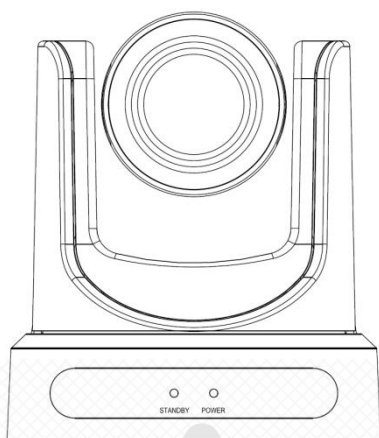# HD Video Conferencing Camera

User Manual

V2.1

(English)

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 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 of equipment, contact the 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 class A production. Electromagnetic radiation at specific frequencies may affect the image quality of TV in home environment.

Copyright Notice

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Contents

Note

- **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 drawing shows as below.

- **Installation Precautions**

  Do not grasp the camera lens when carrying it. Don't touch camera lens by hand. Mechanical damage may be caused by 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.

  Never power on before installation is completed.

- **Do not dismantle the camera**

  We are not responsible for any unauthorized modification or dismantling.

CAUTION!

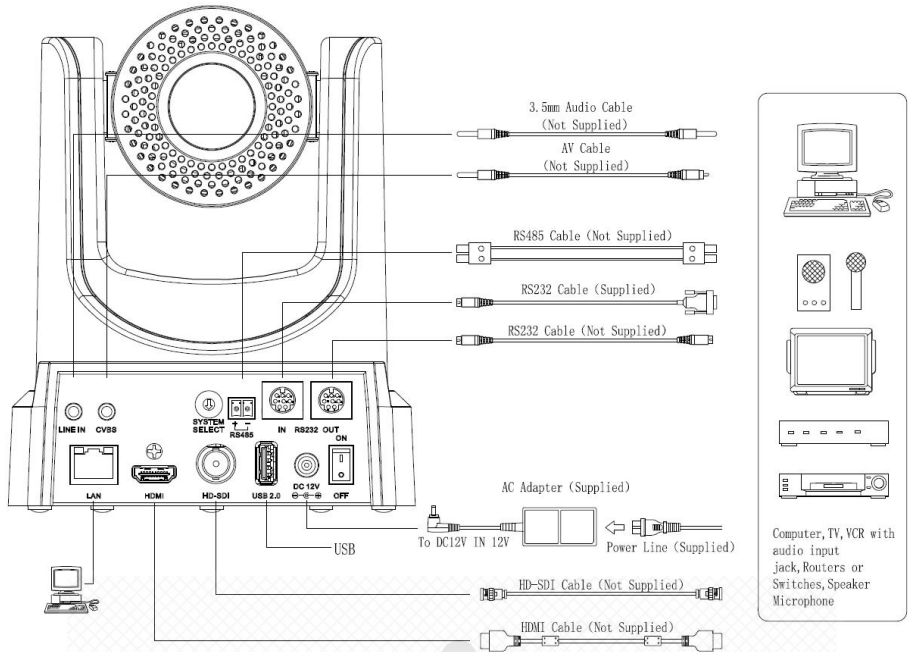**Specific frequencies of electromagnetic field may affect the image of the camera!**

Supplied Accessories

When unpacking, 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

Quick Start

Step1. Please Check if connections are correct before starting

Step2. Set the system select switch

Options of video format:

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

CAUTION:

a. After resetting the switches, camera needs to be restarted for the changes to take effect.

b. 720 p30 and 720 p25 are available only under the HDMI output.

Step3. Press the ON/OFF switch on the right rear of the camera, power light on.

Step4. Pan-Tilt function rotates the camera to its maximum position of top right upon startup, then it returns to the center, and the process of initialization is finished. (Note: if there is an entry for position preset 0, the corresponding position preset 0 will be called up after initialization.)

Features

●H.265 Support

First H.265 encoding supporting conference video camera. It enables full HD 1080p60 video stream with ultra-low bandwidth.

●1080P Full HD

Support Panasonic's 1/2.7 inch, 2.07 million effective pixels with high quality HD CMOS sensor. The camera can reach a maximum of 1920 x 1080 high resolution and achieve high-quality image.

●Ultra-high Frame Rate

The output frame rate can be up to 60fps in 1080P, and up to 120fps in 720P (supported by network only), and up to 240fps in 640x480P (supported by network only, optional).

●Face Detection

Built-in face detection module which enables PTZ tracking (optional).

●AAC Audio Encoding

Support AAC audio encoding. Better sound quality and smaller bandwidth can be achieved.

●Local Storage

Support local storage. Video records can be directly stored to local USB flash disk without NVR.

●Low-light

High SNR of CMOS sensor combined with 2D and 3D noise reduction algorithm, effectively reduce the noise. Even under low illumination conditions, clear images can still be acquired.

●Abundant & Perfect interface

Support HDMI output and 3G-SDI interface. Effective transmission can be performed within a distance of up to 100 meters. Supports SD CVBS output.

●20x Optical + 32x Digital Zoom

Use TAMRON high-quality super telephoto lens, supporting 20x optical zoom and 32x digital zoom.

●Remote Control

Use RS232/485 interface. All parameters of the camera can be remotely controlled by the high-speed communication.

●Freeze During Preset

Support "Freeze During Preset" function, can mask the image when calling the preset.

Product Specification

Camera	
Video System	HD: 1080p/60, 1080p/50, 1080i/60, 1080i/50, 1080p/30, 1080p/25, 720p/60, 720p/50,720p30,720p25, 720p/120 (supported by S Model only), 640x480p/240 (supported by S Model only, optional) SD: 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 (optional)
Minimal Illumination	0.05 Lux @ (F1.8, AGC ON)
Shutter	1/30s ~ 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
Video S/N	≥55dB
Horizontal Angle of View	60.7° ~ 3.36°
Vertical Angle of View	34.1° ~ 1.89°
Horizontal Rotation Range	±170°
Vertical Rotation Range	-30° ~ +90°
Pan Speed Range	1.7° ~ 100°/s
Tilt Speed Range	1.7° ~ 69.9°/s
H & V flip	Support
Image Freeze	Support
PoE	Support(optional)
Face Detection	Support (optional)
Local Storage	Support
Number of Preset	255
Preset Accuracy	0.1°

IPC Features	
Video coding standard	H.265/H.264/MJEPG
Video Stream	First stream, Second stream
First stream resolution	1920x1080,1280x720,1024x576,960x540,640x480,640x360
Second stream resolution	1280x720,1024x576,720x576,720x408,640x360,480x270,320x240,320x180
Bit Rate	128Kbps ~ 8192Kbps
Bit Rate Type	Variable rate, fixed rate
Frame Rate	50Hz: 1fps ~ 50fps, 60Hz: 1fps ~ 60fps, 720p120: 120fps (supported by S Model only), 640x480p240: 240fps (supported by S Model only, optional)
Audio standard	AAC
Audio rate	96K,128K,256k
Support protocols	TCP/IP, HTTP, RTSP, RTMP, multicast, DHCP, Onvif etc
Input/Output Interface	
HD Output	1xHDMI: Version 1.3
	1x3G-SDI: BNC type, 800mVp-p, 75Ω, Along to SMPTE 424M standard
SD Output	1xCVBS: RCA jack, 1Vp-p, 75Ω
Network interface	1xRJ45: 10/100/1000M Adaptive Ethernet ports
Audio Input	1-ch 3.5mm audio interface, Line In
USB	1xUSB2.0: type A 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 network use 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 / PoE (802.3af) (optional)
Current Consumption	1.0A (Max)

Operating Temperature	-10°C ~ 40°C (14°F ~ 104°F)
Storage Temperature	-40°C ~ 60°C(-40°F ~ 140°F)
Power Consumption	12W (Max)
MTBF	>30000h
Size	169mm x 142mm x 164mm
Net Weight	1.35Kg (3.0lb)

Main Unit
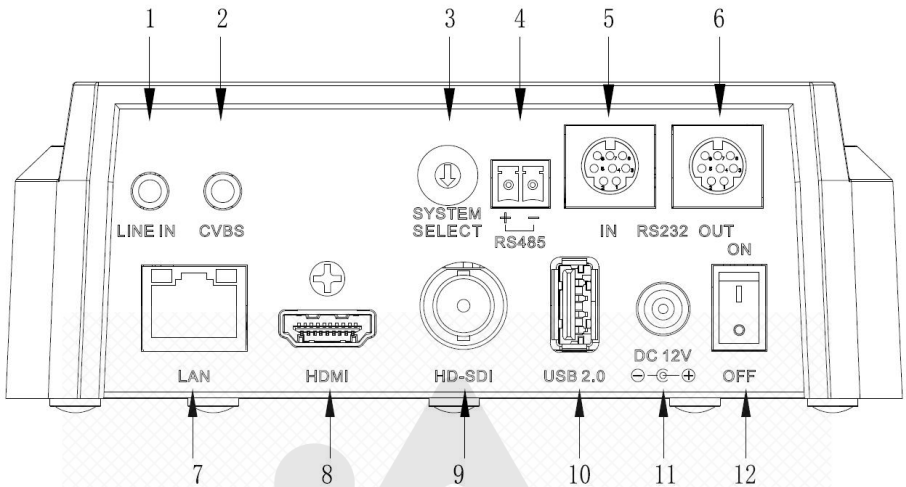
1. Audio LINE IN Interface   7. Network Interface

2. CVBS Interface   8. HDMI Interface

3. System select switch   9. SDI Interface

4. RS485 interface   10. USB2.0

5. RS232 IN interface   11. DC 12V jack

6. RS232 OUT interface   12. Power switch

Size
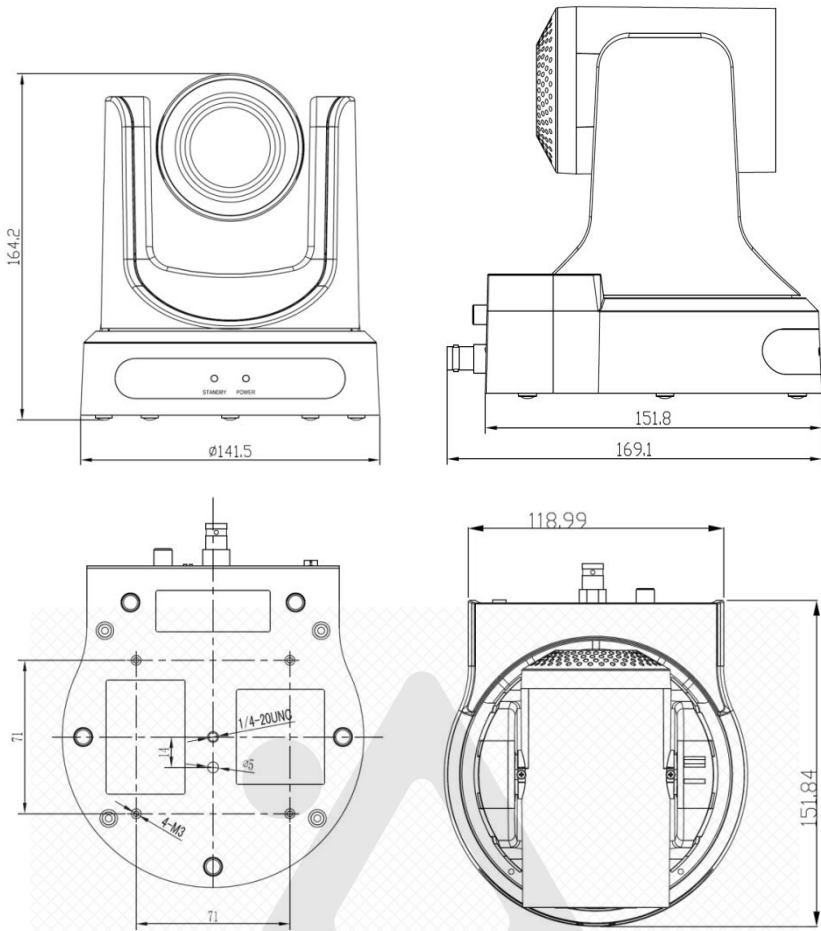
IR Remote Control Explanation
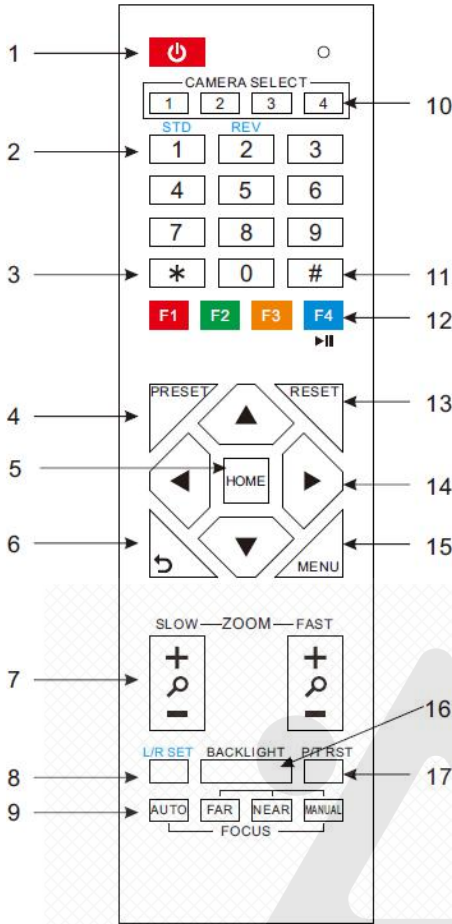
1. Standby Button

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)

2. Position Buttons

To set or call preset.

3. *Button

Use with other buttons.

4. Set/ Preset Buttons

Set/ preset: store a preset position.

[SET/ PRESET] + Numeric button (0-9): set a corresponding numeric key for the preset position.

5. Pan-Tilt control Buttons

Press the Pan-Tilt buttons to move back to the middle position

6. Back buttons

Press the OSD menu to return to the previous page.

7. Zoom Buttons

Slow Zoom: Zoom In [+] or Zoom Out [-] slowly.

Fast Zoom: Zoom In [+] or Zoom Out [-] fast.

8. Pan-Tilt L/R set

Press 1 and 2 buttons to set the direction of the Pan-Tilt.

L/R Set +1[STD]: set the Pan-Tilt turn the same direction as the L/R Set.

L/R Set +2[REV]: set the Pan-Tilt turn the opposite direction to the L/R Set.

9. Focus Buttons

Use for focus adjustment.

Press [AUTO] to adjust the focus on the center of the object automatically. To adjust the focus manually, press [MANUAL]. Adjust focus with [Far] (focus on far object) or [NEAR] (focus on near object).

10. Camera Select Buttons

Press the button corresponding to the camera being operated with the remote control.

11. # Button

Use with other buttons.

12. Camera IR Address Setup Buttons

[*]+[＃]+[F1]: Address1

[*]+[＃]+[F2]: Address2

[*]+[＃]+[F3]: Address3

[*]+[＃]+[F4]: Address4

13. Clear Preset Buttons

Clear preset: erase a preset position.

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

Or: [*]+[#]+[CLEAR PRESET]: erase all the preset positions.

14. Pan/Tilt Control Buttons

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

15. MENU

MENU: enter or exit OSD MENU.

16. 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 there is light source behind the subject, the subject will become dark. In this case, press the backlight ON/OFF button to adjust.

17. Pan/Tilt reset

Preset Pan/Tilt self-test.

18. Image freezing function

Manually freeze: Enable the freezing function after pressing [F4] on the remote control. Display "Freeze" on the upper left corner of the screen, and disappear automatically after 5 seconds. Press [F4] again to return to normal mode. Display "Unfreeze" on the upper left corner of the screen, and disappear automatically after 5 seconds.

Recall the Preset image Freeze：use "Recalling the Preset image Freeze" function in the OSD Menu. After the function is activated, the screen pauses, and can be switched to any preset position by pressing the corresponding number.

19. Shortcut Setup

[*]+[＃]+[1]: OSD menu default English

[*]+[＃]+[3]: OSD menu default Chinese

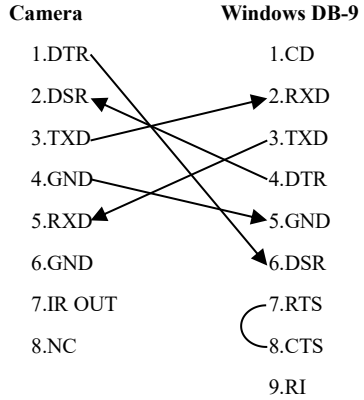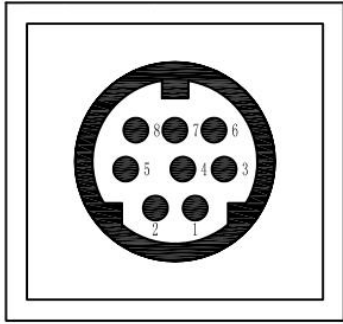[*]+[＃]+[4]: Default IP address
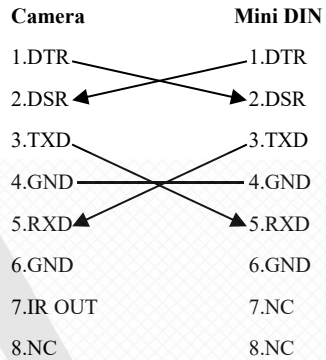
[*]+[＃]+[5]: Save OSD

[*]+[＃]+[6]: Quick default reset

[*]+[＃]+[8]: Look up camera version

[*]+[＃]+[9]: Quick inversion setup

RS-232 Interface
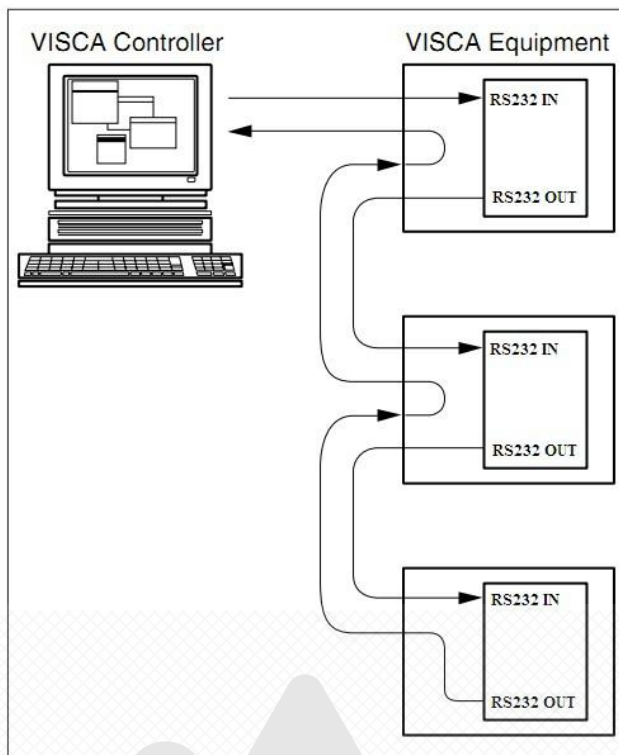
Camera	Windows DB-9
1.DTR	1.CD
2.DSR	2.RXD
3.TXD	3.TXD
4.GND	4.DTR
5.RXD	5.GND
6.GND	6.DSR
7.IR OUT	7.RTS
8.NC	8.CTS
	9.RI

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

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

14

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:

Bit 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 in half-duplex mode:

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

Start bit: 1 bit.

Data bit: 8 bits.

Stop bit: 1bit.

Parity bit: none.

Pan-Tilt function rotates the camera to its maximum position of top right upon startup, then it returns to the center, and the process of initialization is finished. (Note: if there is an entry for position preset 0, the corresponding position preset 0 will be called up after initialization.) Then user can control the camera with commands in the command list.

PTZ over TCP/UDP Realize

A TCP server is embedded in camera, port number 5678. When the user establishes a TCP connection with the server, and sends a PTZ control command to the server, the server will parse and execute the PTZ command.

A UDP server is embedded in camera, port number 1259. When the user sends a PTZ control command, the server will parse and execute the PTZ command.
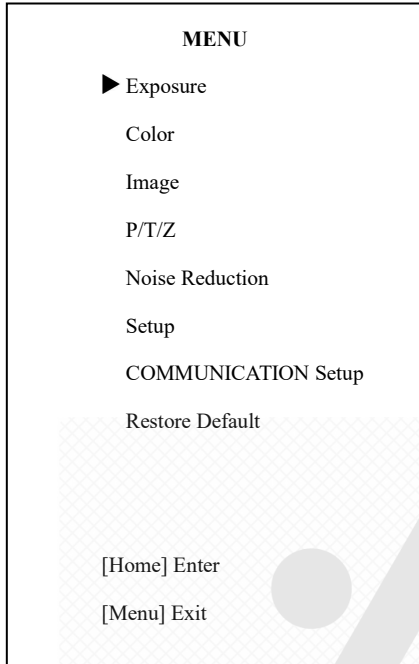
Command List

Ignore

Note:

The camera serial standard VISCA/Pelco-D/Pelco-P needs secondary development. If VISCA/Pelco - D/Pelco - P protocol command is needed, please list in detail and contact the manufacturer.

Menu Setting

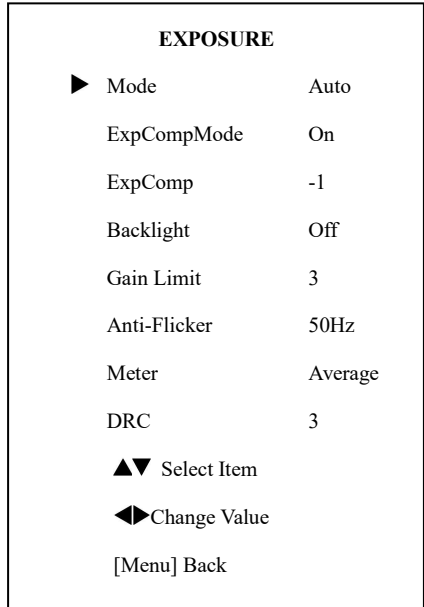## 1.MENU

Press [MENU] to display the main menu on the screen. Use arrow buttons to move the cursor. Press [HOME] to enter the corresponding sub-menu.

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


            [Home] Enter
            [Menu] Exit
```

2. EXPOSURE

Move the cursor to the Exposure in the main menu and press [HOME], EXPOSURE menu shows as below.

```
                 EXPOSURE
         ▶  Mode            Auto
            ExpCompMode     On
            ExpComp         -1
            Backlight       Off
            Gain Limit      3
            Anti-Flicker    50Hz
            Meter           Average
            DRC             3
               ▲▼  Select Item
               ◀▶ Change Value
               [Menu] Back
```

Mode: Exposure mode. Options: Auto, Manual, SAE, AAE, Bright.

ExpCompMode: Exposure compensation mode. Options: On, Off (Effective only in Auto mode).

ExpComp: Exposure compensation value. Options: -7 ~ 7(Effective only when ExpCompMode is On)

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

Gain Limit: Maximum gain. Options: 0 ~ 15 (Effective only in Auto, AAE, Bright mode)

Anti-Flicker: Options: Off, 50Hz, 60Hz (Effective only in Auto, Bright mode)

Meter: Options: Average, Center, Bottom, Top

DRC: DRC strength. Options: 0 ~ 8.

Bright: Bright intensity control. Options: 00~17. (Effective only in Bright mode)

Iris: Aperture value. Options: F1.8, F2.0, F2.4, F2.8, F3.4, F4.0, F4.8, F5.6, F6.8, F8.0, F9.6, F11.0, Close (Effective only in Manual, AAE mode)

Shut: Shutter value. Options: 1/30, 1/60, 1/90, 1/100, 1/125, 1/180, 1/250, 1/350, 1/500, 1/725, 1/1000, 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 in the main menu and press [HOME], COLOR menu shows as below.

```
                    COLOR
        ▶ WB Mode          Auto

          RG Tuning        +2

          BG Tuning        -1

          Saturation       100%

          Hue              7

          AWB sens         Low



          ▲▼  Select Item

          ◀▶Change Value

          [Menu] Back
```
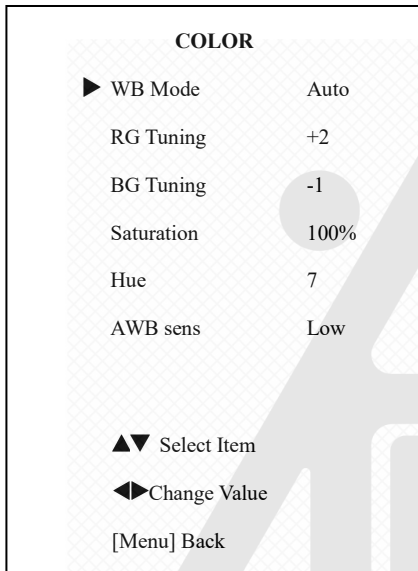
WB Mode: White balance mode. Options: Auto, 3000K/Indoor, 4000K, 5000K/Outdoor, 6500K-1, 6500K-2, 6500K-3, One Push, Manual.

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

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

RG Tuning: Red gain fine-tuning. Options: -10 ~ +10 (Effective only when AWBsens is Low)

BG Tuning: Blue gain fine-tuning. Options: -10 ~ +10 (Effective only when AWBsens is Low)

Saturation: Options: 60% ~ 200%.

Hue: Chroma adjustment. Options: 0 ~ 14.

AWBsens: White balance sensitivity. Options: Normal, High, Low.

4. IMAGE

Move the cursor to the Image in the main menu and press [HOME], IMAGE menu shows as below.

```
              IMAGE
  ▶ Luminance        7

    Contrast         7

    Sharpness        2

    Flip-H           Off

    Flip-V           Off

    B&W-Mode         Off

    Gamma            Default

    Style            Bright

    LDC              Off

      ▲▼ Select Item

      ◀▶ Change Value

      [Menu] Back
```

Luminance: Brightness adjustment. Options: 0~14

Contrast: Contrast adjustment. Options: 0~14

Sharpness: Sharpness adjustment. Options: Auto, 0~15

Flip-H: Image flipped horizontally. Options: On, Off.

Flip-V: Image flips vertically. Options: On, Off

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

Gamma: Options: Default, 0.45, 0.5, 0.56, 0.63

Style: Options: Norm, Clarity, Bright, Soft, 5S.

LDC: Options: On, Off.

Note:

1080p60 and 1080p50 do not support the lens distortion.

5.P/T/Z

```
              P/T/Z
  ▶ SpeedByZoom      On

    AF-Zone          Center

    AF-Sense         High

    L/R Set          STD

    Display  Info    On

    Image Freeze     Off

    Fast Zoom        Off


      ▲▼ Select Item

      ◀▶ Change Value

      [Menu] Back
```

SpeedByZoom: The depth of field scale adjustment. Options: On, Off

AF-Zone: Focusing area of interest. Options: Top, Center, Bottom

AF-Sense: Automatic focusing sensitivity. Options: Low, Normal, High

L/R Set: Options: STD, REV

Display Info: Options: On, Off

Image Freeze: Options: On, Off

Digital Zoom: Options: On, Off

Fast Zoom: Options: On, Off

6. NOISE REDUCTION

Move the cursor to Noise Reduction in the main menu and press [HOME]. NOISE REDUCTION menu shows as below.

```
              NOISE REDUCTION
      ▶  NR2D-Level         3

         NR3D-Level         3

         D-HotPixel        Off




              ▲▼  Select Item
              ◀▶Change Value
              [Menu] Back
```
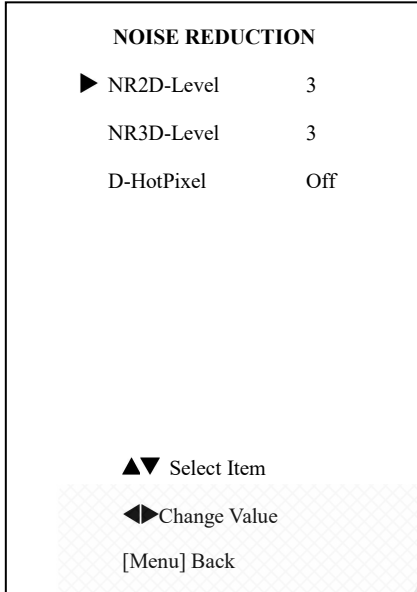
NR2D-Level: 2D noise reduction. Options: Off, Auto, 1 ~ 5

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

D-HotPixel: Dynamic bad points. Options: Off, 1 ~ 5

7. SETUP

Move the cursor to Setup in the main menu and press [HOME]. SETUP menu shows as below.

```
                  SETUP
      ▶  Language          EN

         DVI Mode          DVI

         Lens              Type2




              ▲▼  Select Item
              ◀▶Change Value
              [Menu] Back
```
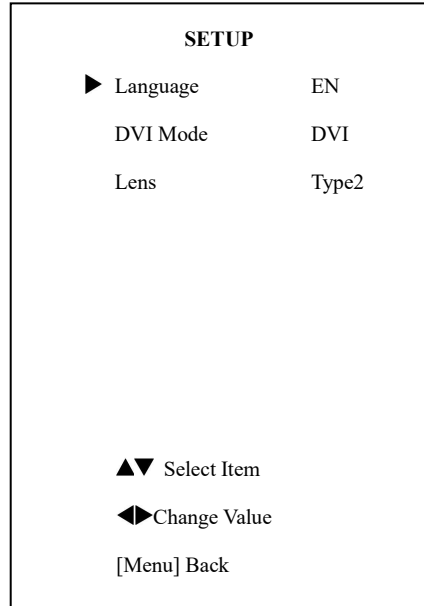
Language: Menu language. Options: English, Chinese, Russian

DVI Mode: Options: DVI, HDMI

Note:

When switch the camera from DVI mode to HDMI mode, user needs to save the change and restart camera. There will be embedded audio in the HDMI output.

Lens: Lens type. Options: Type1, Type2

8. COMMUNICATION SETUP

Move the cursor to Setup in the main menu and press [HOME]. COMMUNICATION SETUP menu shows as below.

9. RESTORE DEFAULT

Move the cursor to Restore Default in the main menu and press [HOME], RESTORE DEFAULT menu shows as below.

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




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

```
           RESTORE DEFAULT
       ▶Restore?            No






       ◀▶Change Value
       [Home] OK
       [Menu] Back
```

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

V_Address: Protocol address, consistent with the agreement. Options: AUTO, VISCA.

P_D_Address: PELCO-D protocol. Options: $0 \sim 254$

P_P_Address: PELCO-P protocol. Options: $0 \sim 31$

V_AddrFix: Change serial port using infrared switch. Options: On, Off (when set to On, command 88 30 01 FF becomes invalid)

Net Mode: Set the serial port control pattern. Options: Serial, Paral

Baudrate: Serial port baud rate. Options: 2400, 4800, 9600

Restore: Restore factory settings. Options: Yes, No

Note: Press [HOME] to confirm. All parameters will be reset to default values, including IR Remote address and VISCA address.

Save: Save settings. Options: Yes, No

Network Function

1 Operating Environment

Operating System: Windows 2000/2003/XP/ vista/7/8

Network Protocol: TCP/IP

Client PC: P4/128MRAM/40GHD/ support scaled graphics card, support DirectX8.0 or more advanced version.

2 Equipment Installation

1) Connect internet camera to a wireless network (Wi-Fi) or to your PC directly via internet cable.

2) Turn on DC12V power.

3) When the orange light on internet port lit up, green light flashing, the physical connection is finished.

3 Local storage

Support local USB flash disk storage, and need the corresponding SDK. Please contact the manufacturer for SDK information.

4 Internet Connection

There are 2 ways of connecting internet camera to computer.

Picture 1.1 connect by internet cable
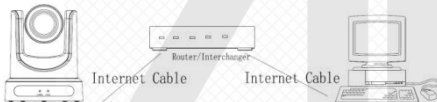
Picture 1.2 connect by router /interchanger

5 IP camera visited/ controlled by LAN

5.1 Setup IP address

IP camera's default IP address is 192.168. .100.88. For unknown camera IP, follow the instructions to reveal:

Method 1: press * and # and 4 on remote control in order, the camera IP address will show on screen.

Method 2: connect camera to PC with Ethernet cable, use "upgrade_En.exe" to search for IP address.

To change IP address, follow the steps:

Method 1: On web control page, click "Network" > change IP > click "Apply" > restart camera

Method 2: Open "upgrade_En.exe", change IP and click "Set". After modifying, restart IP Camera.

👉 NOTE!

IP camera's default IP address: "192.168.100. 88", user: "admin", password: "admin".

5.2 Visit/Access IP Camera

Input http://192.168.100.88 in the address bar (better with IE web browser, others will cause a little latency). When login window pops up, input login name: admin, password: admin.

After login, the page will be as below:

👉 NOTE!

If the camera is used for the first time with Internet connection, user must install a video player (VLC). Please go to VLC website http://www.videolan.org/vlc,download and install as instructed. After installation, login again, the home page will show.

## 6 IP Camera accessed/controlled by WAN (Internet)

6.1 Setup IPC accessed/controlled by dynamic DNS

2 dynamic DNS available:

Dyndns.org,

3322.org

Router Port Mapping:

Take Tenda router for example, enter Router Home Page (interface page)> select "Advanced"> "Virtual Server"> add a new port number in "Ext Port"> add a new port number in "Int port"> put camera IP address as "Internal IP"> "Save".
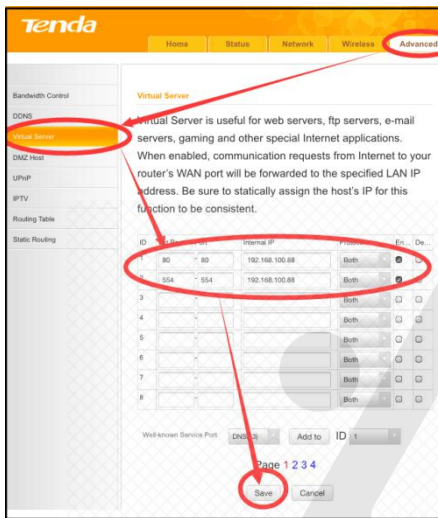
6.2 Dynamic DNS visits camera

Set domain name to camera, set the parameter, and then dynamic DNS can access camera. Access link: http://hostname: port number.For example, if set host computer name:youdomain.f3322.org, camera port number: 554,then the access link should be:http://youdomain.3322.org:554.
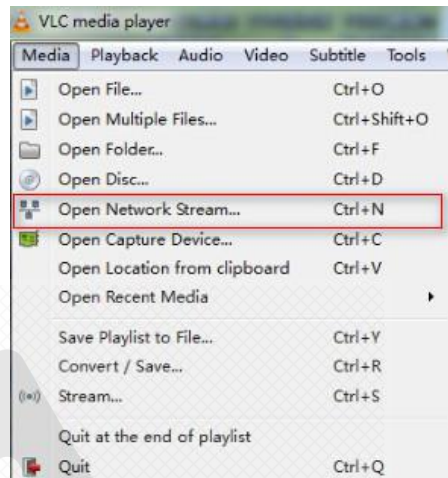
 NOTE！

If the default camera port is 80, it's unnecessary to enter port number. By using only the host name, user can access camera directly.

6.3 VLC stream media player monitoring

Visit VLC media server procedure

Open VLC media player, click "Media"> "Open Network Steam", or use "Ctrl+N".
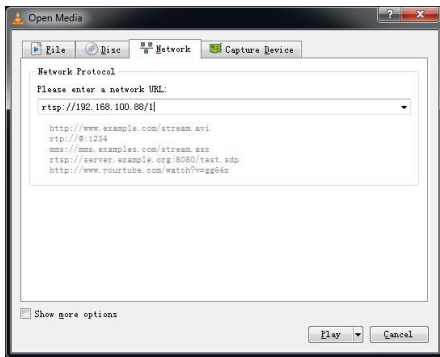

Input URL address:

rtsp://ip: port number/1 (First stream);

rtsp://ip: port number/2 (Second stream).

 NOTE！

Default port number: 554.

7 IP Camera parameter setup

7.1 Homepage introduction

Menu

All pages include 2 menu bars:

Real-time monitoring: display video.

Parameter setup: function buttons.

A. Video viewing window

Video viewing window must accommodate to the video resolution: the higher the resolution is, the bigger the playing area should be. Double clicking viewing window will show full-screen; double clicking again will return to initialized size.

Status bar in viewing window shows as below:
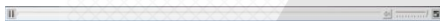
1) Video playback pause button: control real-time video pause, stop at the last frame. Click again to resume video.

2) Audio control buttons: can set silent mode.

3) Full screen switch button.

B. PTZ Setup
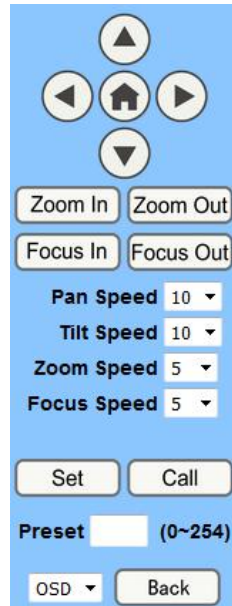
1) PTZ direction control box: up, down, left, right, home oblique button.

2) Rate: Vertical speed can be set to any value from $1 \sim 24$, horizontal direction can be set to any rate between $1 \sim 20$.

3) Select a certain speed and click the direction button to realize PTZ speed up or speed down.

4) Zoom In/ Zoom out: for zooming in or zooming out. Focus In/ Focus Out: Focusing on distant objects or on close objects.

5) Set/ Call: when PTZ turns to expected position, it can be saved as a preset entry as below.

Method 1: Type a number into the Preset box.

Method 2:Type name into the Preset information.

Presets Information

No.	Name	
1	1	Set
2	2	Set
3	3	Set
4	4	Set
5	5	Set
6	6	Set
7	7	Set
8	8	Set
9	9	Set

Then click "Set" button. When PTZ turns to other positions, click "Call" button or click "No." of the Presets Information, PTZ will redirect to the corresponding preset position.

6) MENU/ PTZ:

MENU: system in menu mode. OSD menu displays at the upper corner of the image page. PTZ direction control box: up/down button selects menu; home button enters the submenu, left/right button modifies the submenu. After the menu being modified, select PTZ. If in the main menu, system will save the settings and exit automatically. Otherwise, return to the previous menu. "Back" button effective only in submenu. PTZ: system in PTZ mode.

C. Language selection

Chinese/English/Russian

7.2 Media

Click "Video" to finish video setup:

1) **720p120**

   Support 2 formats: On, Off

2) **Encode Level**

   Support 3 formats: baseline, mainprofile, and highprofile.

3) **Encode Protocol**

   Support 3 formats: H.264, H.265, and MJPEG.

4) **Resolution**

   First bit flow supports 1920x1080,1280x720, 1024x576,960x540,640x480 and 640x360,Second bit flow supports 1280x720,1024x576, 720x576(Under 50Hz), 720x480(Under 60Hz), 720x408,640x360,480x270,320x240 and 320x180.

The higher the resolution is, the clearer the image will be, and more network bandwidth will be taken.

5) Bit Rate

User can assign bit flow/stream. Normally a larger bit flow contributes to a clearer image. The bit allocation must coordinate with network bandwidth. When the network bandwidth is narrow while the allocated bit flow is too large, the video signal flow will not be transmitted normally, and the video quality will thus be corrupted.

6) Frame rate

User can specify a proper frame rate. Generally, a higher frame rate gives a smoother image. With a smaller frame rate, there is a higher chance of beating.

7) I key frame interval:

Set interval between 2 I frame, the bigger interval is, the response will be lower from viewing window.

8) Bit Rate (code stream) control

Constant bit rate: video coder will be coding according to the preset speed.

Variable bit rate: video coder will adjust the speed based on preset speed for the best image quality.

9) Fluctuate level

Restrain the fluctuation magnitude within grade 1 ~ 6.

7.3   Click "Image" to finish image setup:

1) Brightness

Brightness 0~14, slide to control. The box on the right shows the corresponding numerical. Default: 7.

2) Saturation

Saturation 0~14, slide to control. The box on the right shows the corresponding numerical. Default: 4.

3) Contrast

Contrast 0~14, slide to control. The box on the right shows the corresponding numerical. Default: 7.

4) Sharpness

Sharpness 0~15, slide to control. The box on the right shows the corresponding numerical. Default: 2.

5) Hue

Hue 0~14, slide to control. The box on the right shows the corresponding numerical.
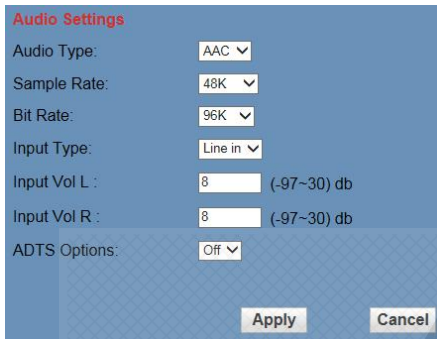
Default: 7.

6) Flip & Mirror

Click "Flip" to flip image upside down. Click "mirror" to show the mirror image.

7) Button

To adjust the parameters, click "apply" to save, click "cancel" to discard the change of the parameters, click "default" to restore the default values.

7.4 Click "Audio" to finish audio setup:

1) Audio Type

Audio type: AAC.

2) Sample rate

Sample rate: 44.1 K and 48 K.

3) Bit rate

Bit rate: 96k, 128k, 256k.

4) Input Type

Line-in only.

5) Input Vol L

Volume of the left channel.

6) Input Vol R

Volume of the right channel

7) ADTS Options

Options: On, Off

8) Button

Click "apply" to save parameter settings. Click "cancel" to discard changes.

7.5 Click "System" to change system settings:

1) Work Mode

Work mode: RTSP

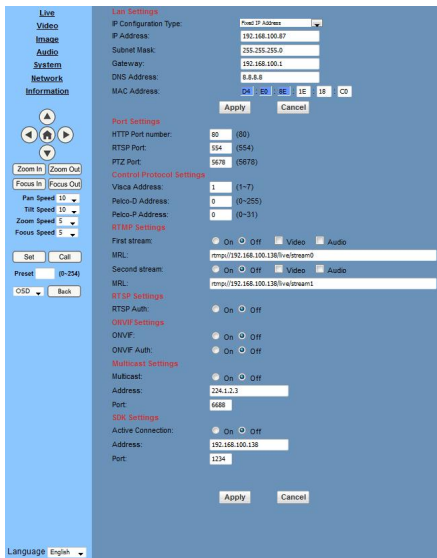### 2) Reboot

Click "Reboot", system restarts.

3) User and password

User can modify the user name and password (letters and numbers only).

4) Apply / Cancel

Click "apply" to finish password setting and go back to the login page. Click "cancel" to discard the change.

7.6 Click "Network" to finish network setup:

1) Lan Settings

Default IP address: 192.168.100.88. MAC address can be modified.

2) Port Settings

A. HTTP Port

IP address identifies the network device. Each device can run multiple web applications which use network port to transmit data. Data transmission is to be carried out between ports, and the port setup is to assign WEB SERVER program the corresponding port. The port mapping needs to be consistent with the port number (default port: 80).

B. RTSP Port

Network camera supports RTSP protocol, and user can use the VLC tools to broadcast.

C. PTZ Port

Support PTZ protocol, default port: 5678.

3) Control Protocol Setting

Set camera-control communication protocols, including Visca address, Pelco-D address, and Pelco-P address.

4) RTMP Setting

Set up to two camera streams. For each, select control of "On", "Off", "Video", "Audio", etc.

5) RTSP Setting

Set network camera RTSP protocol, choose "On"/"Off".

6) ONVIF Setting

Set ONVIF protocol and authorization, choose "On"/"Off".

7) Multicast

Set multicast, choose "On"/"Off". Set multicast address (default: 224.1.2.3) and port (default: 6688).

8) Apply / Cancel

Modify network parameters then click "Apply". Click "Cancel" to discard parameter changes.

7.7 Click "Information" to finish device information setup:

Note:

Software version may not be the latest one, the released version shall prevail.

8 Download the Network upgrade program

If the camera upgrade program is needed, please contact the manufacturer.

Maintenance and Troubleshooting

Camera Maintenance

- If camera will be idle for a long time, please turn off the power switch, disconnect AC power cord from the outlet.
- Use soft cloth or tissue to clean the camera (lens not recommended).
- 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 damage the surface.

Unqualified Application

- No being exposed to light of extremely high intensity or for a long period of time, such as sunlight, special light sources, etc.
- No operating under 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 if the power cord is connected, or voltage is right, or POWER light is on.
  2. Check if the camera can self-test upon start-up.
  4. Check if video cable is connected correctly.
- Abnormal display of image

  Check if video cable is connected correctly.
- Image dithering even at widest zoom position
  1. Check if camera is set correctly.
  2. Make sure there is no vibration machine or other disturbing devices nearby.
- No video/ image in IE browser

  When IPC is for the first time accessed by Internet Explorer (or other web browser), a plug-in must be installed.

  Installation: visit IP Camera address, click [Download], and a download dialog box will pop up. Select [Run] or [Save] to download. If no dialog box pops up, please go to VLC (player software) website http://www.videolan.org/vlc,download and install VLC. After download completed, install as instructed. After successfully installed, login again, and the video/ image will show.

- Unable to access IP Camera by IE browser.

   1. Access network with PC, check if network works. In this way, user can get rid of any cable failure or network failure.

   2. Disconnect IP Camera from network. Connect IP Camera to PC, and re-set the IP address following the proper operations.

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

   4. Check if MAC addresses conflict.

   5. Check if web port is occupied by other devices.

- When modify IP address incorrectly (cause the wrong IP address), or forget the web password, press "[*]+[#]+[Manual]" on the IR remote control to restore the default settings (Default IP: 192.168.100.88; Default username: admin; Default password: admin)

Control

- IR remote control cannot control the camera

   1. Change the battery

   2. Check if the camera is in working mode.

   3. Check if IR address of the Remote control is set correctly.

- Serial communication cannot control the camera

   1. Check if the camera is in working mode.

   2. Check if the control cable is connected correctly.