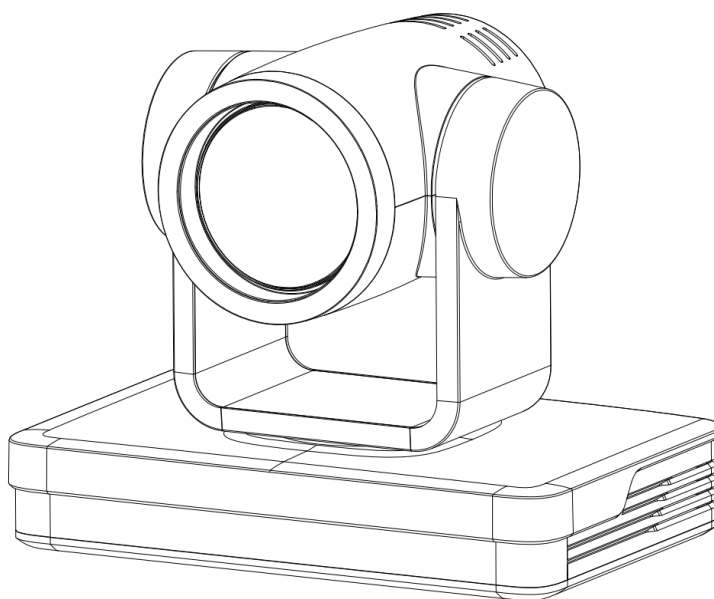


Model: AV-1563  
**30x Full HD PTZ Camera with PoE**



## **User Manual**

**V1.0**

**Please read this user manual  
thoroughly before using.**

[www.avipas.com](http://www.avipas.com)

## **Preface**

Thanks for using this HD Video Conferencing Camera.

This manual introduces the functions, installation process and operation of the HD camera. Prior to installation and usage, please read the manual thoroughly.

## **Precautions**

This product should only be used under the specified conditions in order to avoid any damage to the camera:

- Do not subject the camera to rain or moisture.
- Do not remove the cover. Otherwise, you may risk receiving an electric shock. In case of unintended equipment operation, contact an authorized engineer.
- Never operate under unspecified temperature, humidity or power supply.
- Please use soft dry cloth to clean the camera. If the camera is very dirty, clean it with diluted neuter detergent; do not use any type of solvents, which may damage the surface.

## **Note:**

This is a class A production. Electromagnetic radiation at certain frequencies may affect the image quality of TV in home environment.

# Content

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|                                               |    |
|-----------------------------------------------|----|
| 1. Camera Installation.....                   | 4  |
| 1.1 Camera Introduction.....                  | 5  |
| 1.2 Interfaces and Connection.....            | 5  |
| 1.3 Mounting Brackets.....                    | 5  |
| 2. Product Overview.....                      | 8  |
| 2.1 Dimensions.....                           | 8  |
| 2.2 RS-232 Interface.....                     | 9  |
| 2.3 Rotary DIP Switch.....                    | 10 |
| 2.4 Main Features.....                        | 11 |
| 2.5 Specifications.....                       | 11 |
| 3. Remote Control.....                        | 13 |
| 3.1 Fuctions for IR Remote Control.....       | 13 |
| 3.2 Camera Menu .....                         | 14 |
| 4. Network Configuration.....                 | 15 |
| 4.1 Network Connection.....                   | 15 |
| 4.2 IE Login.....                             | 16 |
| 4.3 Streaming.....                            | 17 |
| 4.4 Software Upgrade.....                     | 18 |
| 5. Serial Port Communication and Control..... | 19 |
| 5.1 VISCA Protocol Return Command.....        | 19 |
| 5.2 VISCA Protocol Control Command.....       | 19 |
| 5.3 VISCA Protocol Inquiry Command.....       | 22 |
| 5.4 Pelco-D protocol command list.....        | 24 |
| 5.5 Pelco-P protocol command list.....        | 25 |
| 6. Maintenance and Troubleshooting.....       | 26 |
| 6.1 Maintenance.....                          | 26 |
| 6.2 Troubleshooting.....                      | 26 |

## Attentions

### ●Electric Safety

Installation and operation must accord with electric safety standard.

### ●Use caution to transport

Avoid stress, vibration or soakage in transport, storage and installation.

### ●Polarity of power supply

The power supply of this product is +12V, the max electrical current is 2A. Polarity of the power supply plug is shown in the drawing below.



### ●Installation precautions

Do not grasp the camera lens when carrying it. Do not touch camera lens by hand. Mechanical damage may result from doing so.

Do not use in corrosive liquid, gas or solid environment to avoid any cover (plastic material) damage.

Make sure there is no obstacle within rotation range.

Do not power on before installation is completed.

### ●Do not dismantle the camera

We are not responsible for any unauthorized modification or dismantling.

### CAUTION!

**Certain frequencies of electromagnetic field may affect the image of the camera!**

## Supplied Accessories

When unpacked, check if all supplied accessories are included:

Camera .....1PCS

AC power adaptor .....1PCS

Power cord.....1PCS

RS232 cable.....1PCS

Remote control .....1PCS

User manual.....1PCS

# 1. Camera Installation

## 1.1 Camera Interface Illustration

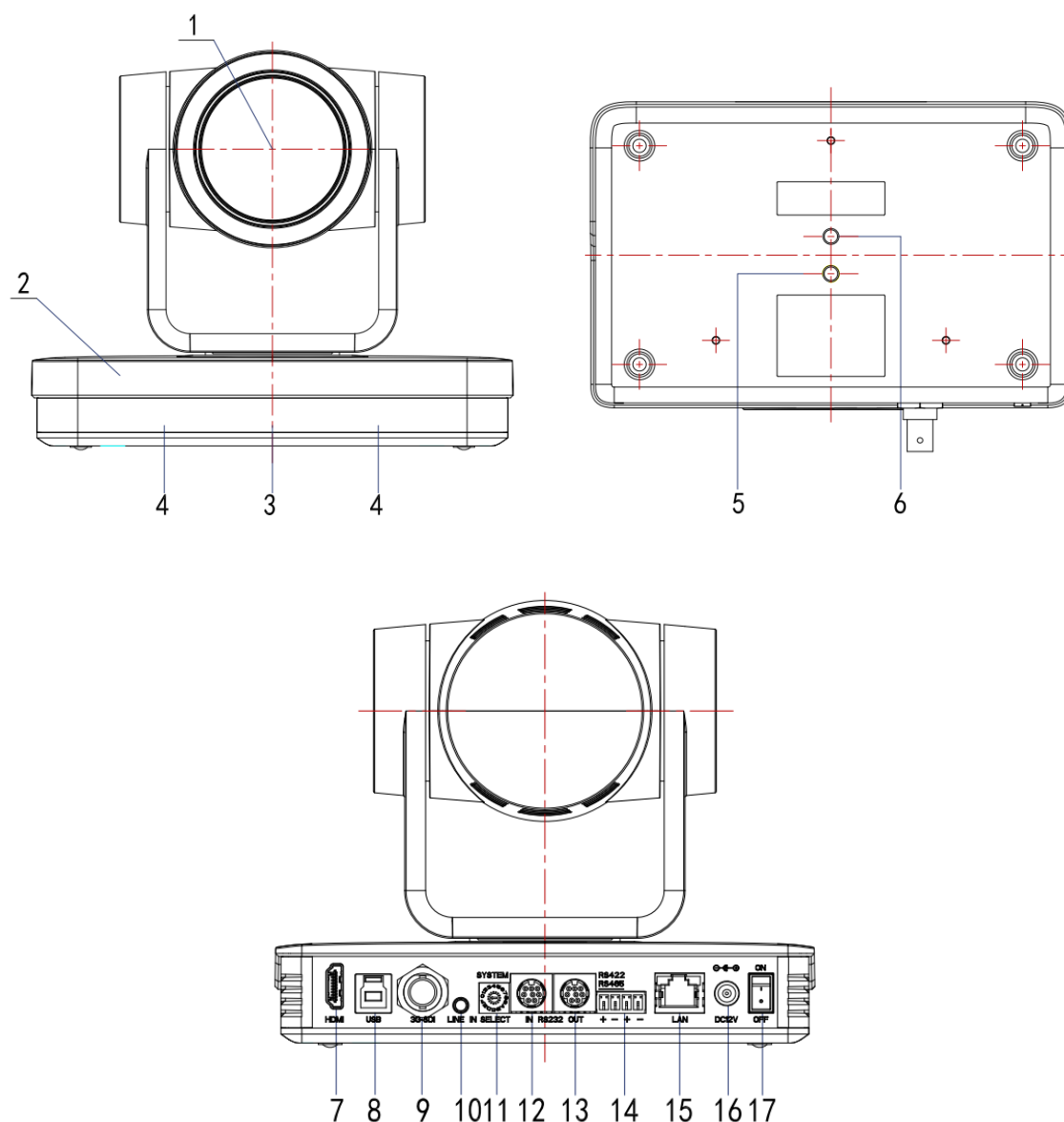


Figure 1.1 Interface of SU Model

- |                                       |                                             |
|---------------------------------------|---------------------------------------------|
| 1. Camera Lens                        | 10. Audio Input Interface (Line-in)         |
| 2. Camera Base                        | 11. Rotary DIP Switch                       |
| 3. Remote Control Receiving Indicator | 12. RS232 Control Interface (input)         |
| 4. Infrared Receiver                  | 13. RS232 Control Interface (output)        |
| 5. Tripod Screw Hole                  | 14. RS422 Interface (Compatible with RS485) |
| 6. Screw Hole for Tripod              | 15. Network Interface (LAN)                 |
| 7. HDM Output                         | 16. DC12V Input Power Supply Socket         |
| 8. USB3.0 Output                      | 17. Power Switch                            |
| 9. SDI Output                         |                                             |

## 1.2 Interface and Connection

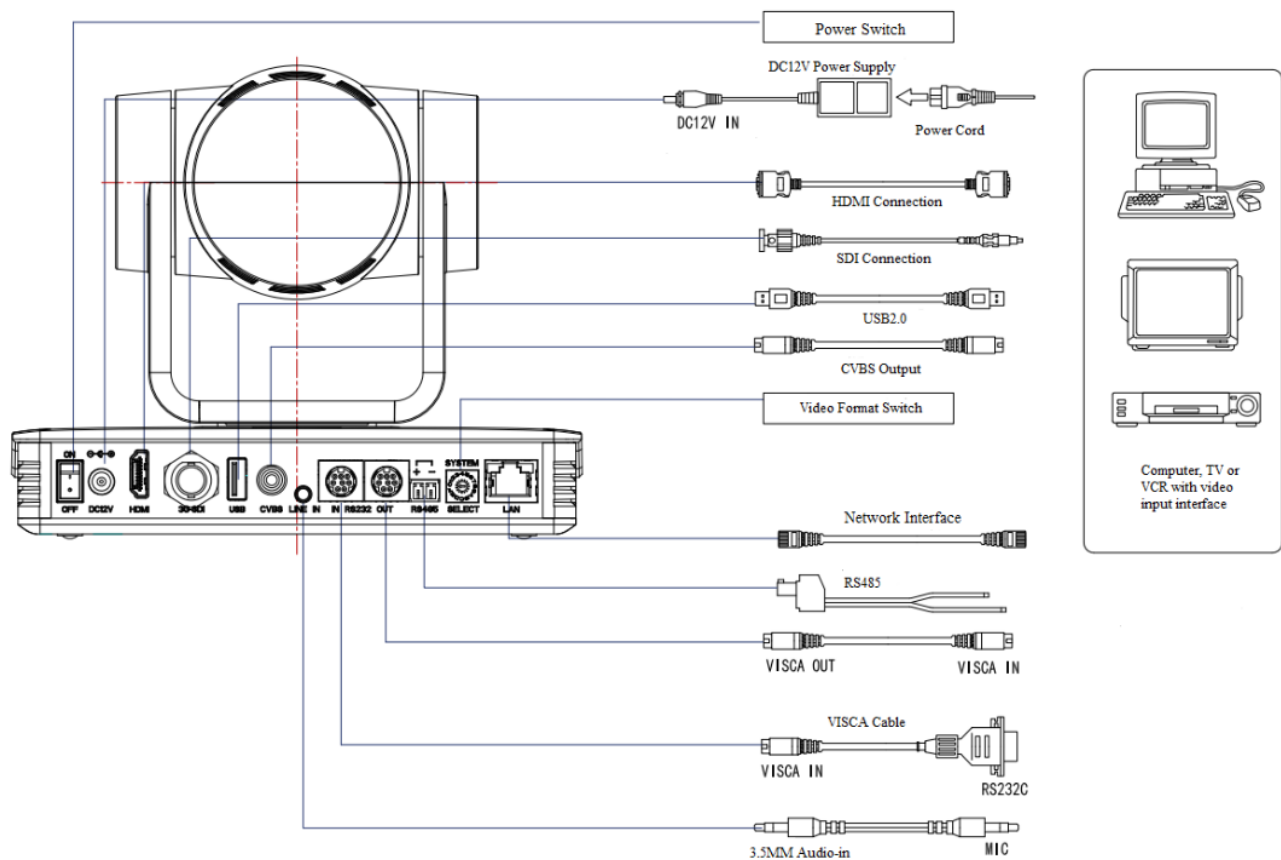


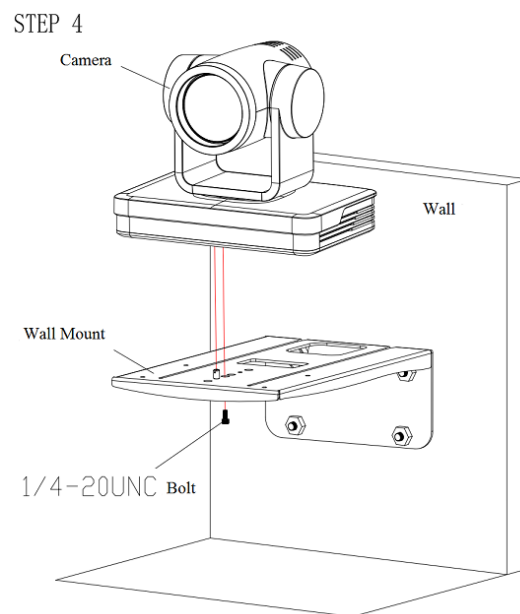
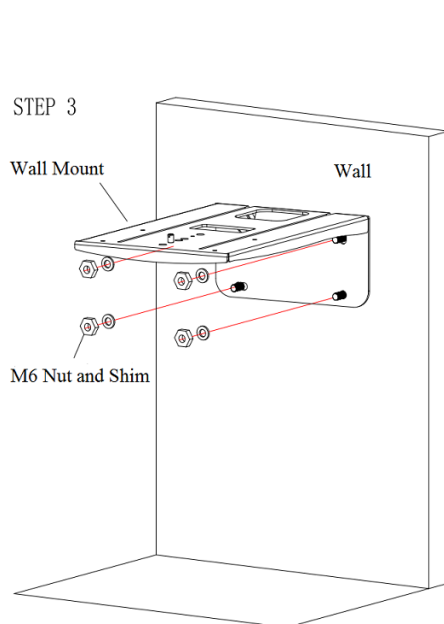
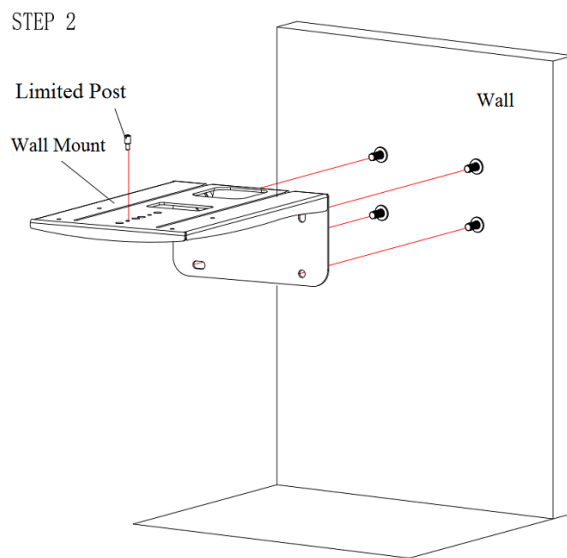
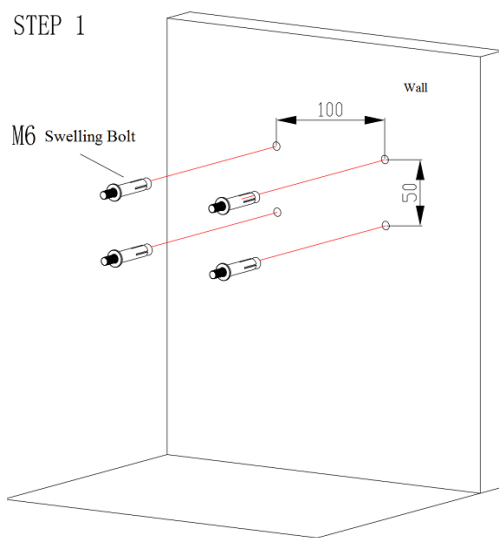
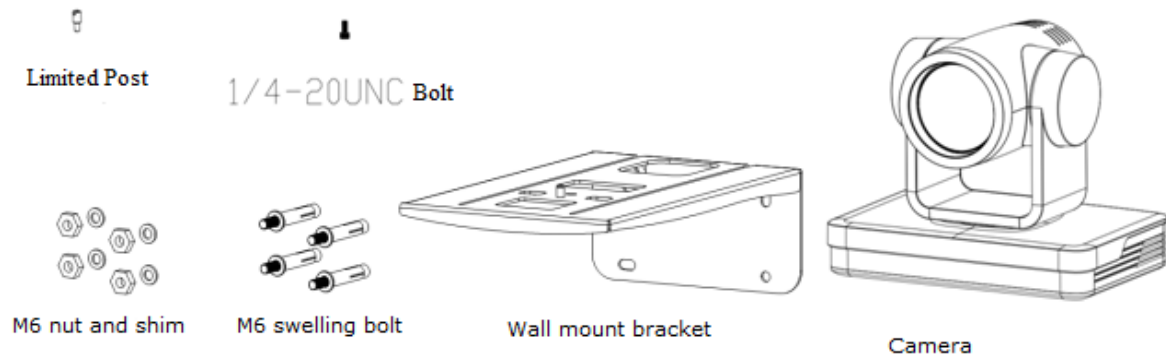
Figure 1.2 Wiring Diagram

- 1) After powering on and initialization, camera will automatically go to preset position 0 (Center position as default).
- 2) The default cam address for the IR remote control is #1.

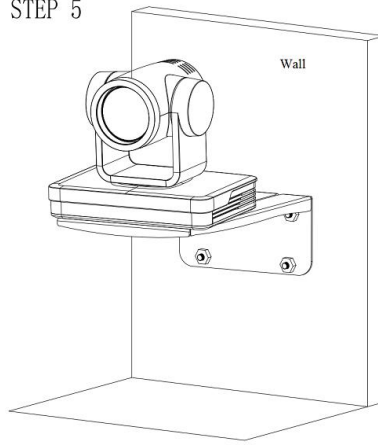
## 1.3 Mounting Brackets

Note: Ceiling or wall mounting brackets can only be mounted on a template and concrete wall. For safety reason, plasterboard is not recommended.

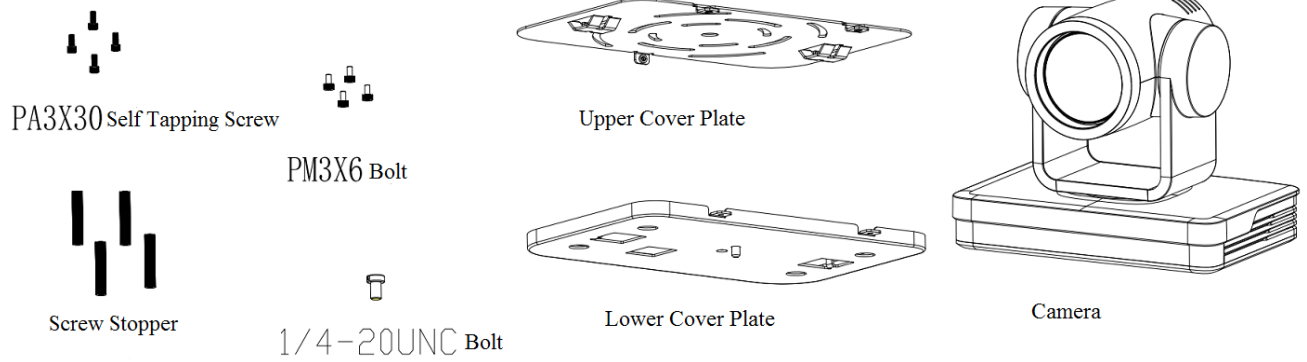
### 1) Wall Mount:



## STEP 5

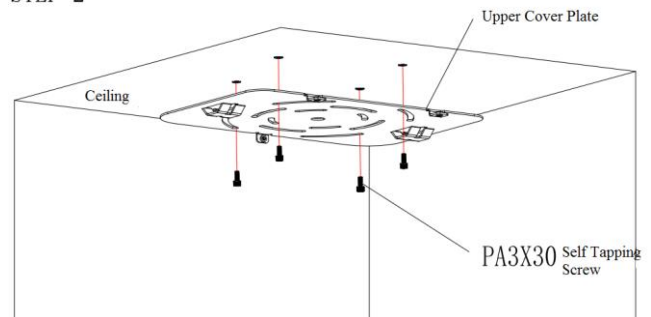
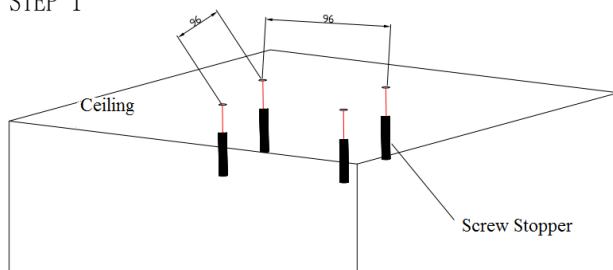


## 2) Ceiling Mounting

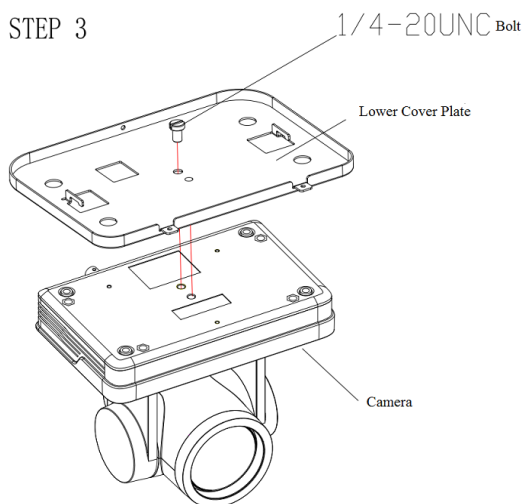


## STEP 2

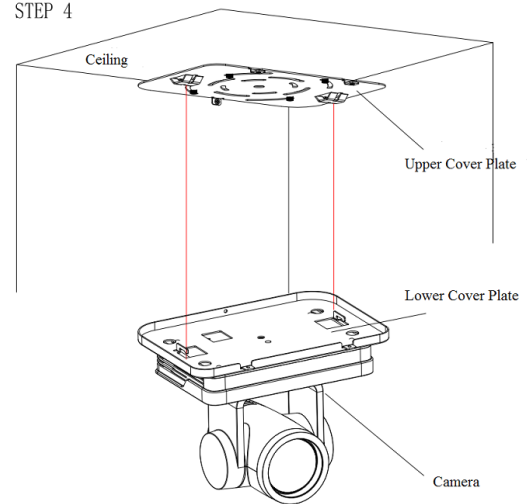
### STEP 1



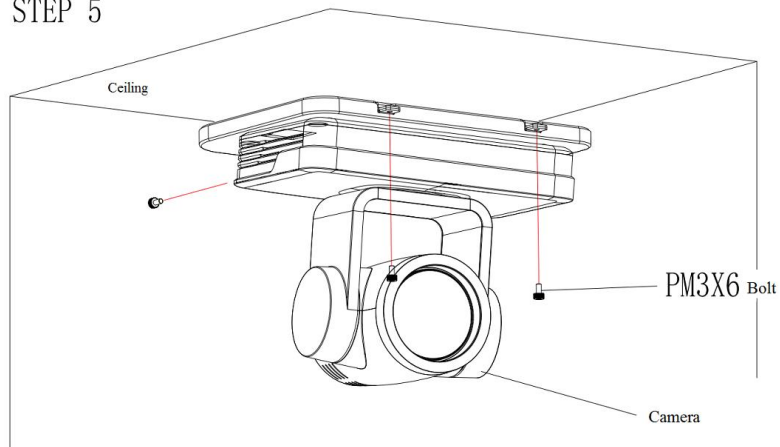
### STEP 3



### STEP 4



STEP 5



## 2. Product Overview

### 2.1 Dimensions

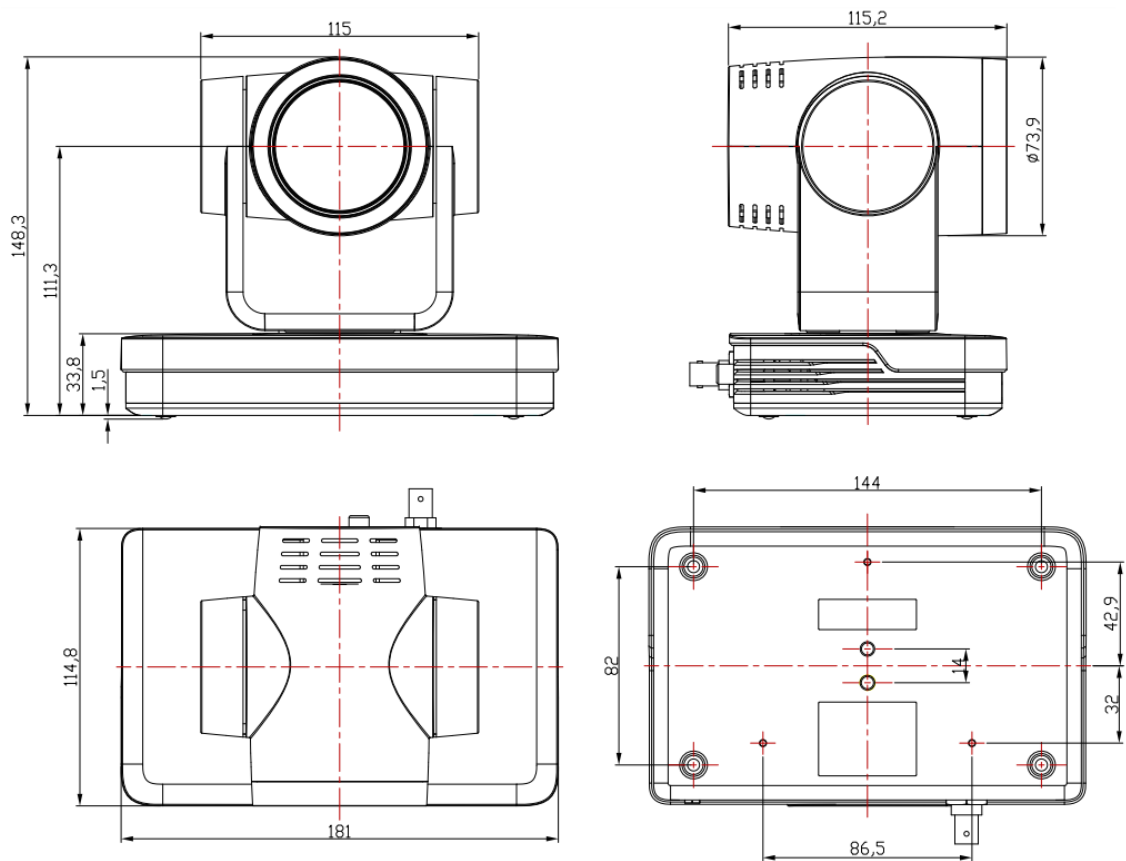
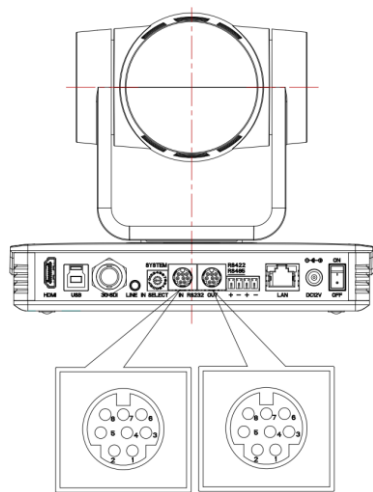


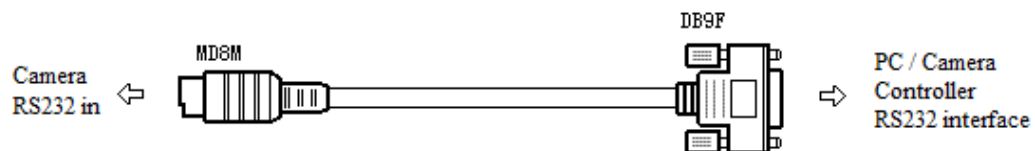
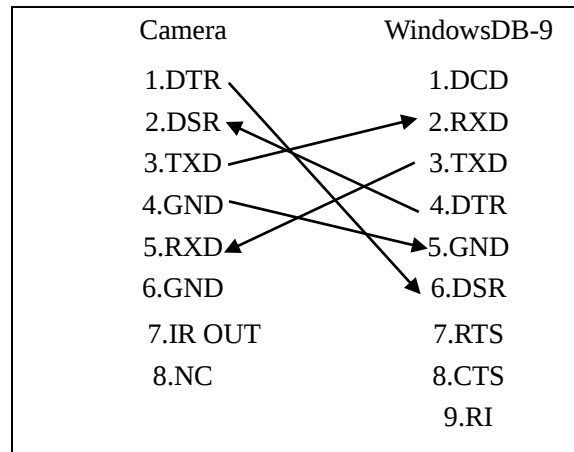
Figure 2.2 Product Dimensions

## 2.2 RS-232 Interface

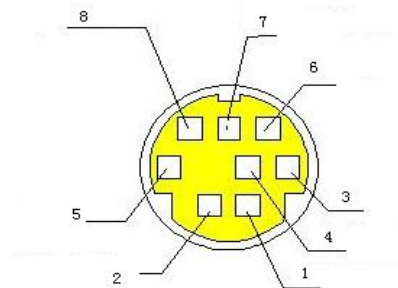
### 1). RS-232 Interface Definition



#### Connection to PC or Camera Controller

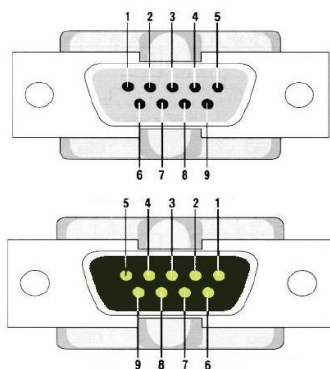


### 2). RS232 Mini-DIN 8-pin: Port Definition



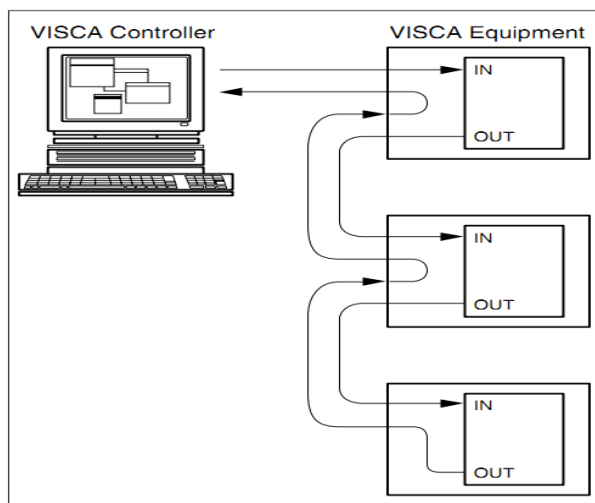
| NO. | Port   | Definition          |
|-----|--------|---------------------|
| 1   | DTR    | Data Terminal Ready |
| 2   | DSR    | Data Set Ready      |
| 3   | TXD    | Transmit Data       |
| 4   | GND    | Signal Ground       |
| 5   | RXD    | Receive Data        |
| 6   | GND    | Signal Ground       |
| 7   | IR OUT | IR Commander Signal |
| 8   | NC     | No Connection       |

### 3). RS232 (DB9) Port Definition



| NO. | Port | Definition          |
|-----|------|---------------------|
| 1   | DCD  | Data Carrier Detect |
| 2   | RXD  | Receive Data        |
| 3   | TXD  | Transmit Data       |
| 4   | DTR  | Data Terminal Ready |
| 5   | GND  | System Ground       |
| 6   | DSR  | Data Set Ready      |
| 7   | RTS  | Request to Send     |
| 8   | CTS  | Clear to Send       |
| 9   | RI   | Ring Indicator      |

4). VISCA networking as shown below:

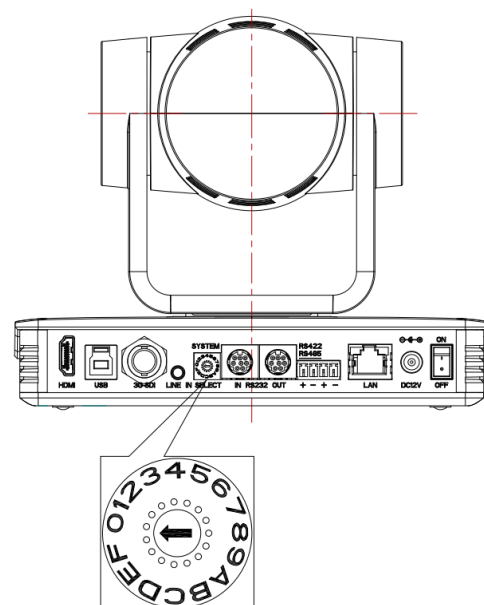


#### Camera cascade connection

| Camera 1 | Camera 2 |
|----------|----------|
| 1.DTR    | 1.DTR    |
| 2.DSR    | 2.DSR    |
| 3.TXD    | 3.TXD    |
| 4.GND    | 4.GND    |
| 5.RXD    | 5.RXD    |
| 6.GND    | 6.GND    |
| 7.IR OUT | 7.OPEN   |
| 8. NC    | 8.OPEN   |

## 2.3 Rotary DIP Switch

| Dial-up | video format | Dial-up | video format                       |
|---------|--------------|---------|------------------------------------|
| 0       | 1080P60      | 8       | 720P30                             |
| 1       | 1080P50      | 9       | 720P25                             |
| 2       | 1080I60      | A       | 1080P59.94                         |
| 3       | 1080I50      | B       | 1080I59.94                         |
| 4       | 720P60       | C       | 720P59.94                          |
| 5       | 720P50       | D       | 1080P29.97                         |
| 6       | 1080P30      | E       | 720P29.97                          |
| 7       | 1080P25      | F       | video format to be set on the menu |



Note: please reboot the camera after switching the video format for changes to take effect.

## 2.4 Main Features

AV-1563 camera features advanced ISP processing algorithms to provide vivid images with a strong sense of depth, high resolution and fantastic color rendition. It supports H.265/H.264 encoding which makes motion video fluent and clear even under less than ideal bandwidth conditions.

- **Full HD resolution:** 1/2.8 inch high-quality CMOS sensor. Resolution is up to 1920\*1080 with a frame rate up to 60 fps.
- **30x optical zoom lens:** with 65° FOV without distortion.
- **Auto-focus technology:** fast, accurate and stable auto-focus technology.
- **Low noise and high SNR:** super high SNR achieved with low noise CMOS. Advanced 2D/3D noise reduction technology further reduces the noise while ensuring image clarity.
- **Multiple video output interface options:** HDMI, SDI, USB3.0, LAN. Simultaneously output video signal via HDMI, SDI, USB3.0 and LAN. LAN supports POE, USB3.0 support dual stream output, SDI output could be up to 1080P@60fps.
- **Multiple audio/video compression standards:** support H.264/H.265 video compression, up to 1920×1080 resolution @60 fps; support AAC, MP3 and G.711A audio compression, 8000,16000,32000,44100,48000 sampling frequency.
- **Built-in gravity sensor:** support PTZ auto-flip function and easy installation.
- **Multiple network protocols:** support ONVIF, GB/T28181, RTSP, RTMP protocols; support RTMP push mode, easy to be connected directly to streaming server (Wowza, FMS, etc.); support RTP multicast mode.
- **Control interface:** RS422 (compatible with RS485), RS232-IN, RS232-OUT for cascading.
- **Multiple control protocols:** support VISCA, PELCO-D, PELCO-P, VISCA over IP and ONVIF protocols.
- **Multiple presets:** up to 255 presets (10 presets using remote control).
- **IR/Wireless remote control:** users can choose IR remote control or wireless remote control via IP according to different applications.
- **Versatile for applications:** online-education, lecture capture, webcasting, video conferencing, tele-medicine, etc.

## 2.5 Specifications

| Camera Parameter |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Optical Zoom     | 30X 4.3~129mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Sensor           | 1/2.8-inch high-quality HD CMOS sensor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Effective Pixels | 16: 9, 2.07 megapixel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Video Format     | <b>HDMI/SDI video format</b><br>1080P60/50/30/25, 1080I60/50, 720P60/50<br><b>LAN video format</b><br>1080P60/50/30/25/59.94/59.97, 1080I60/50/59.94, 720P60/50/59.94/29.97<br><b>USB3.0 interface video format</b><br><b>Main Stream:</b> YUY2/MJPEG/NV12/H.264/H.265: 1920*1080P30, 1280*720P30, 1024*576P30, 960*540P30, 800*448P30, 720*480P30, 640*360P30, 640*480P30, 320*176P30<br><b>Sub Stream:</b> YUY2/NV12: 640*360P30, 640*480P30, 320*176P30; MJPEG/H.264/H.265: 1920*1080P30, 1280*720P30, 1024*576P30, 960*540P30, 800*448P30, 720*480P30, 640*360P30, 640*480P30, 320*176P30 |
| View Angle       | 65° (W) ~ 2.34°(T)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| AV               | F1.6 ~ F4.7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Digital Zoom     | 10x                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

|                                       |                                                                                  |
|---------------------------------------|----------------------------------------------------------------------------------|
| Minimum Illumination                  | 0.5Lux (F1.8, AGC ON)                                                            |
| DNR                                   | 2D & 3D DNR                                                                      |
| White Balance                         | Auto / Manual/ One Push/ Specify color temperature (range: 2400k-7100k)          |
| Focus/Aperture/<br>Electronic Shutter | Auto/Manual/One Push Focus                                                       |
| Iris                                  | Auto/Manual                                                                      |
| Shutter                               | Auto/Manual                                                                      |
| BLC                                   | ON/OFF                                                                           |
| WDR                                   | OFF/ Dynamic level adjustment                                                    |
| Video Adjustment                      | Brightness, Color, Saturation, Contrast, Sharpness, B/W mode, Gamma curve        |
| SNR                                   | >50dB                                                                            |
| <b>Input/output Interface</b>         |                                                                                  |
| Video Output                          | HDMI, SDI, LAN, USB3.0                                                           |
| Video Stream                          | Dual stream output                                                               |
| Video Compression<br>Format           | LAN: H.265, H.264<br>USB3.0: YUY2, MJPEG, H.264, NV12, H.265                     |
| Audio Input Interface                 | Double track 3.5mm linear input                                                  |
| Audio Output Interface                | HDMI, SDI, LAN                                                                   |
| Audio Compression<br>Format           | AAC/MP3/G.711A                                                                   |
| Control Interface                     | RS232-IN, RS232-OUT, RS422                                                       |
| Control Protocol                      | VISCA/Pelco-D/Pelco-P, Baud Rate: 115200/38400/9600/4800/2400bps                 |
| Power Interface                       | HEC3800 outlet (DC12V)                                                           |
| Input Voltage                         | DC12V±10%                                                                        |
| Input Electric Current                | Maximum: 1A                                                                      |
| Power Consumption                     | Maximum: 12W                                                                     |
| Network Protocols                     | RTSP, RTMP, ONVIF, GB/T28181;<br>Network VISCA control protocol (VISCA over IP); |
| USB Communication                     | UVC (Video)                                                                      |
| <b>PTZ Parameter</b>                  |                                                                                  |
| Pan/Tilt Rotation                     | ±170°, -30°~+90°                                                                 |
| Pan Control Speed                     | 0.1 - 100°/sec                                                                   |
| Tilt Control Speed                    | 0.1- 45°/sec                                                                     |
| Preset Speed                          | Pan: 100°/sec, Tilt: 45°/sec                                                     |
| Preset Number                         | 255 presets (10 presets via remote control)                                      |
| <b>Other Parameter</b>                |                                                                                  |
| Stored Temperature                    | -10°C~+70°C                                                                      |
| Storage Humidity                      | 20%~95%                                                                          |
| Working Temperature                   | -10°C~+50°C                                                                      |
| Working Humidity                      | 20%~80%                                                                          |
| Dimension                             | 7.1*4.5*5.9inch (181*115*149mm)                                                  |
| Weight                                | 2.5lbs (1.15kg)                                                                  |

## 3. Remote Control

### 3.1 Functions for IR Remote Control

- 1). In this manual, “press the key” means a short press rather than a long-press and hold. A note will be given if a long-press for more than one second is required.
- 2). When a key-combination is required, do it in sequence. For example **【\*】 + 【#】 + 【F1】** means press **【\*】** first and then press **【#】** and lastly press **【F1】**.



#### 1. Standby Button

Press this button and hold it for 3 secs to enter standby mode. The camera will do self-testing and return back to **【HOME】** position. (Note: If Preset 0 is set, and with no operation for 12s, the camera will automatically turn to Preset position 0.

#### 2. Camera Address Selection

Press the camera address number to control the particular camera with the address setting.

#### 3. Number Keys

To set or call 0-9 presets.

#### 4. \*, #, Key Combination

To use as combination with **【F1-F4】** to set camera address.

**【\*】 + 【#】 + 【F1】** : Camera Address No.1

**【\*】 + 【#】 + 【F2】** : Camera Address No. 2

**【\*】 + 【#】 + 【F3】** : Camera Address No. 3

**【\*】 + 【#】 + 【F4】** : Camera Address No. 4

#### 5. Focus Control

**【AUTO】** : to enter auto focus mode.

**【MANUAL】** : to enter manual focus mode.

Switch the camera focus mode to manual by pressing FOCUS **【+】** or FOCUS **【-】** to adjust.

#### 6. Zoom Control

ZOOM **【+】** : Lens near; ZOOM **【-】** : Lens far

#### 7. Set/ Clear Presets

**【SET PRESET】 + 【0-9】** number key: To set presets

**【CLEAR PRESET】 + 【0-9】** number key: To clear presets

#### 8. Pan-Tilt Control Buttons

Press the **▲** Up, **▼** down, **◀** left and **▶** right buttons to adjust the camera position. Press **【HOME】** to return to the center position.

#### 9. BLC Control

**【BLC ON/OFF】** : To turn on/off the back light.

#### 10. Menu Settings

**【MENU】** : to open/ close the OSD menu; to enter/ exit the OSD menu, or to return to the previous submenu.

## 11. Key Combination Functions

- 1) **【#】 + 【#】 + 【#】** : Clear all presets
- 2) **【\*】 + 【#】 + 【6】** : Restore factory defaults
- 3) **【\*】 + 【#】 + 【9】** : Flip switch
- 4) **【\*】 + 【#】 + 【AUTO】** : Enter the auto mode
- 5) **【\*】 + 【#】 + 【3】** : Set language to Chinese
- 6) **【\*】 + 【#】 + 【4】** : Set language to English
- 7) **【\*】 + 【#】 + 【MANUAL】** : Restore the default user name, PSW and IP address
- 8) **【#】+【#】+【0】**: Switch the video format to 1080P60
- 9) **【#】+【#】+【1】**: Switch the video format to 1080P50
- 10) **【#】+【#】+【2】**: Switch the video format to 1080I60
- 11) **【#】+【#】+【3】**: Switch the video format to 1080I50
- 12) **【#】+【#】+【4】**: Switch the video format to 720P60
- 13) **【#】+【#】+【5】**: Switch the video format to 720P50
- 14) **【#】+【#】+【6】**: Switch the video format to 1080P30
- 15) **【#】+【#】+【7】**: Switch the video format to 1080P25
- 16) **【#】+【#】+【8】**: Switch the video format to 720P30
- 17) **【#】+【#】+【9】**: Switch the video format to 720P25

## 3.2 Camera Menu

### 1. Menu Options

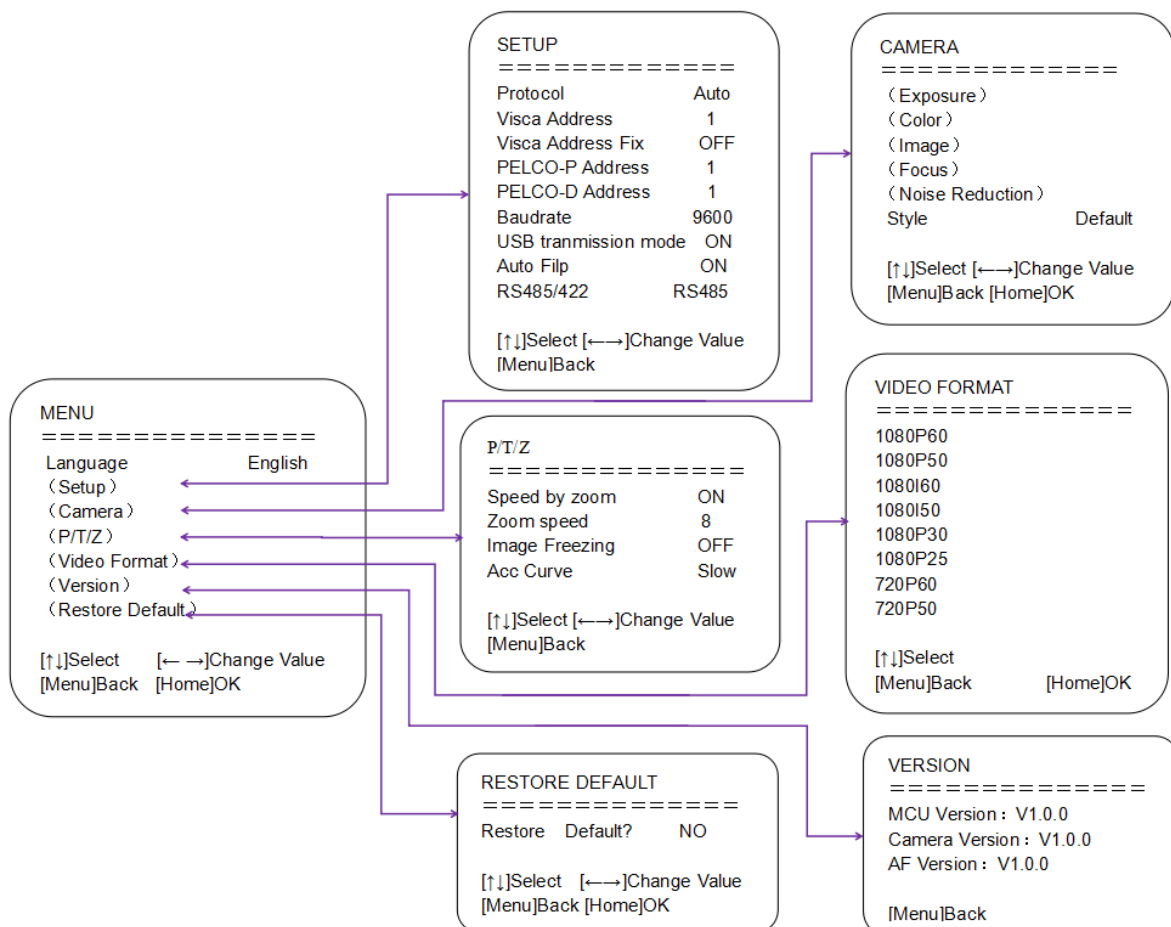
**【MENU】** : Enter /exit the OSD menu or return to the previous sub-menu

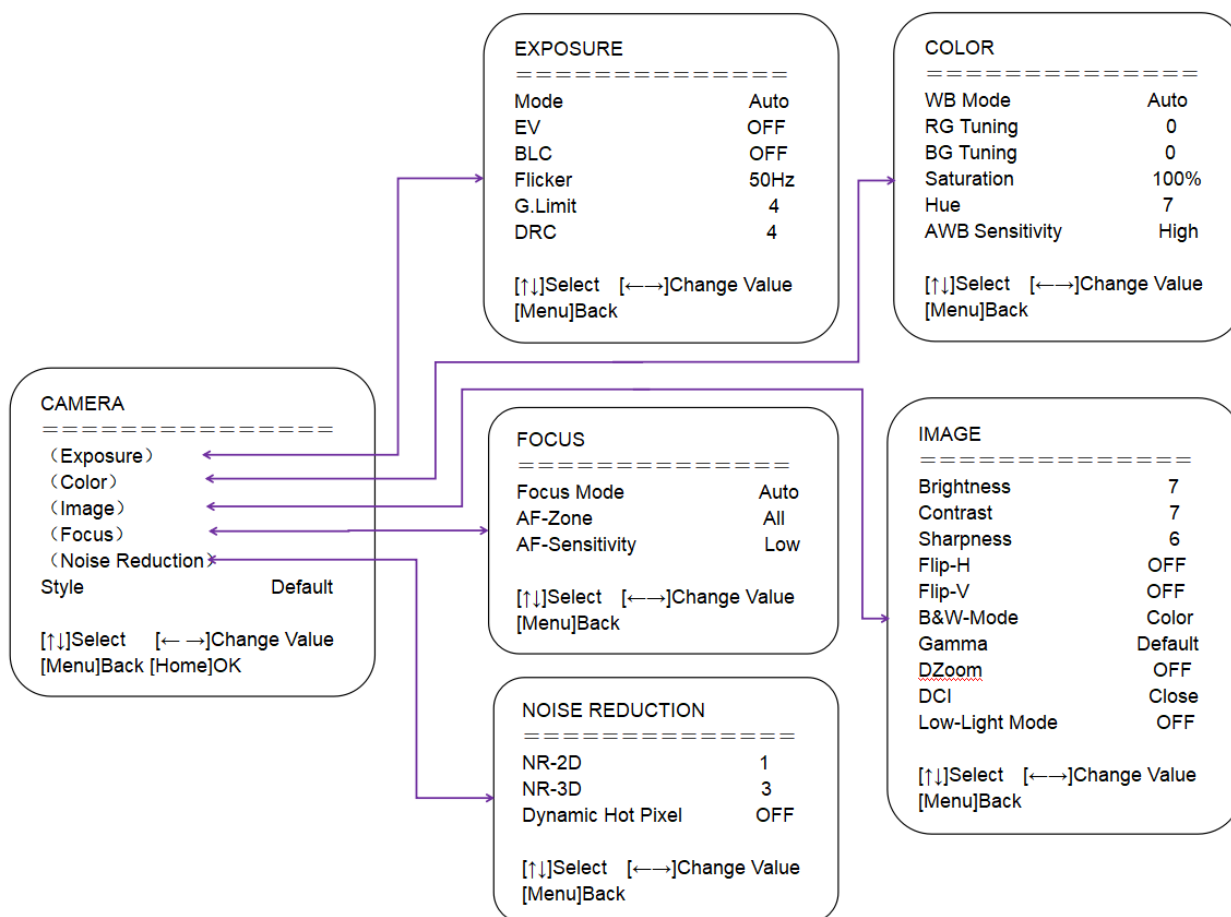
**【HOME】** : Enter the sub-menu

**【↑】【↓】**: Choose item

**【←】【→】**: Modify values

### 2. Menu Structure





## 4. Network Configuration

### 4.1 Network Connection

**Direct connection:** Connect the camera and computer via an Ethernet cable directly.

**Internet connection mode:** Connect the camera to Internet (via a Router or a Switch).

The computer must be assigned to the network segment where the camera IP address belongs to. The device will not be accessible otherwise.

The camera's default IP address is 192.168.5.163, and in this case, your computer's IP must be 192.168.5.xxx.

Open "Network and Sharing Center", select "Ethernet", "Ethernet Status", "Properties". Double click "Internet protocol version 4 (TCP/IPv4)". In the TCP/IPv4 Properties window; select "Advanced" to access TCP/IP settings. Set computer's IP, subnet mask and default gateway accordingly. Click the "Confirm" to finish the adding of IP segment. If you're using a camera with default settings, the recommended settings for your computer is:

IP: 192.168.5.160  
 Subnet mask: 255.255.255.0  
 Default gateway: 192.168.5.1

**Note: please make sure the IP address to be added is not the same as any other device connected to your computer.**

To verify the network segment has been successfully added, click “Search” icon and input “cmd”. Then click “Command Prompt” and open DOS command window. Ping 192.168.5.26 and press Enter key to display information as shown below:

```
C:\Users\qq214>ping 192.168.5.26

Pinging 192.168.5.26 with 32 bytes of data:
Reply from 192.168.5.26: bytes=32 time<1ms TTL=128
Reply from 192.168.5.26: bytes=32 time=1ms TTL=128
Reply from 192.168.5.26: bytes=32 time<1ms TTL=128
Reply from 192.168.5.26: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.5.26:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\Users\qq214>
```

Connect the camera to your computer, power on. Open DOS command window, and ping 192.168.5.163, then press Enter key.

```
C:\Users\qq214>ping 192.168.5.163

Pinging 192.168.5.163 with 32 bytes of data:
Reply from 192.168.5.163: bytes=32 time=2ms TTL=64
Reply from 192.168.5.163: bytes=32 time=1ms TTL=64
Reply from 192.168.5.163: bytes=32 time<1ms TTL=64
Reply from 192.168.5.163: bytes=32 time=4ms TTL=64

Ping statistics for 192.168.5.163:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 4ms, Average = 1ms

C:\Users\qq214>_
```

## 4.2 IE Login

### 1) Web Page Login

Input the default IP address 192.168.5.163 in the browser and click Enter. User can login as administrator or as normal user. If login as administrator (Default User name/Password: admin), users can preview, playback, and set configuration; If login in as normal user (Default User name/Password:user1 or user2), users can only preview, playback, camera configurations cannot be changed.

**Note: Web access support IE and Chrome browsers.**

### 2) Download and Install Plug in for IE login

First-time login: a pop-up message will show on the bottom of IE browser: “Playback plug-in is not installed,

please download and install!”. Click on this message, download and install MRWebXinstall.exe following the information.

## 4.3 Video Encode

### 1). Video Stream Capture

Configurations -> Video Configure-> Video Encode

Configure the parameters according to the network settings.

Note: stream name live/av0 (live/ XXX)

For example:

The default IP address of the camera is 192.168.5.163. To obtain video via RTSP stream, please use the URL below:

**rtsp://192.168.5.163/live/av0 (av0 main stream)**

**rtsp://192.168.5.163/live/av1 (av1 sub stream)**

### 2). Push Video Stream

Configurations -> Video Configure-> Stream Publish

To push RTMP stream to a server/ platform (public network), make sure the camera's IP configurations are set to be consistent with the public network, otherwise it will not connect to server successfully. For connection details, please refer to: [avipas.com](http://avipas.com)-> SUPPORT -> HOW TO MATERIALS -> How to live stream.

Host address: server address. Can be a domain name or an IP address

Host port: server default port number

Stream name: live/test (live/ XXX)

Username and password: you will find the username and password on your server, otherwise leave it empty

**Access URL:** `rtmp://host domain name: host port/live/xxx`

**Or** `(rtmp://host IP address: host port/live/xxx)`

## 4.4 Software Upgrade

- 1). Log in to the web page to access camera settings.
- 2). Go to "Configurations" tab -> System Configure-> Update

- 3). Click "Browse..." to select the ".mrg" update file, then click upgrade button to start the upgrading process.
- 4). A "successful upgrade" message will prompt, and camera will reboot after completion of update.

Re-log in to check the firmware version to make sure software upgrade is successful.

Click "Reboot" -> "restore factory default" to restore camera to factory default and reboot. (default IP 192.168.5.163, user name: admin; password admin).

## 5. Serial Port Communication and Control

AV-1563 could be controlled through RS232/RS485 interface; RS232C serial parameters are as below:

Baud rate: 2400/4800/9600/115200 bits / sec; Start bit: 1; data bits: 8; Stop bit: 1; Parity: None.

### 5.1 VISCA Protocol 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. |

### 5.2 VISCA Protocol 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          | p = 0(low) - F(high) |
|               | 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 | pqrs: Zoom Position  |
|               | Stop            | 8x 01 04 08 00 FF          |                      |

| Command            | Function         | Command packet                            | Note                                                 |
|--------------------|------------------|-------------------------------------------|------------------------------------------------------|
| CAM_Focus          | Far(Standard)    | 8x 01 04 08 02 FF                         | p = 0(low) - F(high)                                 |
|                    | Near(Standard)   | 8x 01 04 08 03 FF                         |                                                      |
|                    | Far(Variable)    | 8x 01 04 08 2p FF                         |                                                      |
|                    | Near (Variable)  | 8x 01 04 08 3p FF                         |                                                      |
|                    | 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                         |                                                      |
|                    | One Push mode    | 8x 01 04 38 04 FF                         |                                                      |
| CAM_Zoom Focus     | Direct           | 8x 01 04 47 0p 0q 0r 0s<br>0t 0u 0v 0w FF | pqrs: Zoom Position<br>tuvw: Focus Position          |
| CAM_AFSensitivity  | High             | 8x 01 04 58 01 FF                         | Focus sensitivity Setting                            |
|                    | Normal           | 8x 01 04 58 02 FF                         |                                                      |
|                    | Low              | 8x 01 04 58 03 FF                         |                                                      |
| CAM_AFZone         | Top              | 8x 01 04 AA 00 FF                         | Focus Region Setting                                 |
|                    | Center           | 8x 01 04 AA 01 FF                         |                                                      |
|                    | Bottom           | 8x 01 04 AA 02 FF                         |                                                      |
|                    | ALL              | 8x1 01 04 AA 03 FF                        |                                                      |
| CAM_WB             | One Push mode    | 8x 01 04 35 03 FF                         |                                                      |
|                    | One Push Trigger | 8x 01 04 10 05 FF                         | One Push WB Trigger(Enabled during One Push WB mode) |
|                    | CAM_WB Mode      | 8x 01 04 35 pq FF                         | pq = 00--33 WBMode                                   |
| CAM_AWBSensitivity | Low              | 8x 01 04 A9 00 FF                         | WB Sensitivity Setting                               |
|                    | Normal           | 8x 01 04 A9 01 FF                         |                                                      |
|                    | High             | 8x 01 04 A9 02 FF                         |                                                      |
| CAM_RGain          | Reset            | 8x 01 04 03 00 FF                         | Manual Control of R Gain                             |
|                    | Up               | 8x 01 04 03 02 FF                         |                                                      |
|                    | Down             | 8x 01 04 03 03 FF                         |                                                      |
|                    | 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                         |                                                      |
|                    | Down             | 8x 01 04 04 03 FF                         |                                                      |
|                    | 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                         |                                                      |
|                    | Down             | 8x 01 04 0A 03 FF                         |                                                      |
|                    | 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                         |                                                      |
|                    | Down             | 8x 01 04 0B 03 FF                         |                                                      |
|                    | Direct           | 8x 01 04 4B 00 00 0p 0q FF                | pq: Iris Position                                    |
| CAM_Gain Limit     | Reset            | 8x 01 04 0C 00 FF                         | Gain Limit Setting                                   |
|                    | Up               | 8x 01 04 0C 02 FF                         |                                                      |
|                    | Down             | 8x 01 04 0C 03 FF                         |                                                      |
|                    | Gain Limit       | 8x 01 04 2C 0p FF                         | p: Gain Positon                                      |

| Command             | Function | Command packet             | Note                                                                                                                        |
|---------------------|----------|----------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| CAM_Bright          | Reset    | 8x 01 04 0D 00 FF          | Bright Setting                                                                                                              |
|                     | Up       | 8x 01 04 0D 02 FF          |                                                                                                                             |
|                     | Down     | 8x 01 04 0D 03 FF          |                                                                                                                             |
|                     | Direct   | 8x 01 04 4D 00 00 0p 0q FF | pq: Bright Positon                                                                                                          |
| CAM_ExpComp         | On       | 8x 01 04 3E 02 FF          | Exposure Compensation ON/OFF                                                                                                |
|                     | Off      | 8x 01 04 3E 03 FF          |                                                                                                                             |
|                     | Reset    | 8x 01 04 0E 00 FF          | Exposure Compensation Amount Setting                                                                                        |
|                     | 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: ExpComp Position                                                                                                        |
| CAM_Back Light      | On       | 8x 01 04 33 02 FF          | Back Light Compensation                                                                                                     |
|                     | Off      | 8x 01 04 33 03 FF          |                                                                                                                             |
| CAM_WDRStrength     | Reset    | 8x 01 04 21 00 FF          | WDR Level Setting                                                                                                           |
|                     | Up       | 8x 01 04 21 02 FF          |                                                                                                                             |
|                     | Down     | 8x 01 04 21 03 FF          |                                                                                                                             |
|                     | Direct   | 8x 01 04 51 00 00 00 0p FF | p: WDR Level Positon                                                                                                        |
| CAM_NR              | 2D       | 8x 01 04 53 0p FF          | P=0-7 0:OFF                                                                                                                 |
|                     | 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: 0.45 2: 0.50<br>3: 0.55 4: 0.63                                                                     |
| CAM_Low-Light Mode  | ON       | 8x 01 04 2D 01 FF          | Low-Light Mode Setting                                                                                                      |
|                     | OFF      | 8x 01 04 2D 00 FF          |                                                                                                                             |
| 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_Aperture        | Reset    | 8x 01 04 02 00 FF          | Aperture Control                                                                                                            |
|                     | 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: Aperture Gain                                                                                                           |
| CAM_Picture effect  | B&W-Mode | 8x 01 04 63 04 FF          | Picture effect Setting                                                                                                      |
|                     | OFF      | 8x 01 04 63 00 FF          |                                                                                                                             |
| CAM_Memory          | Reset    | 8x 01 04 3F 00 pq FF       | pq: Memory Number(=0 to 254)<br>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          |                                                                                                                             |
| CAM_PictureFlip     | On       | 8x 01 04 66 02 FF          | Image Flip Vertical ON/OFF                                                                                                  |
|                     | Off      | 8x 01 04 66 03 FF          |                                                                                                                             |
| CAM_ColorSaturation | Direct   | 8x 01 04 49 00 00 00 0p FF | P=0-E<br>0:60% 1:70% 2:80% 3:90% 4:100%<br>5:110% 6:120% 7:130% 8:140%<br>9:150% 10:160% 11:160% 12:180%<br>13:190% 14:200% |
| CAM_IDWrite         |          | 8x 01 04 22 0p 0q 0r 0s FF | pqrs: Camera ID (=0000 to FFFF)                                                                                             |
| 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 via the VISCA communication ON/OFF                                                      |
|                     | Off      | 8x 01 7D 01 13 00 00 FF    |                                                                                                                             |

| Command           | Function                | Command packet                                  | Note                                                                                                                                                     |
|-------------------|-------------------------|-------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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                               |                                                                                                                                                          |
|                   | Flip-V                  | 8x 01 04 A4 02 FF                               |                                                                                                                                                          |
|                   | Flip-HV                 | 8x 01 04 A4 03 FF                               |                                                                                                                                                          |
| CAM_VideoSystem   | Set camera video system | 8x 01 06 35 00 0p FF                            | P: 0~E Video format<br>0:1080P60 5:720P50<br>1:1080P50 6:1080P30<br>2:1080i60 7:1080P25<br>3:1080i50 8:720P30<br>4:720P60 9:720P25                       |
| Pan_tiltDrive     | Up                      | 8x 01 06 01 VV WW 03 01 FF                      | VV: Pan speed 0x01 (low speed) to 0x18 (high speed)<br>WW: Tilt speed 0x01 (low speed) to 0x14 (high speed)<br>YYYY: Pan Position<br>ZZZZ: Tilt Position |
|                   | Down                    | 8x 01 06 01 VV WW 03 02 FF                      |                                                                                                                                                          |
|                   | Left                    | 8x 01 06 01 VV WW 01 03 FF                      |                                                                                                                                                          |
|                   | Right                   | 8x 01 06 01 VV WW 02 03 FF                      |                                                                                                                                                          |
|                   | Upleft                  | 8x 01 06 01 VV WW 01 01 FF                      |                                                                                                                                                          |
|                   | Upright                 | 8x 01 06 01 VV WW 02 01 FF                      |                                                                                                                                                          |
|                   | DownLeft                | 8x 01 06 01 VV WW 01 02 FF                      |                                                                                                                                                          |
|                   | DownRight               | 8x 01 06 01 VV WW 02 02 FF                      |                                                                                                                                                          |
|                   | Stop                    | 8x 01 06 01 VV WW 03 03 FF                      |                                                                                                                                                          |
|                   | AbsolutePosition        | 8x 01 06 02 VV WW<br>0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF |                                                                                                                                                          |
|                   | RelativePosition        | 8x 01 06 03 VV WW<br>0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF |                                                                                                                                                          |
|                   | Home                    | 8x 01 06 04 FF                                  |                                                                                                                                                          |
|                   | Reset                   | 8x 01 06 05 FF                                  |                                                                                                                                                          |
| Pan-tilt LimitSet | Set                     | 8x 01 06 07 00 0W<br>0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF | W:1 Up Right 0:Down Left<br>YYYY: Pan Limit Position(TBD)<br>ZZZZ: Tilt Limit Position(TBD)                                                              |
|                   | Clear                   | 8x 01 06 07 01 0W<br>07 0F 0F 0F 07 0F 0F 0F FF |                                                                                                                                                          |

## 5.3 VISCA Protocol Inquiry Command

| Command              | Command Packet | Return 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         |
|                      |                | y0 50 04 FF          | One Push mode        |
| CAM_FocusPosInq      | 8x 09 04 48 FF | y0 50 0p 0q 0r 0s FF | pqrs: Focus Position |
| CAM_AFSensitivityInq | 8x 09 04 58 FF | y0 50 01 FF          | High                 |
|                      |                | y0 50 02 FF          | Normal               |
|                      |                | y0 50 03 FF          | Low                  |
| CAM_AFZoneInq        | 8x 09 04 AA FF | y0 01 04 AA 00 FF    | Top                  |
|                      |                | y0 01 04 AA 01 FF    | Center               |
|                      |                | y0 01 04 AA 02 FF    | Bottom               |
|                      |                | y0 01 04 AA 03 FF    | All                  |
| CAM_WBModeInq        | 8x 09 04 35 FF | y0 50 pq FF          | Auto                 |
|                      |                |                      | pq =WBMode           |

|                          |                |                      |                                              |
|--------------------------|----------------|----------------------|----------------------------------------------|
| CAM_AWBSensitivityInq    | 8x 09 04 A9 FF | y0 50 00 FF          | Low                                          |
|                          |                | y0 50 01 FF          | Normal                                       |
|                          |                | y0 50 02 FF          | High                                         |
| CAM_RGainInq             | 8x 09 04 43 FF | y0 50 0B FF          | 7000K                                        |
| 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_Gain LimitInq        | 8x 09 04 2C FF | y0 50 0p FF          | p: Gain Positon                              |
| 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_WDRStrengthInq       | 8x 09 04 51 FF | y0 50 00 00 00 0p FF | p: WDR Strength                              |
| 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                                          |
| 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_Low-LightModeInq | 8x 09 04 2D FF | y0 50 00 FF                         | OFF                                                                                                                                |
|                      |                | y0 50 01 FF                         | ON                                                                                                                                 |
| CAM_VersionInq       | 8x 09 00 02 FF | y0 50 ab cd<br>mn pq rs tu vw FF    | ab cd : vender ID ( 0220 )<br>mn pq : model ID<br>rs tu : ARM Version<br>vw : reserve                                              |
| VideoSystemInq       | 8x 09 06 23 FF | y0 50 0p FF                         | P: 0~E Video format<br>0:1080P60 5:720P50<br>1:1080P50 6:1080P30<br>2:1080i60 7:1080P25<br>3:1080i50 8:720P30<br>4:720P60 9:720P25 |
| 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<br>0z 0z 0z 0z FF | www: Pan Position zzzz: Tilt Position                                                                                              |

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

## 5.4 Pelco-D Protocol Command List

| Function     | Byte1 | Byte2   | Byte3 | Byte4 | Byte5     | Byte6      | Byte7 |
|--------------|-------|---------|-------|-------|-----------|------------|-------|
| 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   |
| Stop         | 0xFF  | Address | 0x00  | 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 |

## 5.5 Pelco-P Protocol Command List

| Function                     | Byte1 | Byte2   | Byte3 | Byte4 | Byte5           | Byte6          | Byte7 | 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    |
| Stop                         | 0xA0  | Address | 0x00  | 0x00  | 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    |

# 6. Maintenance and Troubleshooting

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## 6.1 Maintenance

- 1) Please power off the camera and disconnect the power adapter from socket, whenever the camera is not in use.
- 2) Use soft cloth or tissue to clean the camera cover. Wipe it with a soft, dry cloth when cleaning the camera lens. Wipe it gently with a mild detergent if needed. Do not use strong or corrosive detergents to avoid scratching the lens and affecting the video quality.

## 6.2 Troubleshooting

### 1) No video output

- a. Check the camera power supply, make sure it is connected and the power indicator on the camera is solid green.
- b. Check if the camera can perform self-check (move the lens for the entire range) when powered on.
- c. Check the video select rotate dial, make sure the video output cable or video display is compatible.

### 2) No image

Check the video format (system select rotate dial on the rear panel), make sure its format is compatible with your monitor/switcher.

### 3) Video dithering when zoom-in or out

Check the camera installation, make sure the support is solid and still.

### 4) Remote control does not work

- a. Remote control address is set to 1 (if the machine is set back to the factory defaults, remote control addresses need to be back to 1 too)
- b. Check the battery, make sure it has enough capacity.
- c. Check the menu setting. Camera control via remote controller is only available after exiting the menu. If video outputs via LAN, menu will not be displayed. Camera menu will automatically close 30sec.

### 5) Serial port does not work

- a. Check the camera serial device protocol, baud rate and address (camera ID), make sure they're consistent with controller's settings.
- b. Check the serial cable, make sure it is connected properly.

### 6) Web pages cannot log in

- a. Check whether the network cable is connected properly (Ethernet port indicator light should be flashing yellow). First-time use, please connect the camera directly to your PC.
- b. Check if the computer is set to the network segment that is consistent with the IP address of the camera. For details, please refer to: [avipas.com](http://avipas.com)-> SUPPORT -> HOW TO MATERIALS -> Access camera via IP.

## Warranty

Thank you for your interest in the products of AVIPAS Inc.

This Limited Warranty applies to HD Conference Camera purchased from AVIPAS Inc.

This Limited Warranty covers any defect in material and workmanship under normal use within the Warranty Period. AVIPAS Inc. will repair or replace the qualified products at no charge.

AVIPAS Inc. provides a one (1)-year warranty (from the date of purchase) for this HD Conference Camera.

This Limited Warranty does not cover problems including but not limited to: improper handling, malfunction or damage not resulting from defects in material.

To receive warranty service, please contact AVIPAS Inc. first. We will decide whether a repair or replacement is needed and will advise you of the cost of such repair or replacement.

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VER: 2020-08-05 (EN)

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