
CAM_Gain	Reset	8x 01 04 0C 00 FF	Gain Setting
	Up	8x 01 04 0C 02 FF	Gain Setting
	Down	8x 01 04 0C 03 FF	Gain Setting
	Direct	8x 01 04 0C 00 00 0p 0q FF	pq: Gain Positon
GAM_Bright	Reset	8x 01 04 0D 00 FF	Bright Setting
	Up	8x 01 04 0D 02 FF	Bright Setting
	Down	8x 01 04 0D 03 FF	Bright Setting
	Direct	8x 01 04 4D 00 00 0p 0q FF	pq: Bright Position

Visca Protocol List

Command	Function	Command Packet	Note
CAM_ExpComp	On	8x 01 04 3E 02 FF	Exposure Compensation ON/OFF
	Off	8x 01 04 3E 03 FF	Exposure Compensation ON/OFF
	Reset	8x 01 04 0E 00 FF	Exposure Compensation Amount Settings
	Up	8x 01 04 0E 02 FF	Exposure Compensation Amount Settings
	Down	8x 01 04 0E 03 FF	Exposure Compensation Amount Settings
	Direct	8x 01 04 4E 00 00 0p 0q FF	pq: ExpComp Position
CAM_Back Light	On	8x 01 04 33 02 FF	Back Light Compensation
	Off	8x 01 04 33 03 FF	Back Light Compensation
CAM_NR (2D)		8x 01 04 53 0p FF	p = 0-7 0: OFF
CAM_NR (3D)		8x 01 04 54 0p FF	p = 0-8 0: OFF
CAM_Gamma		8x 01 04 5B 0p FF	p = 0 - 4 0: Default 1: 0.47 2: 0.50 3: 0.52 4: 0.55
CAM_Flicker	OFF	8x 01 04 23 00 FF	OFF
	50HZ	8x 01 04 23 01 FF	50HZ
	60HZ	8x 01 04 23 02 FF	60HZ
CAM_Aperature	Reset	8x 01 04 02 00 FF	Aperture Control
	Up	8x 01 04 02 02 FF	Aperture Control
	Down	8x 01 04 02 03 FF	Aperture Control
	Direct	8x 01 04 42 00 00 0p 0q FF	pq: Aperture Gain
CAM_Memory	Reset	8x 01 04 3F 00 pq FF	pq: Memory Number (=0 to 254) Corresponds to 0 to 9 on the Remote Commander
	Set	8x 01 04 3F 01 pq FF	
	Recall	8x 01 04 3F 02 pq FF	
CAM_LR_Reverse	On	8x 01 04 61 02 FF	Image Flip Horizontal ON/OFF
	Off	8x 01 04 61 03 FF	Image Flip Horizontal ON/OFF
CAM_PictureFlip	On	8x 01 04 66 02 FF	Image Flip Vertical ON/OFF
	Off	8x 01 04 66 03 FF	Image Flip Vertical ON/OFF
CAM_ColorSaturation	Direct	8x 01 04 49 00 00 00 0p FF	P = 0-7 0: 60% 1: 70% 2: 80% 3: 90% 4: 100% 5: 110% 6: 120% 7: 130%

Visca Protocol List

Command	Function	Command Packet	Note
CAM_IDWrite		8x 01 04 22 0p 0q 0r 0s FF	pqrs: Camera ID (=0000 to FFF)
SYS_Menu	ON	8x 01 04 06 06 02 FF	Turn on the menu screen
	OFF	8x 01 04 06 06 03 FF	Turn off the menu screen
IR_Receive	ON	8x 01 06 08 02 FF	IR (remote commander) receive On/Off
	OFF	8x 01 06 08 03 FF	
IR_ReceiveReturn	On	8x 01 7D 01 03 00 00 FF	IR (remote commander) receive message
	Off	8x 01 7D 01 13 00 00 FF	via the VISCA communication ON/OFF
CAM_SettingReset	Reset	8x 01 04 A0 10 FF	Reset Factory Setting
CAM_Brightness	Direct	8x 01 04 A1 00 00 0p 0q FF	pq: Brightness Position
CAM_Contrast	Direct	8x 01 04 A2 00 00 0p 0q FF	pq: Contrast Position
CAM_Flip	OFF	8x 01 04 A4 00 FF	Single Command For Video Flip
	Flip-H	8x 01 04 A4 01 FF	Single Command For Video Flip
	Flip-V	8x 01 04 A4 02 FF	Single Command For Video Flip
	Flip-HV	8x 01 04 A4 03 FF	Single Command For Video Flip
CAM_VideoSystem	Set camera video system	8x 01 06 35 00 0p FF	P: 0-E Video format 0: 1080P60 1: 1080P50 2: 1080i60 3: 1080i50 4: 720P60 5: 720P50 6: 1080P30 7: 1080P25 8: 720P30 9: 720P25 A: 1080P59.94 B: 1080i59.94 C: 720P59.94 D: 1080P29.97 E: 720P29.97

Command	Function	Command Packet	Note
Pan_tiltDrive	Up	8x 01 06 01 VV WW 03 01 FF	VV: Pan Speed 0x01 (low speed) to 0x18 (high speed)
	Down	8x 01 06 01 VV WW 03 02 FF	WW: Tilt speed 0x01 (low speed) to 0x14 (high speed)
	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	
	AbsolutePosition	8x 01 06 02 VV WW 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF	YYYY: Pan Position ZZZ: Tilt Position
	RelativePosition	8x 01 06 03 VV WW 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF	YYYY: Pan Position ZZZ: Tilt Position
	Home	8x 01 06 04 FF	
	Reset	8x 01 06 05 FF	
Pan-tiltLimitSet	Set	8x 01 06 07 00 0W 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF	W:1 UpRight 0:DownLeft YYYY: Pan Limit Position (TBD)
	Clear	8x 01 06 07 01 0W 07 0F 0F 0F 07 0F 0F 0F FF	ZZZZ: Tilt Limit Position (TBD)

Inquiry Command

Command	Function	Command Packet	Note
CAM_PowerInq	8x 09 04 00 FF	y0 50 02 FF	On
		y0 50 03 FF	Off(Standby)
CAM_ZoomPosInq	8x 09 04 47 FF	y0 50 0p 0q 0r 0s FF	pqrs: Zoom Position
CAM_FocusAFModeInq	8x 09 04 38 FF	y0 50 02 FF	Auto Focus
		y0 50 03 FF	Manual Focus
CAM_FocusPosInq	8x 09 04 48 FF	y0 50 0p 0q 0r 0s FF	pqrs: Focus Position

Visca Protocol List

Command	Function	Command Packet	Note
CAM_WBModeInq	8x 09 04 35 FF	y0 50 00 FF	Auto
		y0 50 01 FF	3000K
		y0 50 02 FF	4000K
		y0 50 03 FF	One Push Mode
		y0 50 04 FF	5000K
		y0 50 05 FF	Manual
		y0 50 00 FF	6500K
CAM_RGainInq	8x 09 04 43 FF	y0 50 00 00 0p 0q FF	pq: R Gain
CAM_BGainInq	8x 09 04 44 FF	y0 50 00 00 0p 0q FF	pq: B Gain
CAM_AEModeInq	8x 09 04 39 FF	y0 50 00 FF	Full Auto
		y0 50 03 FF	Manual
		y0 50 0A FF	Shutter priority
		y0 50 0B FF	Iris priority
		y0 50 0D FF	Bright
CAM_ShutterPosInq	8x 09 04 4A FF	y0 50 00 00 0p 0q FF	pq: Shutter Position
CAM_IrisPosInq	8x 09 04 4B FF	y0 50 00 00 0p 0q FF	pq: Iris Position
CAM_BrightPosiInq	8x 09 04 4D FF	y0 50 00 00 0p 0q FF	pq: Bright Position
CAM_ExpCompModeInq	8x 09 04 3E FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_ExpCompPosInq	8x 09 04 4E FF	y0 50 00 00 0p 0q FF	pq: ExpComp Position
CAM_BacklightModeInq	8x 09 04 33 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_NRLevel(2D) Inq	8x 09 04 53 FF	y0 50 0p FF	P: 2DNRLevel
CAM_NRLevel(3D) Inq	8x 09 04 54 FF	y0 50 0p FF	P:3D NRLevel
CAM_FlickerModeInq	8x 09 04 55 FF	y0 50 0p FF	p: Flicker Settings 0: OFF 1: 50Hz 2: 60Hz
CAM_ApertureInq	8x 09 04 42 FF	y0 50 00 00 0p 0q FF	pq: Aperture Gain
CAM_PictureEffectModeInq	8x 09 04 63 FF	y0 50 00 FF	Off
		y0 50 04 FF	B&W
CAM_MemoryInq	8x 09 04 3F FF	y0 50 0p FF	p: Memory number last operated
SYS_MenuModeInq	8x 09 06 06 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_LR_ReverseInq	8x 09 04 61 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_PictureFlipInq	8x 09 04 66 FF	y0 50 02 FF	On
		y0 50 03 FF	Off

Visca Protocol List

Command	Function	Command Packet	Note
CAM_ColorSaturationInq	8x 09 04 49 FF	y0 50 00 00 00 0p FF	p: Color Gain setting 0h (60%) to Eh (130%)
CAM_IDInq	8x 09 04 22 FF	y0 50 0p FF	p: Gamma ID
IR_ReceiveInq	8x 09 06 08 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
IR_ReceiveReturn		y0 07 7D 01 04 00 FF	Power ON/OFF
		y0 07 7D 01 04 07 FF	Zoom tele/wide
		y0 07 7D 01 04 38 FF	AF ON/OFF
		y0 07 7D 01 04 33 FF	Camera _Backlight
		y0 07 7D 01 04 3F FF	Camera _Memery
		y0 07 7D 01 06 01 FF	Pan_titleDriver
CAM_BrightnessInq	8x 09 04 A1 FF	y0 50 00 00 0p 0q FF	pq: Brightness Position
CAM_ContrastInq	8x 09 04 A2 FF	y0 50 00 00 0p 0q FF	pq: Contrast Position
CAM_FlipInq	8x 09 04 A4 FF	y0 50 00 FF	Off
		y0 50 01 FF	Flip-H
		y0 50 02 FF	Flip-V
		y0 50 03 FF	Flip-HV
CAM_GammaInq	8x 09 04 5B FF	y0 50 0p FF	p: Gamma setting
CAM_VersionInq	8x 09 00 02 FF	y0 50 ab cd mn pq rs tu vw FF	ab cd : vender ID (0220) mn pq : model ID ST (0950) U3 (3950) rs tu : ARM Version vw : reserve
VideoSystemInq	8x 09 06 23 FF	y0 50 0p FF	P: 0 ~E Video format 0: 1080P60 1: 1080P50 2: 1080i60 3: 1080i50 4: 720P60 5: 720P50 6: 1080P30 7: 1080P25 8: 720P30 9: 720P25 A: 1080P59.94 B: 1080i59.94 C: 720P59.94 D: 1080P29.97 E: 720P29.97

Command	Function	Command Packet	Note
Pan-tiltMaxSpeedInq	8x 09 06 11 FF	y0 50 ww zz FF	ww: Pan Max Speed zz: Tilt Max Speed
Pan-tiltPosInq	8x 09 06 12 FF	y0 50 0w 0w 0w 0w 0z 0z 0z 0z FF	wwww: Pan Position zzzz: Tilt Position

NOTE: [X] in the above table indicates the camera address to be operated, [y] = [x+8].

Pelco-D Protocol Command List

Function	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
Up	0xFF	Address	0x00	0x08	Pan Speed	Tilt Speed	SUM
Down	0xFF	Address	0x00	0x10	Pan Speed	Tilt Speed	SUM
Left	0xFF	Address	0x00	0x04	Pan Speed	Tilt Speed	SUM
Right	0xFF	Address	0x00	0x02	Pan Speed	Tilt Speed	SUM
Upleft	0xFF	Address	0x00	0x0C	Pan Speed	Tilt Speed	SUM
Upright	0xFF	Address	0x00	0x0A	Pan Speed	Tilt Speed	SUM
DownLeft	0xFF	Address	0x00	0x14	Pan Speed	Tilt Speed	SUM
DownRight	0xFF	Address	0x00	0x12	Pan Speed	Tilt Speed	SUM
Zoom In	0xFF	Address	0x00	0x20	0x00	0x00	SUM
Zoom Out	0xFF	Address	0x00	0x40	0x00	0x00	SUM
Focus Far	0xFF	Address	0x00	0x80	0x00	0x00	SUM
Focus Near	0xFF	Address	0x01	0x00	0x00	0x00	SUM
Set Preset	0xFF	Address	0x00	0x03	0x00	Preset ID	SUM
Clear Preset	0xFF	Address	0x00	0x05	0x00	Preset ID	SUM
Call Preset	0xFF	Address	0x00	0x07	0x00	Preset ID	SUM
Query Pan Position	0xFF	Address	0x00	0x51	0x00	0x00	SUM
Query Pan Position Response	0xFF	Address	0x00	0x59	Value High Byte	Value Low Byte	SUM
Query Tilt Position	0xFF	Address	0x00	0x53	0x00	0x00	SUM
Query Tilt Position Response	0xFF	Address	0x00	0x5B	Value High Byte	Value Low Byte	SUM
Query Zoom Position	0xFF	Address	0x00	0x55	0x00	0x00	SUM
Query Zoom Position Response	0xFF	Address	0x00	0x5D	Value High Byte	Value Low Byte	SUM

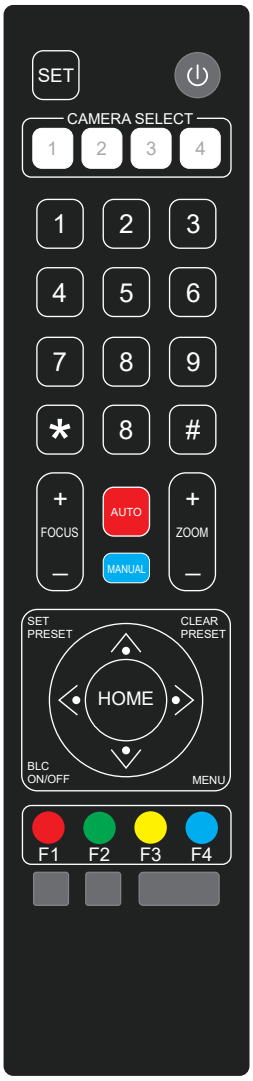
Pelco-P Protocol Command List

Function	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8
Up	0xA0	Address	0x00	0x08	Pan Speed	Tilt Speed	0xAF	XOR
Down	0xA0	Address	0x00	0x10	Pan Speed	Tilt Speed	0xAF	XOR
Left	0xA0	Address	0x00	0x04	Pan Speed	Tilt Speed	0xAF	XOR
Right	0xA0	Address	0x00	0x02	Pan Speed	Tilt Speed	0xAF	XOR
Upleft	0xA0	Address	0x00	0x0C	Pan Speed	Tilt Speed	0xAF	XOR
Upright	0xA0	Address	0x00	0x0A	Pan Speed	Tilt Speed	0xAF	XOR
DownLeft	0xA0	Address	0x00	0x14	Pan Speed	Tilt Speed	0xAF	XOR
DownRight	0xA0	Address	0x00	0x12	Pan Speed	Tilt Speed	0xAF	XOR
Zoom In	0xA0	Address	0x00	0x20	0x00	0x00	0xAF	XOR
Zoom Out	0xA0	Address	0x00	0x40	0x00	0x00	0xAF	XOR
Focus Far	0xA0	Address	0x01	0x00	0x00	0x00	0xAF	XOR
Focus Near	0xA0	Address	0x02	0x00	0x00	0x00	0xAF	XOR
Set Preset	0xA0	Address	0x00	0x03	0x00	Preset ID	0xAF	XOR
Clear Preset	0xA0	Address	0x00	0x05	0x00	Preset ID	0xAF	XOR
Call Preset	0xA0	Address	0x00	0x07	0x00	Preset ID	0xAF	XOR
Query Pan Position	0xA0	Address	0x00	0x51	0x00	0x00	0xAF	XOR
Query Pan Position Response	0xA0	Address	0x00	0x59	Value High Byte	Value Low Byte	0xAF	XOR
Query Tilt Position	0xA0	Address	0x00	0x53	0x00	0x00	0xAF	XOR
Query Tilt Position Response	0xA0	Address	0x00	0x5B	Value High Byte	Value Low Byte	0xAF	XOR
Query Zoom Position	0xA0	Address	0x00	0x55	0x00	0x00	0xAF	XOR
Query Zoom Position Response	0xA0	Address	0x00	0x5D	Value High Byte	Value Low Byte	0xAF	XOR

IR Remote and OSD

IR Remote Control

The AT-HDVS-CAM comes with an IR remote control for full control of the camera and use of the OSD menu.



IR Remote

Power - Toggle the camera on and off with the power button. Press and hold for 3 seconds to place the camera into standby mode.

Number Buttons - Use in the selection or creation of camera presets.

Focus - Adjust the focus of the camera using the + and - buttons.

Auto - Switch the camera focus mode to auto.

Manual - Switch the camera focus mode to manual.

Zoom - Zoom in (+) or out (-) using these buttons.

Set Preset - Set the camera into position then press the Set Preset button followed by a number key (0-9) to set that position to a preset.

Clear Preset - Press clear preset followed by a number key to erase the preset set to that number.

Arrow Buttons - Use the arrow buttons to adjust the camera position or navigate within the OSD menu.

Home Buttons - Returns the camera to the middle position.

BLC ON/OFF - Toggle the back light on and off.

Menu - Use to pull up the OSD menu.

OSD

The OSD will display after pressing the MENU button.

Appendix

Specifications

Video	
HD/SD/VESA (all resolutions are @30/25/20/15/10/5Hz)	1080p, 720p, 1024x768, 1024x576, 960x540, 800x600, 640x360, 720x576, 640x480, 352x288, 320x240, 320x180, 176x144
Optical Zoom	10X, f = 4.7 ~ 47 mm
Viewing Angle	6.43° (telephoto), 60.9° (wide-angle)
Effective Pixels	2.07 MP
Focus Settings	Auto / Manual
AV	F1.6 - F3.0
Minimum Illumination	0.5 lm, F1.8 with Automatic Gain Contol ON
Signal-to-Noise Ratio (SNR)	> 55 dB
Control Protocol	VISCA/Pelco-D/Pelco-P
Pan Rotation	±170°
Tilt Rotation	-30° ~ ±90°
Pan Control Speed	0.1 - 180° / sec
Tilt Control Speed	0.1 - 80° / sec

Temperature	Fahrenheit	Celsius
Operating	14 to 122	-10 to 50
Storage	-14 to 140	-10 to 60
Operating Humidity (RH)	20% to 80%, non-condensing	
Storage Humidity (RH)	20% to 95%, non-condensing	

Power	
Consumption	12 W
Supply	Input: 110 - 220 V AC, 50/60 Hz Output: 12 V DC, 1 A

Dimensions	Inches	Millimeters
H x W x D	6.59 x 5.90 x 5.90	167.5 x 150 x 150

Weight	Pounds	Kilograms
Device	3.08	1.4

Certification	
Device	CE, FCC

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