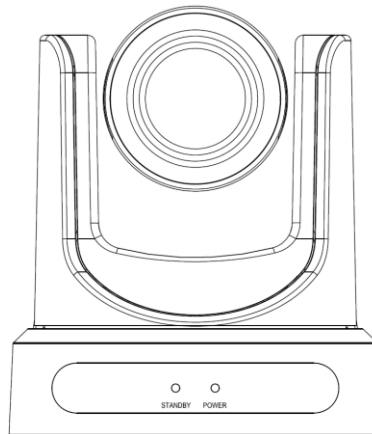AVONIC
focus on av

HD Video Conferencing Camera

User Manual

V2.2

(English)

Preface

Thanks for using this HD Video Conferencing Camera.

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

Precautions

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

■ Don't subject the camera to rain or moisture.

■ Don't remove the cover. Otherwise, you may get an electric shock. In case of abnormal operation, contact the authorized engineer.

■ Never operating under unspecified temperature , humidity and power supply.

■ Please use the 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 damages the surface.

Note:

This is class A production. Electromagnetic radiation at the specific frequency may affect the image quality of TV in home environment

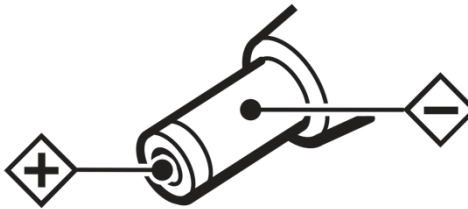# Contents

Note

- **Electric Safety**

  Installation and operation must accord with electric safety standard.

- **Caution to transport**

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

- **Polarity of power supply**

The power supply of the product is +12V, the max electrical current is 2A .Polarity of the power supply plug drawing as follows.

- **Careful of installation**

  Do not grasp the camera head when carrying the camera. Don't turn camera head by hand. Doing so may result in mechanical damage.

  Don't apply in corrosive liquid, gas or solid environment to avoid damaging the cover which is made up of plastic material.

  To make sure no obstacle in rotation range.

  Never power on before installation is not completed.

- **Don't dismantle the camera**

  We are not responsible for any unauthorized modification or dismantling.

CAUTION!

The specific frequency of electromagnetic field may affect the image of the camera!

Supplied Accessories

When you unpack, check that all the supplied accessories are included:

Camera 1PCS

AC power adaptor 1PCS

Power cord 1PCS

RS232 cable 1PCS

Remote controller........................ 1PCS

User manual 1PCS

Quick Start

Step1. Please check connections are correct before starting

3.5mm Audio Cable (Not Supplied)

AV Cable (Not Supplied)

RS485 Cable (Not Supplied)

RS232 Cable (Supplied)

RS232 Cable (Supplied)

AC Adapter (Supplied)

To DC12V IN 12V

Power Line (Supplied)

USB

HD-SDI Cable (Not Supplied)

HDMI Cable (Not Supplied)

Computer, TV, VCR with audio input jack, Routers or Switches, Speaker Microphone
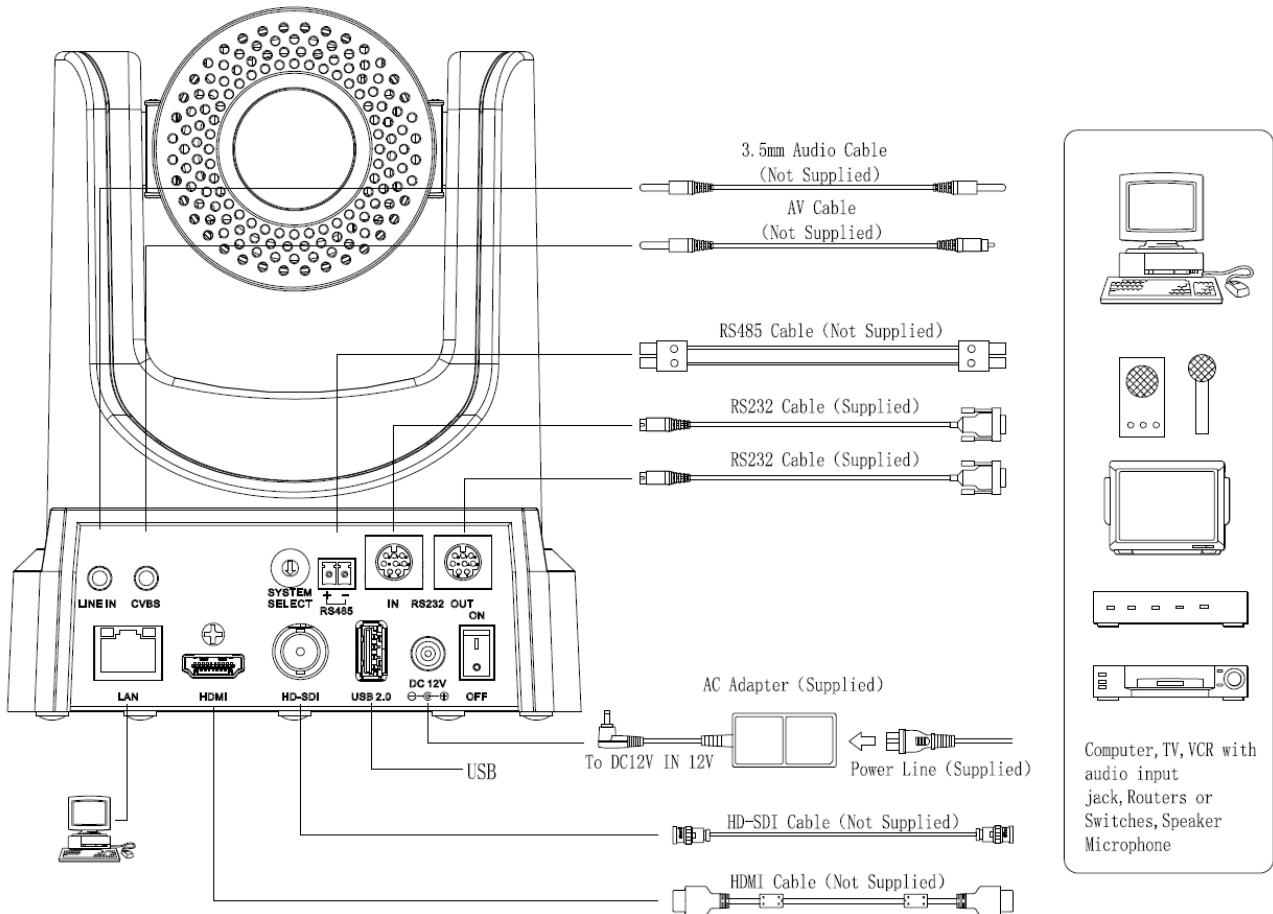
Step2. Setting of the system select switch

The option of video format:

VIDEO SYSTEM			
0	-	8	-
1	-	9	-
2	1080i60	A	-
3	1080i50	B	-
4	720p60	C	-
5	720p50	D	576i
6	1080p30	E	480i
7	1080p25	F	-

CAUTION:

a.   After changing the switch, you need to restart the camera to take effect.

Step3. Press the Switch ON/OFF button on the rear of the camera, the power lamp light.

Step4. Pan-Tilt will rotate to the maximum position of top right after the camera started, then it return to the center, the process of initialization is finished. (Note: If the position preset 0 has been stored, the position preset 0 will be called up after initialization)

Step5. (Optional) If you want to restore the factory default settings, Press [MENU] button to display the OSD menu. Select the item [MENU] -> [RESTORE DEFAULT] -> [Restore]. Set the value [Yes], press [HOME] button to restore the factory default settings.

RESTORE DEFAULT

▶Restore   Yes

◀▶ Change Value

[Home] OK

[Menu] Back

Features

1. The camera provides a high performance in low illumination situations, particularly suitable for which room's lighting is not very well.

2. With maximum resolution of 1920 x 1080 and output frame rate up to 30 frames / sec, this camera provides high-definition as well as fluent video.

3. The camera video signal to noise ratio directly affects the image compression coding efficiency for high-definition video conference terminals. The camera applies 2D and 3D noise reduction at the same time based on motion estimation algorithm, and effectively reduces the noise.

4. 20x optical zoom.

5. Three type of video output interface: HDMI interface, HD-SDI interface, CVBS interface.

6. Infrared remote control signals pass through function. The camera is capable of receiving signal from the infrared remote controller, and passes through to the video conferencing terminal via RS232 connector.

7. Support network audio and video streams multiplexed output.

Product Specification

Camera	
Video system	1080i/60,1080i/50, 1080p/30, 1080p/25, 720p/60, 720p/50, NTSC, PAL
Sensor	1/2.7", CMOS, Effective Pixel: 2.07M
Scanning Mode	Progressive
Lens	20x, f4.42mm ~ 88.5mm, F1.8 ~ F2.8
Digital Zoom	16x
Minimal Illumination	0.5 Lux @ (F1.8, AGC ON)
Shutter	1/25s ~ 1/10000s
White Balance	Auto, 3000K/Indoor, 4000K,5000K/Outdoor, 6500K_1,6500K_2,6500K_3,One Push, Manual
Backlight Compensation	Support
Digital Noise Reduction	2D&3D Digital Noise Reduction
S/N	≥55dB
Horizontal Angle	60.7° ~ 3.36°
Vertical Angle	34.1° ~ 1.89°
Horizontal Rotation	±170°
Vertical Rotation	-30° ~ +90°
Pan Speed Range	1.7° ~ 100°/s
Tilt Speed Range	1.7° ~ 69.9°/s
Ceiling Installation	Support
Number of Preset	255
Preset Accuracy	0.1°
IPC Video Features	
Video coding standard	H264
Video Stream	Main stream, Sub stream

Main stream resolution	1920X1080,1280X720
Sub stream resolution	720X480,320X240
Bit Rate	128K,256K,384K,512K,768K,1024K,1536K,2048K,3072K,4096K,5120K,6144K,8192K Optional, customize
Bit Rate Type	Variable rate, fixed rate
Audio standard	AAC
Audio rate	96K,128K,256k
Support protocols	TCP/IP,HTTP,DDNS,RTSP,PPPoE,SMTP,UPnP, SNMP,FTP(Optional)
Maximum Frame	Format PAL:1-25, format NTSC:1-30
I Frame Gap	Customizable,(must be greater than or equal to the maximum frame rate)
Video Format	PAL,NTSC
Web Stream	Main stream, sub stream
Web video size	Appropriate size, original size, full-screen
Input/Output Interface	
HD Output	1xHDMI: Version 1.3
	1xHD-SDI: BNC Type, 800mVp-p, 75Ω, Along to SMPTE 292M standard
SD Output	1xCVBS: 3.5mm jack, 1Vp-p, 75Ω
Network interface	1xRJ45: 10M/100M Adaptive Ethernet ports
Audio interface	1-ch 3.5mm audio interface, LINE IN
USB	1xUSB2.0: A type jack
Communication interface	1xRS-232 IN: 8pin Min DIN, Max Distance: 30m, Protocol: VISCA/Pelco-D/Pelco-P
	1xRS-232 OUT: 8pin Min DIN, Max Distance: 30m, Protocol: VISCA only
	1xRS-485: 2pin Phoenix port, Max Distance: 1200m, Protocol: VISCA/Pelco-D/Pelco-P
Power jack	JEITA type (DC IN 12V)
Generic Specification	

Input Voltage	DC 12V
Current consumption	1.0A (Max)
Operating Temperature	-5°C ~ 40°C
Storage Temperature	-20°C ~ 60°C
Power	12W(Max)
Dimensions	142mm x 169mm x 176mm
Weight	1.5Kg

Main Unit
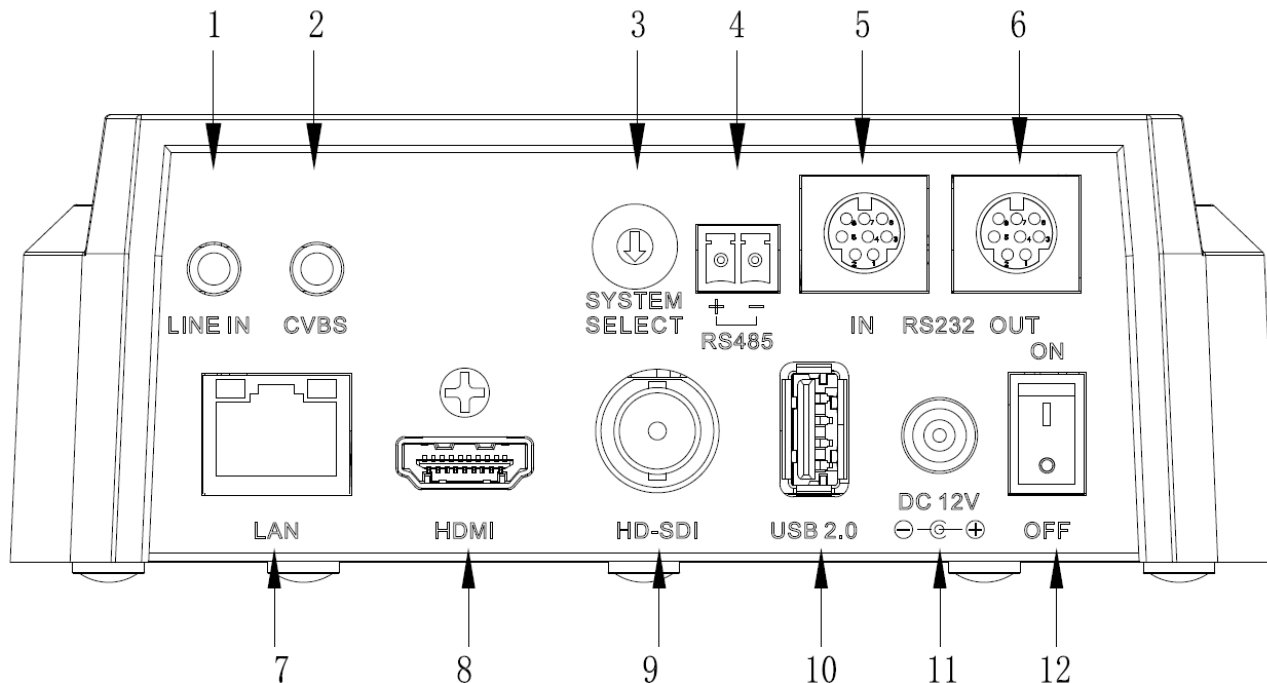
1. Audio LINE IN Interface	7. Network Interface
2. CVBS Interface	8. HDMI Interface
3. System select switch	9. HD-SDI Interface
4. RS485 jack	10. USB2.0
5. RS232 IN jack	11. DC 12V jack
6. RS232 OUT jack	12. Power switch

Size
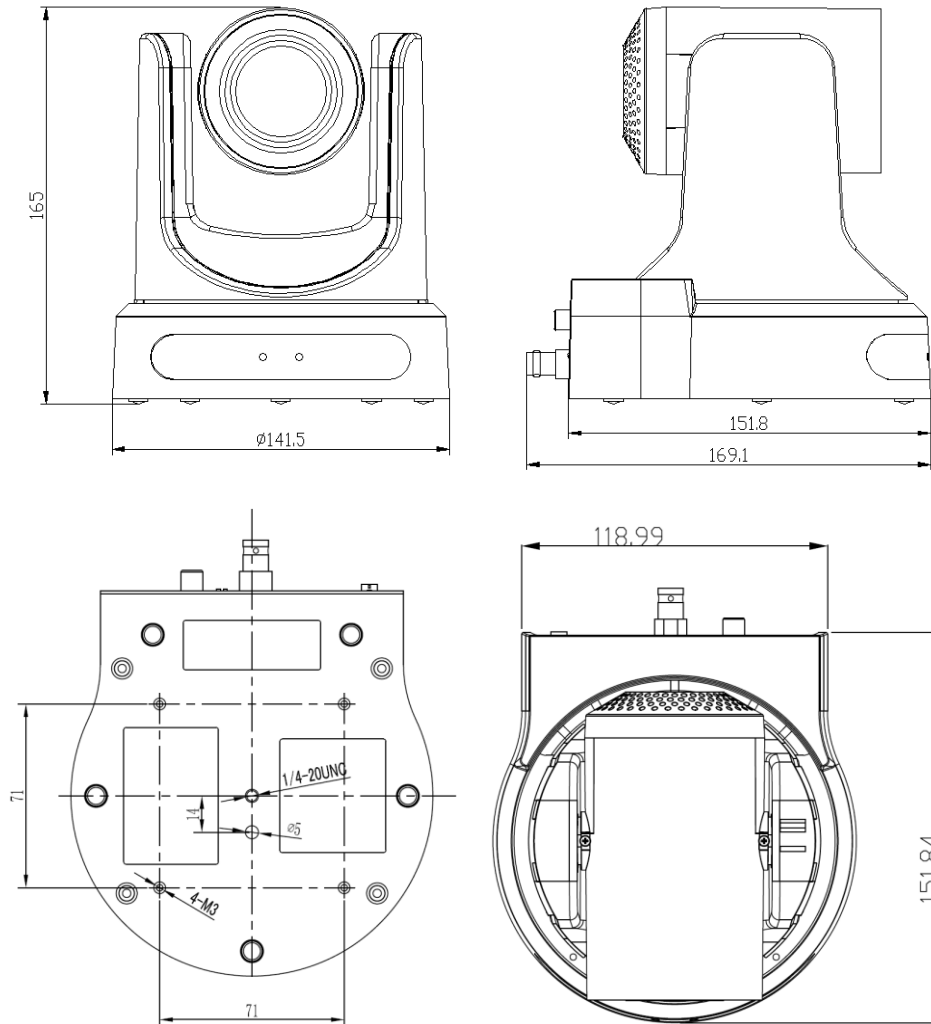
IR Remote Controller Explanation
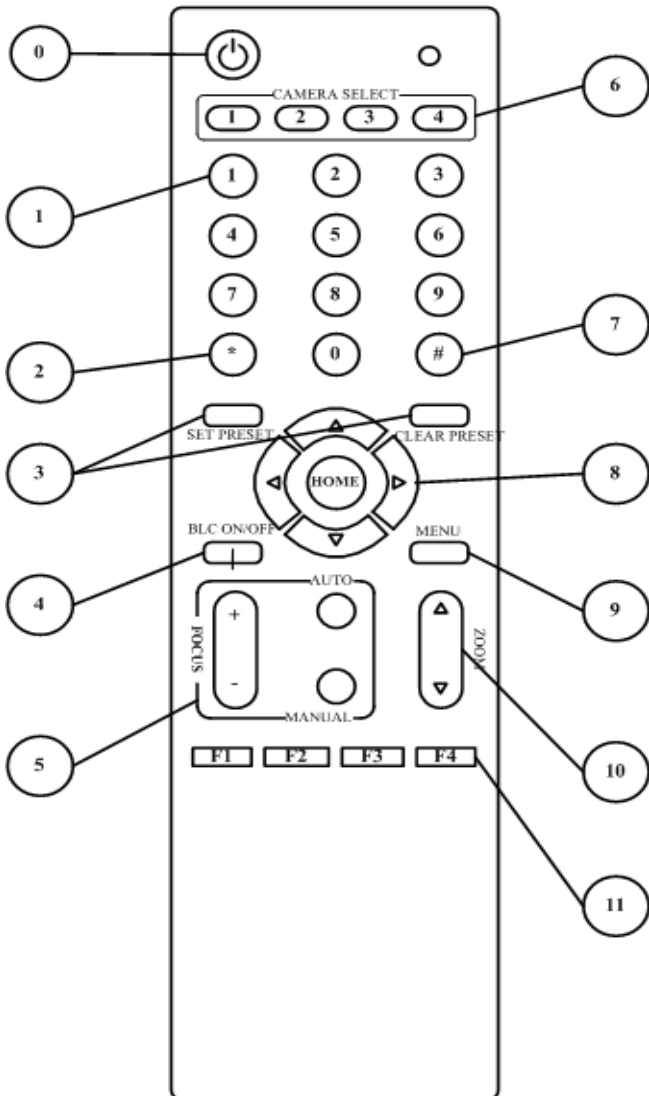
0. Standby Button

Press this button to enter standby mode. Press it again to enter normal mode.

(Note: Power consumption in standby mode is approximately half of the normal mode)

1. Position Buttons

To set preset or call preset

2. * Button

3. Set/Clear Preset Buttons

Set preset: Store a preset position

[SET PRESET] + Numeric button (0-9): Setting a corresponding numeric key preset position

Clear preset: Erase a preset position

[CLEAR PRESET] + Numeric button (0-9)

Or: [*]+[#]+[CLEAR PRESET]: Erase all the preset individually

4. BLC (Backlight Compensation) Button

BLC ON/OFF: Press this button to enable the backlight compensation. Press it again to disable the backlight compensation.(NOTE: Effective

only in auto exposure mode)

Note: If a light behind the subject, the subject will

become dark. In this case, press the backlight ON / OFF button. To cancel this function, press the backlight ON / OFF button.

5. Focus Buttons

Used for focus adjustment.

Press [AUTO] adjust the focuses on the center of the object automatically. To adjust the focus manually, press the [MANUAL] button, and adjust it with [Focus＋] (Focus on far object) and [Focus－] (Focus on near object)

6. Camera Select Buttons

Press the button corresponding to the camera you want to operate with the remote controller.

7. # Button

8. Pan/Tilt Control Buttons

Press arrow buttons to perform panning and tilting. Press [HOME] button to face the camera back to front

9. Menu Setting

Menu button: Press this button to enter or exit the OSD menu

10. Zoom Buttons

Zoom▲: Zoom In

Zoom▼: Zoom Out

11. Set Camera IR Address Buttons

[*]+[＃]+[F1]: Address1

[*]+[＃]+[F2]: Address2

[*]+[＃]+[F3]: Address3

[*]+[#]+[F4]: Address4

USE IR Remote Controller

When the camera is working, you can use remote controller to perform panning, tilting, zooming and focusing, store and call back preset positions.

Button Instruction：

1. In this instruction, 'press the button' means the press and relax the two actions. Such as 'press [HOME] button' means to press the [HOME] key and then relax action, and a special note will be given if a hold down for more than one second is required.

2. When a button-combination is required, do it in sequence. For example, '[*] + [#] + [F1]'means press [*] first and then press [#] and press [F1] at last.

1. Pan/Tilt Control
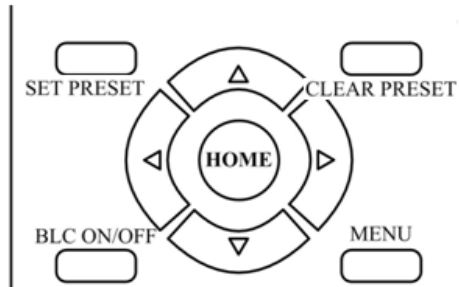
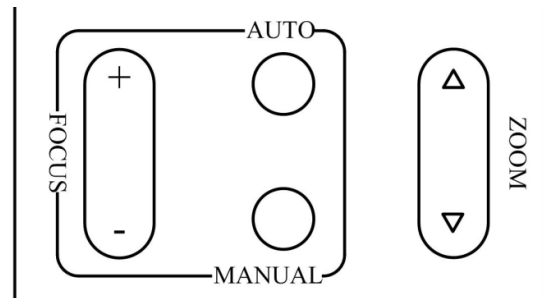| Move up:	Press [▲]
Move down:	Press [▼]
Move left:	Press [◄]
Move right:	Press [►]

Face the camera back to front: Press [HOME]

Press and hold the up/down/left/right button, the camera will keep rotating from slow to fast, until it run to the mechanical limit; the camera stops as soon as the button is released.
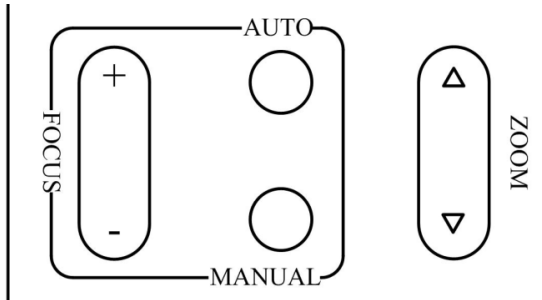
2. Zoom

Zoom Out: press [ZOOM▼] button
Zoom In: press [ZOOM▲] button

Press and hold the button, the camera will keep zooming in or zooming out and it stops as soon as the button is released.

3. Focus Control

Focus Far: Press [FOCUS+] button (NOTE: Effective only in manual focus mode)

Focus Near: Press [FOCUS-] button (NOTE: Effective only in manual focus mode)

Press and hold the button, the action of focus continues and stops as soon as the button is released.

AUTO: Change focus mode to AF, adjusting the focus automatically.

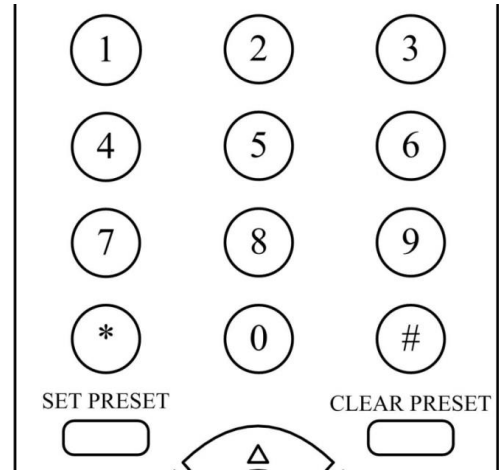MANUAL: Change focus mode to MF, adjusting the focus manually.

4. Backlight Switch
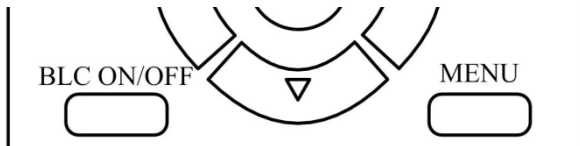
BLC ON/OFF: Press this button to enable the backlight compensation. Press it again to disable the backlight compensation. (Note: Backlight is only effective in full auto exposure mode)

5. Presets Set/Clear

1. To store a preset position: The users should press the [SET PRESET] button first and then press the numeric button 0-9.
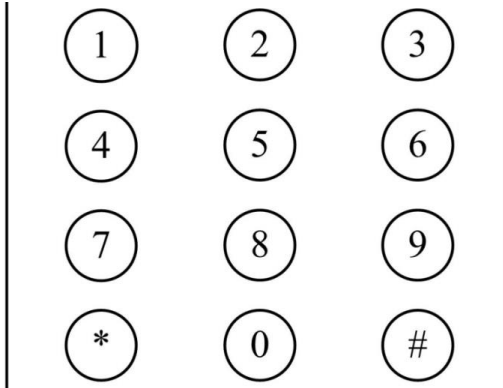
10 preset positions in total are available.

2. To erase the memory content of a preset position: The users should press the [CLEAR PRESET] button first and then press the numeric button 0-9.

Note:

Press [*]+[#]+[CLEAR PRESET] will erase all preset individually positions in the memory.
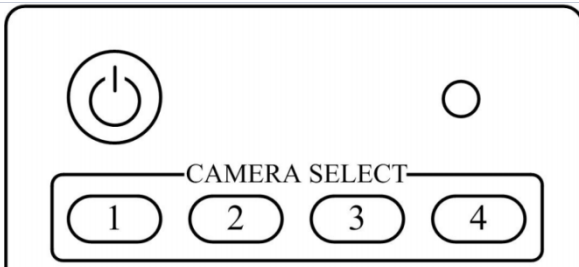
6. Recalling the Preset

Press any of the numeric buttons 0-9 directly to recall stored preset positions and settings.
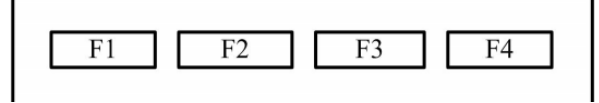
Note:

No action is executed if a relative preset position is not stored.

7. Camera Selection

Press the button corresponding to the camera you want to operate.

8. Camera IR Address Set

[*]+[＃]+[F1]: Address1

[*]+[＃]+[F2]: Address2

[*]+[＃]+[F3]: Address3

[*]+[＃]+[F4]: Address4

9. Shortcut Set

[*]+[＃]+[1]: OSD menu default English

[*]+[＃]+[3]: OSD menu default Chinese

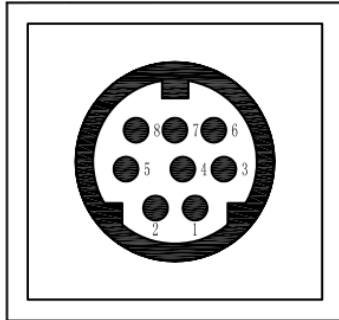[*]+[＃]+[4]: Default IP address

[*]+[＃]+[5]:Save OSD

[*]+[＃]+[6]:Quickly recover the default

[*]+[＃]+[7]:Display the manufacturer

information

[*]+[＃]+[8]:Look the camera version

[*]+[＃]+[9]:Quickly set up inversion

RS-232 Interface

No.	Function
1	DTR
2	DSR
3	TXD
4	GND
5	RXD
6	GND
7	IR OUT
8	NC

Camera   **Windows DB-9**

1.DTR   1.CD
2.DSR   2.RXD
3.TXD   3.TXD
4.GND   4.DTR
5.RXD   5.GND
6.GND   6.DSR
7.IR OUT   7.RTS
8.NC   8.CTS
    9.RI

Camera   **Mini DIN**

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.NC
8.NC   8.NC
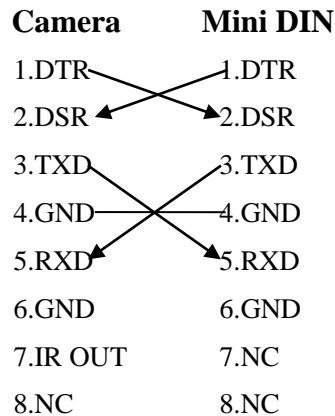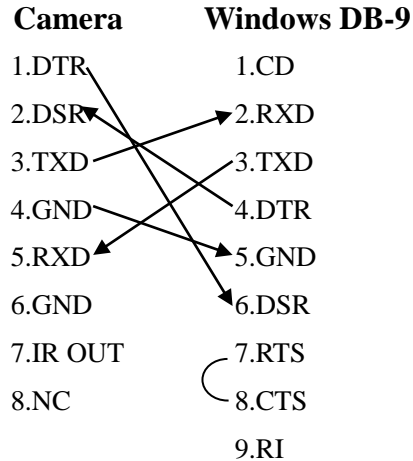
VISCA Network Configuration
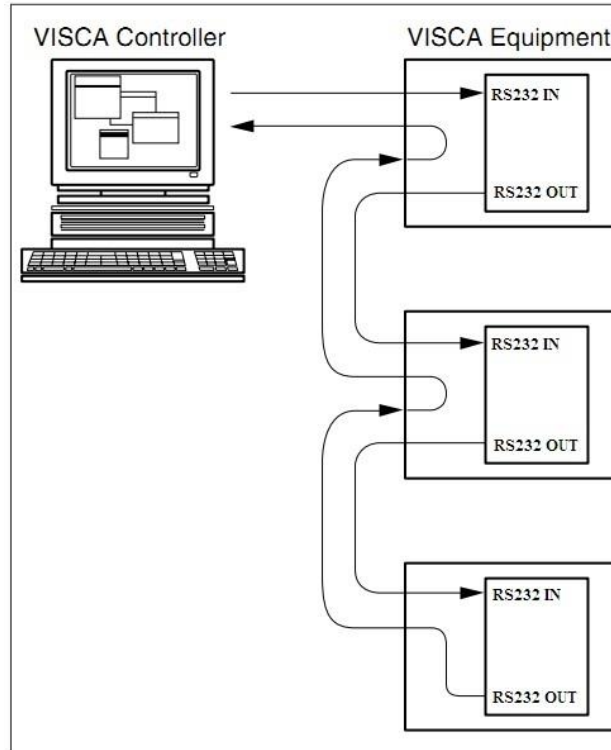
Serial Communication Control

In default working mode, the camera is able to connect to a VISCA controller with RS232C serial interface.

➤ RS232 Communication Control

The camera can be controlled via RS232 ,the parameters of RS232C are as follows:

Baud rate: 2400/4800/9600 bit/s.

Start bit: 1 bit.

Data bit: 8 bits.

Stop bit: 1bit.

Parity bit: none.

➤ RS485 Communication Control

The camera can be controlled via RS485, Half-duplex mode:

Baud rate: 2400/4800/9600 bit/s.

Start bit: 1 bit.

Data bit: 8 bits.

Stop bit: 1bit.

Parity bit: none.

Pan-Tilt will rotate to the maximum position of top right after the camera started, then it return to the center, the process of initialization is finished. (Note: If the position preset 0 has been stored, the position preset 0 will be called up after initialization) Then the users can control the camera with commands in the command list.
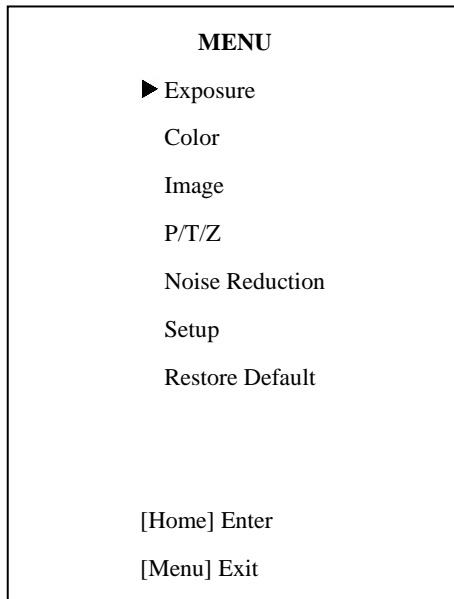
VISCA Command List

(Ignore)

Note:

     The camera serial standard VISCA/Pelco-D/Pelco-P, if the need for the secondary development, According to standard protocol to control the camera. If you need VISCA/Pelco - D/Pelco - P protocol command list in detail, please contact the manufacturer.
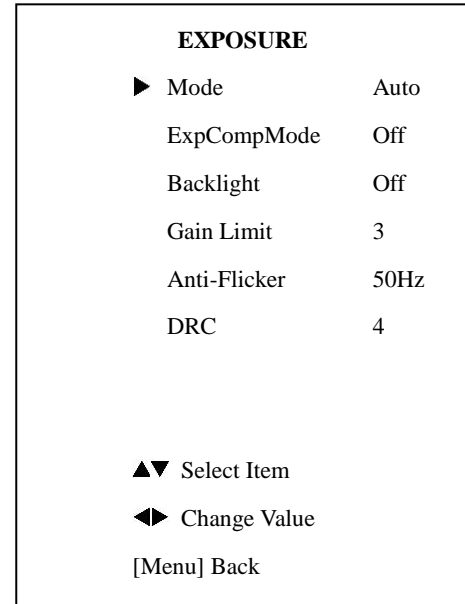
Menu

1. MENU

Press [MENU] button to display the main menu on the normal screen, using arrow button to move the cursor to the item to be set. Press the [HOME] button to enter the corresponding sub-menu.

```
                 MENU
            ▶ Exposure
              Color
              Image
              P/T/Z
              Noise Reduction
              Setup
              Restore Default



            [Home] Enter
            [Menu] Exit
```

2. EXPOSURE

Move the cursor to the Exposure item in the main menu and press [home] button, EXPOSURE menu appears, as shown in the following figure.

Setting

```
              EXPOSURE
       ▶ Mode           Auto
         ExpCompMode    Off
         Backlight      Off
         Gain Limit     3
         Anti-Flicker   50Hz
         DRC            4



       ▲▼  Select Item
       ◀▶  Change Value
       [Menu] Back
```

Mode: Exposure mode. Optional items: Auto, Manual, SAE, AAE, Bright

ExpCompMode: Exposure compensation mode, Optional items: On, Off (Effective only in Auto mode)

ExpComp: Exposure compensation value,

Optional items:-7 ~ 7(Effective only in

ExpComp Mode item to On)

Gain Limit: Maximum gain limit. Optional

items: 0 ~ 15 (Effective only in Auto, AAE ,Bright

mode)

Backlight: Set the backlight compensation, Optional items: On, Off (Effective only in Auto mode)

DRC: DRC strength, Optional items: 0 ~ 8.

Bright: Intensity control, Optional items:00~17. (Effective only in Bright mode)

Anti-Flicker Flicker: Anti-flicker. Optional items: Off, 50Hz, 60Hz (Effective only in Auto, Bright mode)

Iris: Aperture value. Optional items: F1.8, F2.0,F2.4,F2.8,F3.4,F4.0,F4.8,F5.6,F6.8,F8.0,F9.6,F 11.0,Close（Effective only in Manual, AAE mode）

Shutt: Shutter value. Optional items: 1/30,1/60, 1/90,1/100,1/125,1/180,1/250,1/350,1/500,1/725,1/1 000,1/1500,1/2000,1/3000,1/4000,1/6000,1/10000 (Effective only in Manual, SAE mode)

3. COLOR

Move the cursor to the Color item in the main menu and press [home] button, COLOR menu appears, as shown in the following figure.

```
                    COLOR
        ▶  WB Mode        Auto
           Saturation     90%
           Hue            7
           AWB sens       Low




                ▲▼  Select Item
                ◀▶  Change Value
              [Menu] Back
```

WB-Mode: White balance mode. Optional items: Auto, 3000K/Indoor, 4000K,5000K/Outdoor, 6500K_1,6500K_2,6500K_3,One Push, Manual

RG: Red gain. Optional items: 0~255（Effective only in Manual mode）

BG: Blue gain. Optional items: 0~255（Effective only in Manual mode）

Sat.: Saturation. Optional items: 60% ~ 200%.
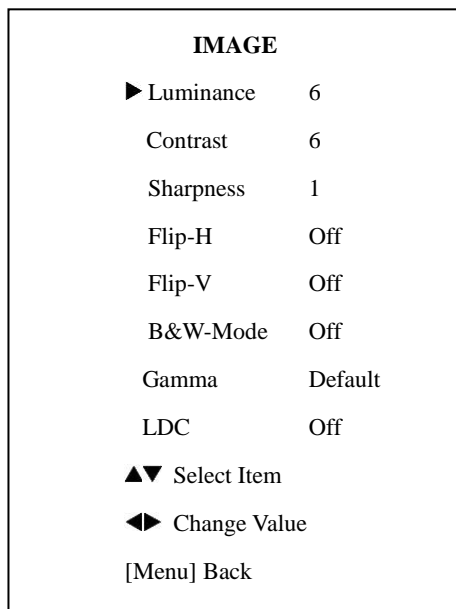
Hue: Chroma adjustment, Optional items:0 ~ 14

AWB sens: The white balance sensitivity,

Optional items: Normal, High, Low.

4. IMAGE

Move the cursor to the Image item in the main menu and press [home] button, IMAGE menu appears, as shown in the following figure.

```
                 IMAGE
     ▶ Luminance        6
        Contrast        6
        Sharpness       1
        Flip-H          Off
        Flip-V          Off
        B&W-Mode        Off
        Gamma           Default
        LDC             Off
     ▲▼  Select Item
     ◀▶  Change Value
     [Menu] Back
```

Luminance: Brightness adjustment. Optional items: 0 ~ 14

Contrast: Contrast adjustment. Optional items: 0 ~ 14

Sharpness: Sharpness adjustment. Optional items: Auto, 0 ~ 15

Flip-H: Image flipped horizontally. Optional items: On, Off.

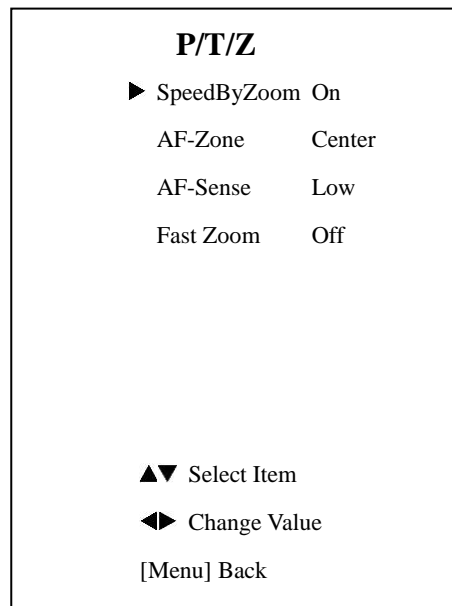Flip-V: Image Flip Vertical. Optional items: On, Off

B&W-Mode: Image color. Optional items: On, Off

Gamma: Optional items: Default, 0.45, 0.5, 0.56, 0.63

LDC: Optional items: On, Off.

5. P/T/Z

```
                P/T/Z
     ▶ SpeedByZoom  On
        AF-Zone     Center
        AF-Sense    Low
        Fast Zoom   Off




     ▲▼  Select Item
     ◀▶  Change Value
     [Menu] Back
```

SpeedByZoom: The depth of field scale switch,

Optional items: On, Off

AF-Zone: Interested in focusing area, Optional items: Top, Center, Bottom

AF-Sense: Automatic focusing sensitivity options, Optional items: Low, Normal, High

Fast Zoom: Optional items: On, Off

6. NOISE REDUCTION

Move the cursor to the Noise Reduction item in the main menu and press [home] button, NOISE REDUCTION menu appears, as shown in the following figure.

```
        NOISE REDUCTION
    ▶ NR2D-Level   3
      NR3D-Level   3
      D-HotPixel   Off




      ▲▼  Select Item
      ◀▶  Change Value
      [Menu] Back
```

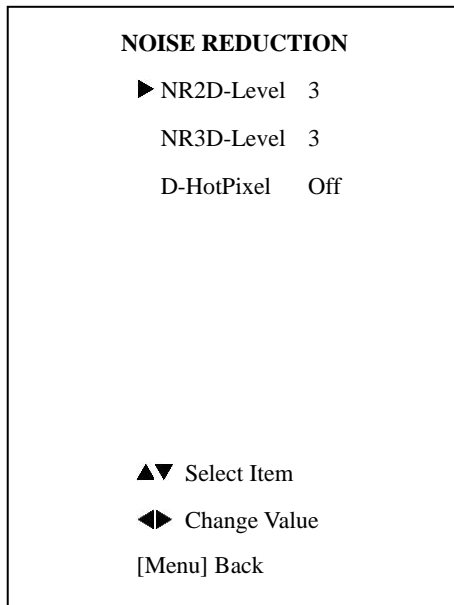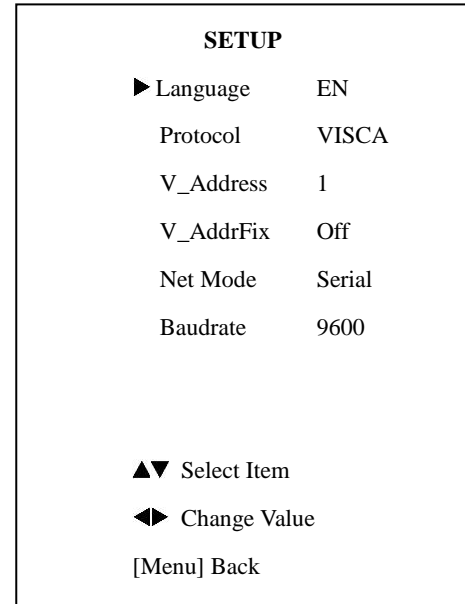NR2D-Level: 2D noise reduction. Optional items: Off, Auto, 1 ~ 5

NR3D-Level: 3D noise reduction. Optional items: Off, 1 ~ 8

D-HotPixel: Dynamic bad points, Optional items: Off, 1 ~ 5

7. SETUP

Move the cursor to the Setup item in the main menu and press [home] button, SETUP menu appears, as shown in the following figure.

```
              SETUP
    ▶ Language    EN
      Protocol    VISCA
      V_Address   1
      V_AddrFix   Off
      Net Mode    Serial
      Baudrate    9600


      ▲▼  Select Item
      ◀▶  Change Value
      [Menu] Back
```

Language: menu language, Optional items: EN,

29

Chinese

Protocol: Control protocol type. Optional items: AUTO, VISCA, PELCO-D, PELCO-P

V_Address: Protocol address, To be decided according to the agreement, AUTO, VISCA protocol Optional items: 1 ~ 7

P_D_Address: PELCO-D protocol Optional items: 0 ~ 254

P_P_Address: PELCO-P protocol Optional items: 0 ~ 31

V_AddrFix: If I can change through the serial port of infrared switch, Optional items: On, Off （When set to On, useless in 88 30 01 FF Command）

Net Mode: Set the serial port control networking, Optional items: Serial, Paral

Baudrate: Serial port baud rate. Optional items: 2400, 4800, 9600

8. RESTORE DEFAULT

Move the cursor to the Restore Default item in the main menu and press [home] button, RESTORE DEFAULT menu appears, as shown in the following figure.

```
          RESTORE DEFAULT
      ►Restore?        No




      ◄► Change Value
      [Home] OK
      [Menu] Back
```
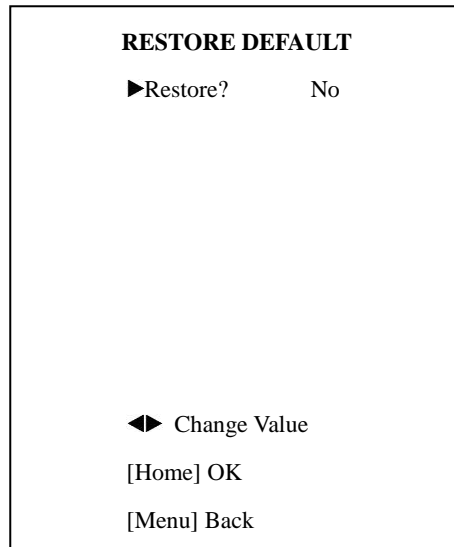
Restore: Confirm restore factory settings. Optional items: Yes, No

Note: Press [HOME] button to confirm, All parameter restore default, Include IR Remote address and VISICA Address

Save: Save Options. Optional items: Yes, No

Maintenance and Troubleshooting

Camera Maintains

- If camera will not be used for a long time, please turn off the power switch, disconnect AC power cord of AC adaptor to the outlet.
- Use soft cloth or tissue to clean the camera cover.
- Please use the soft dry cloth to clean the lens. If the camera is very dirty, clean it with diluted neuter detergent. Do not use any type of solvents, which may damages the surface.

Unqualified Application

- No shooting extreme bright object for a long period of time, such as sunlight, light sources, etc.
- No operating in unstable lighting conditions, otherwise image will be flickering.
- No operating close to powerful electromagnetic radiation, such as TV or radio transmitters, etc.

Troubleshooting

Image

- No image
  1. Check whether the power cord is connected, voltage is OK, POWER lamp is light.
  2. Check whether the camera can self-test after startup.
  3. Check the BOTTOM switch and make sure the two switches are both set OFF.
  4. Check video cable is connected correctly.
- Abnormal display of image

  Check video cable is connected correctly.

- Image dithering even at widest zoom position

  1. Check whether camera is fixed correctly.

  2. Make sure if there are something like vibration machine or other things nearby.

- IE browser not video image IE

  When IPC first time accessed by Internet Explore (IE or other web browser),must install plug-in.

  User first time use this camera by internet (only for new user), must install a player software (VLC). Please go to VLC webside http://www.videolan.org/vlc,download and Install VLC (player software). After installation,login again, will show image, the video image is displayed.

- Unable to access IP Camera by IE browser.

1. Access to the network with PC can test whether network works, in this way to get rid of cable failure, network failure caused by PC virus until the PC can be Ping.

2. Disconnect IP Camera with network, IP Camera and PC are connected, according to the proper operations to re-set the IP address.

3. Check the server's IP address and subnet mask and gateway address.

4. MAC addresses conflict.

5. Web port is occupied by other devices.

- When modify IP address in an incorrect way cause the wrong IP address or forget web passwords, press the IR remote controller "[*]+[#]+[Manual]" to restore the default value (Default IP: 192.168.100.88 Default username: admin   Default password: admin)

Control

- IR remote controller cannot control the camera

  1. Change the battery

  2. Check the camera working mode.

  3. Check IR address of the Remote Commander is set correctly.

- Serial communication cannot control the camera

1. Check the camera working mode.

2. Check control cable is connected correctly.

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