FoMaKo

4K NDI/SDI/HDMI/USB

PTZ STREAM CAMERA

(User Manual V1.0)

FoMaKo

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Please feel free to contact us if you have any questions.

Please Note: Only NDI version cameras have NDI function, other version cameras don't have NDI function.

Copyright

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Notice

Product specifications and information which were referred to in this document are for reference only. We may change, delete, or update any content at any time and without prior notice.

FCC NOTICE (Class A)

This product complies with Part 15 of the FCC Rules. The operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note

This product has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

● Reorient or relocate the receiving antenna.
● Increase the separation between the equipment and receiver.
● Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
● Consult the dealer or an experienced radio/television technician for help.

Class A ITE

Class A ITE is a category of all other ITE which satisfies the class A ITE limits but not the class B ITE limits. Such equipment should not be restricted in its sale but the following warning shall be included in the instructions for use:

Warning

Operating this equipment in a residential environment may cause radio interference.

# European Community Compliance Statement (Class A)

This product is herewith confirmed to comply with the requirements set out in the Council Directives on the Approximation of the laws of the Member States relating to Electromagnetic Compatibility Directive 2014/30/EU.

Quick Start

◆ **Add Cameras to Your Network**

Please do the connections as the following. You must have a router in your network, then router will assign IP address for the cameras automatic. If you don't have router in your network, cameras can't get IP address from your network.

Network Connection
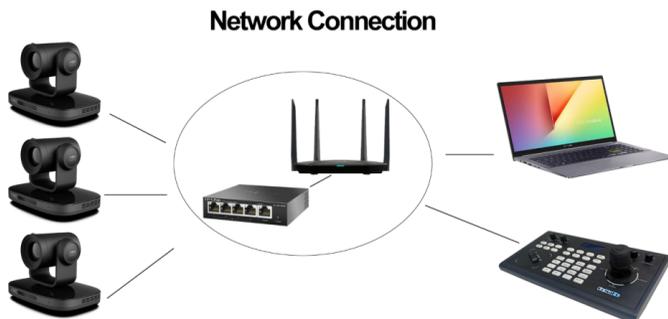
Camera's screen will show its IP address, you can visit camera's webpage by camera's IP address.

Tips: When you login the camera's webpage, you'd better change the IP from "Dynamic IP Address" to "Fixed IP Address", then camera will keep currently IP ,or when camera rebooted, router rebooted, router will assign a new IP address for the camera.
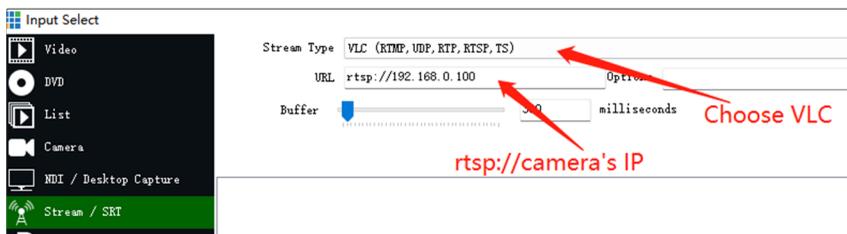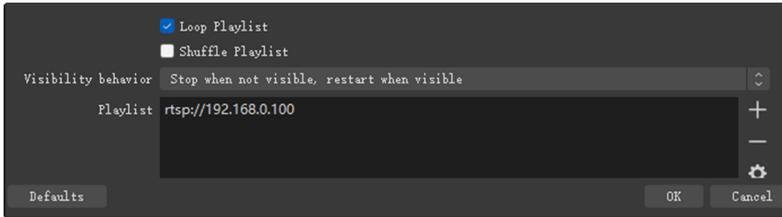
◆ **Visit Camera's Webpage**

Please use web browser such as: Google Chrome, Firefox or Safari to Visit camera's IP address

User name: admin   Password: admin

◆ **IP Streaming to Vmix or OBS**

Tips: recommend to use VLC streaming in Vmix and OBS, it has lower latency.

If you want to use normal RTSP stream:

RTSP UDP Stream URL: rtsp://192.168.0.100:554/1

Please note, you need change the IP address to your camera's IP address.
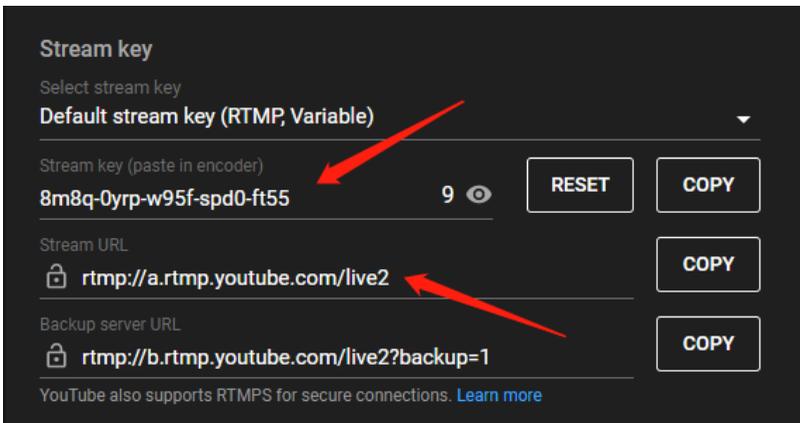
◆   **IP Steam to YouTube or Facebook**

YouTube, Facebook or other live broadcast platforms will supply Stream URL(server URL) and stream key for you.

Example for YouTube:

Stream URL: rtmp://a.rtmp.youtube.com/live2/

Stream Key: 8m8q-0yrp-w95f-spd0-ft55

Now go to camera's webpage -> network -> RTMP Settings.

input the RTMP stream URL:

rtmp://a.rtmp.youtube.com/live2/8m8q-0yrp-w95f-spd0-ft55

(Format: Stream URL/Stream Key)

Save and reboot the camera, camera will stream to YouTube.

Example for Facebook:

Server URL: rtmps://live-api-s.facebook.com:443/rtmp/

Stream Key: FB-117626344422167-0-AbzhIyyXbQGNT47w

Now go to camera's webpage -> network -> RTMP Settings.

input the RTMP stream URL:

rtmps://live-api-s.facebook.com:443/rtmp/FB-117626344422167-0-AbzhIyyXbQGNT47w

(Format: Stream URL/Stream Key)

Save and reboot the camera, it will stream to Facebook.

◆ **Connect Camera to Controller Keyboard**

Some information you need:

User Name: admin   **Password:** admin

Sony Visca port: 52381   **IP Visca UDP port:** 1259

IP Visca TCP port: 5678   **Onvif Port:** 2000

We recommend to use Sony Visca or IP Visca control protocols, the two protocols are more steady and work better.

Let's use FoMaKo KC-608 IP controller for example:

(1) Connection: Camera and the IP controller must be in the same LAN (connect to the same router/switch by network cable)

(2) Enable controller's DHCP, then reboot the controller

Then, router will assign an IP address for the controller

(3) press "Setup" - >Add: Sony Visca (or IP Visca) - > input your camera's IP - > input port:52381 (IP Visca UDP:1259) - > input camera control ID(1-255 numbers)

(4) If you have more than one cameras need to add to the controller, please press "IP" button to add the camera's IP address to controller one by one.

◆ **How to output 4K video**

Camera's video resolution:

SDI output: max 1080P@60fps

HDMI output: max 4K(3840x2160)@60fps

IP(NDI)Output: max 4K(3840x2160)@60fps

USB Output: 4K(3840x2160)@30fps

So, if you want to output 4K video, please use HDMI, IP, NDI or USB video out,

SDI video out max support 1080P.

Important:

  - HDMI and IP(NDI) output max support 4K@25/30fps at the same time;

  - If HDMI output set to 4K@50/60fps, then, IP(NDI) max support 1080P@60fps;

  - If IP(NDI) output set to 4K@50/60fps, then, HDMI max support 1080P@60fps.
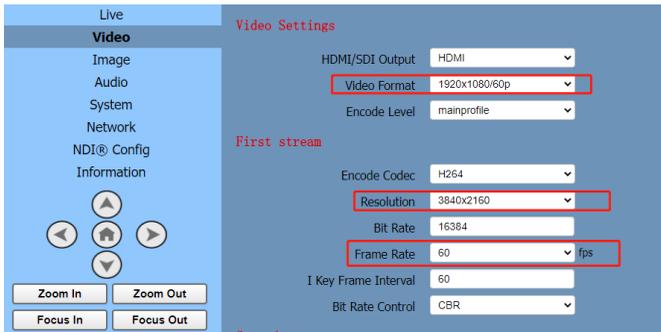
◆ **Simultaneous output three HD digital signals**

(1) HDMI + USB + IP(NDI)

(2) 3G-SDI + USB + IP(NDI)

Note: HDMI and 3G-SDI can't output at the same time.

If you need more supports, please contact us at: ivan@fomako.net, normally, we can reply you within 12 hours.

<div align="right">FoMaKo Supports Team</div>

AI Tracking Guide

1. Turn on tracking

1.1 **Single scenario**

Press the F3 on the remote control to start a trace .

When there is only one person in the scenario, press the F3 key (Figure I) on the remote control to start a trace, the camera will lock the target for tracking directly.

The screen is shown as the following figure, the tracking program starts successfully.(Figure II)

When the camera finds that the target is lost, it will stand still at the position where the target is lost for a few seconds and then return to the home position. It will automatically enter the tracking state until the target appears again

Figure I

Figure II

1.2 **Multiplayer scenario**

Press the F3 on the remote control to start a trace .

If there are multiple people in the scenario, press the F3 key (Figure I)on the remote control to start a trace, a green wireframe will appear on the screen(Figure III)to indicate the tracking target. Select the object to be tracked and press the home key to start tracking. Then the green wireframe disappears, and the screen is shown as the following figure, the tracking program starts successfully.(Figure IV) .

If change a target is needed during Multi people tracking process, Press the left and right buttons on the remote control is help.

When the camera finds that the target is lost, it will stand still at the position where the target is lost for a few seconds and then return to the home position. It will automatically enter the tracking state until the target appears again

Figure III

Figure IV

2. Turn off tracking

In the tracking state, press the F4 to exit tracking mode.

When you are willing to end the tracking, press the F4 key (Figure V) on the remote control to exit tracking mode. After tracking, the camera will return to home position, the screen is shown as the following figure, the tracking program exits successfully. (Figure VI)

Figure V

Figure VI

User Manual Catalogue

1 Safety Precautions

- During the installation and use of the equipment, all electrical safety regulations of the country and region of use must be strictly observed.
- Please use the power adapter that comes standard with this product.
- Please do not connect multiple devices to the same power adapter (exceeding the capacity of the adapter may generate excessive heat or cause a fire).
- Do not rotate head of the camera by hand, otherwise it may cause mechanical failure.
- When installing this product on a wall or ceiling, secure the device securely. When installing, make sure that there are no obstacles within the rotation range of the gimbal; do not turn on the power until all installations are completed.
- To avoid heat build-up, keep ventilation around the device smooth.

- If the device emits smoke, smells, or makes noises, please turn off the power immediately and unplug the power cord, and contact the dealer in time.
- This device is not waterproof, please keep the device dry.
- This product has no user serviceable parts, damage caused by disassembly by the user is not covered by the warranty.

⚠️ **Notice**

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

2 Packing List

Name	Quantity
Camera	1
Power Adapter	1
Power Cable	1
RS232 Cable	1
USB Cable	1
Remote Control	1
User Manual	1

3 Quick Start

1) Please check connections are correct before starting.
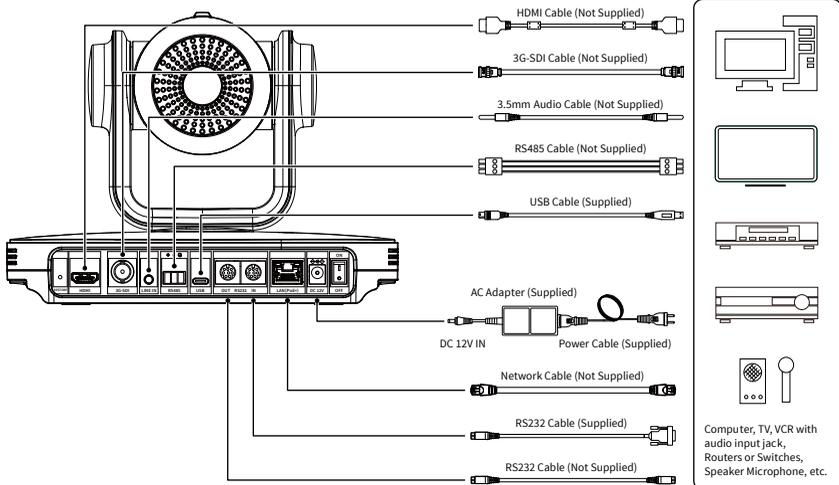
2) Connect the power adapter to the power connector on the rear panel of the camera. The power indicator on the front panel of the camera is on.

3) After the camera is powered on, it starts to initialize, right up to the limit position, and then both horizontal and vertical go to the middle position, the motor stops running, and the initialization is completed.

4) (Note: If preset 0 is saved, PTZ will be move to preset 0)

4 About Product

4.1 Features

● **AI Tracking**

With the help of the AI computing power of the chip, the camera is equipped with advanced AI algorithms to realize monocular humanoid tracking, which can realize automatic tracking of scenes such as education, conferences and live broadcasts.

● **NDI|HX2 (Optional)**

NDI|HX2 has the characteristics of low delay and plug and play, which is convenient for project implementation and deployment. It has good ecology and supports the simultaneous transmission of audio, video and control commands. It is a new generation of network video transmission mode.

● **4K UHD**

Use 1/1.8-inch high-quality UHD CMOS sensor with a maximum of 8.42 million pixels can realize 4K (3840x2160) ultra-high-resolution high-quality images. And downward compatible with 1080p, 720p and other resolutions.

● **20x Optical Zoom**

It adopts 4K ultra long focal lens with high quality and 8 million ultra-high resolution, 20x optical zoom, and the maximum field angle is 60°.

● **HDMI 2. 0**

Support HDMI 2.0 interface, which can directly output 4KP60 uncompressed digital video.

● **Low Light**

The application of 3D noise reduction algorithm greatly reduces image noise. Even under the condition of ultra-low illumination, it still keep the picture clean and clear, and the SNR of image is as high as 55dB.

● **Multiple Interfaces**

Support HDMI and 3G-SDI interface, effective transmission distance of 3G-SDI is up to 150 meters (1080P30). HDMI or 3G-SDI, USB, LAN can output three HD digital signals at the same time.

● **Remote Control**

Through the RS232 and RS485 serial ports, the camera can be controlled remotely.

● **Gravity Sensor**

It supports automatic image flipping function, which is convenient for engineering installation and use.

4.2 Specifications

Camera	
Signal System	**HDMI:** 4KP25, 4KP30, 4KP50, 4KP60, 4KP59.94, 4KP29.97, 1080P25, 1080P30, 1080P50, 1080P60, 1080P59.94, 1080P29.97, 1080I50, 1080I60, 1080I59.94, 720P50, 720P59.94, 720P60 **3G-SDI:** 1080P25, 1080P30, 1080P50, 1080P60, 1080P59.94, 1080P29.97, 1080I50, 1080I60, 1080I59.94, 720P50, 720P59.94, 720P60
Sensor	1/1.8 inch, CMOS, Effective pixels: 8.42M
Scanning Mode	Progressive
Lens	20x, f = 6.25mm ~ 125mm, F1.58 ~ F3.95
Digital Zoom	16x
Minimum Illumination	0.5 Lux @ (F1.8, AGC ON)
Shutter	1/30s ~ 1/10000s

White Balance	Auto, Indoor, Outdoor, One Push, Manual, VAR	First Stream Resolution	3840x2160, 1920x1080, 1280x720, 1024x576, 720x480, 720x408, 640x480, 640x360
Backlight Compensation	Support	Second Stream Resolution	720x480, 720x408, 640x480, 640x360, 480x320, 320x240
Digital Noise Reduction	3D Digital Noise Reduction	Bit Rate Control	CBR, VBR
SNR	≥55dB	Frame Rate	50Hz: 1fps ~ 50fps 60Hz: 1fps ~ 60fps
Horizontal FOV	60° ~ 3.5°	Audio Compression	AAC
Vertical FOV	35.7° ~ 2.0°	Audio Bit Rate	96Kbps, 128Kbps
Pan Angle	±170°	Protocols	NDI®|HX2, TCP/IP, HTTP, RTSP, RTMP/RTMPS, ONVIF, DHCP, SRT, Multicast
Tilt Angle	-30° ~ +90°		

Interfaces	
Tilt Speed	1.5°/s ~ 49°/s

Pan Angle	±170°
Tilt Angle	-30° ~ +90°
Pan Speed	1.8°/s ~ 80°/s
Tilt Speed	1.5°/s ~ 49°/s
H & V Flip	Support
Image Freeze	Support
PoE+	Support
Preset Position	255
Preset Accuracy	0.1°

USB Features	
Operate System	Windows 7/8/10, Mac OS X, Linux, Android
Color System/ Compression	● USB 3.0 (Optional): YUY2/H.264/H.265/MJPEG ● USB 2.0: H.264/H.265/MJPEG
Video Format	● YUY2: (USB 3.0 support) max to 1080P@30fps USB 3.0/2.0 support: ● H.264 AVC: max to 2160P@30fps ● H.265 HEVC: max to 2160P@30fps ● MJPEG: max to 2160P@30fps
USB Audio	Support
USB Video Protocol	UVC 1.1 ~ 1.5
UVC PTZ	Support

Network Features	
Video Compression	H.264/H.265/MJPEG
Video Stream	First Stream, Second Stream

Interfaces	
HDMI Interface	1 x HDMI: Version 2.0
3G-SDI Interface	1 x 3G-SDI: BNC type, 800mVp-p, 75Ω. Along to SMPTE 424M standard
LINE IN Interface	1 x LINE IN: 3.5mm Audio Interface
Communication Interface	1 x RS485: 3pin phoenix port, Max Distance: 1200m, Protocol: VISCA/Pelco-D/Pelco-P
	1 x RS232 IN: 8pin Min DIN, Max Distance: 30m, Protocol: VISCA/Pelco-D/Pelco-P
	1 x RS232 OUT: 8pin Min DIN, Max Distance: 30m, Protocol: VISCA network use
USB Interface	1 x USB: Type-C
LAN(PoE+) Interface	1 x LAN: 10M/100M/1000M Adaptive Ethernet Port, support PoE+
Power Jack	JEITA type (DC IN 12V)

General Specifications	
Tally Indicator	1
Power Indicator	1
Status Indicator	1
Restore Key	1
Power Switch	1

Input Voltage	DC 12V/PoE+(802.3at)
Input Current	Max. 2A
Operating Temperature	0°C ~ 40°C
Storage Temperature	-40°C ~ 60°C
Power Consumption	Max. 18W
Dimension	223mm x 163mm x 166mm
Net Weight	About 1.8Kg

Note Product specifications and parameters are subject to change without notice.

4.3 Interface and Switch
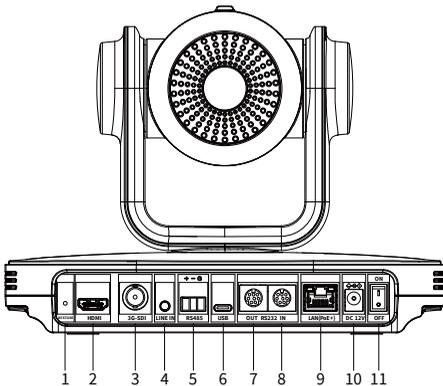
Item	Name
1	RESTORE Key
2	HDMI Interface
3	3G-SDI Interface
4	LINE IN Interface
5	RS485 Interface
6	USB Interface
7	RS232 OUT Interface
8	RS232 IN Interface
9	LAN(PoE+) Interface
10	DC 12V Interface
11	Power Switch

4.4 Dimension
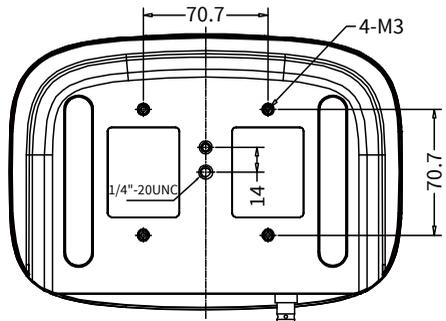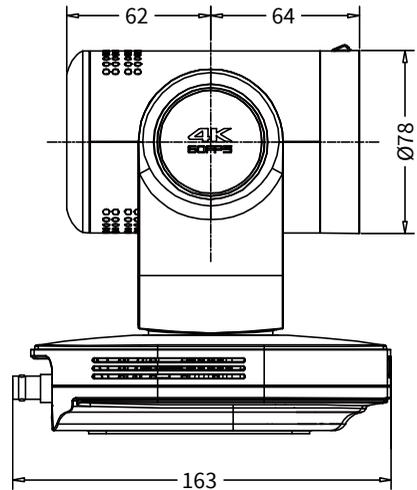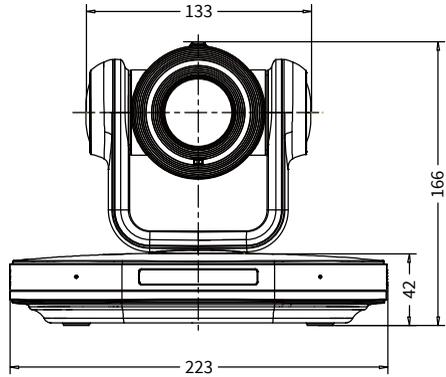
4.5 Installation
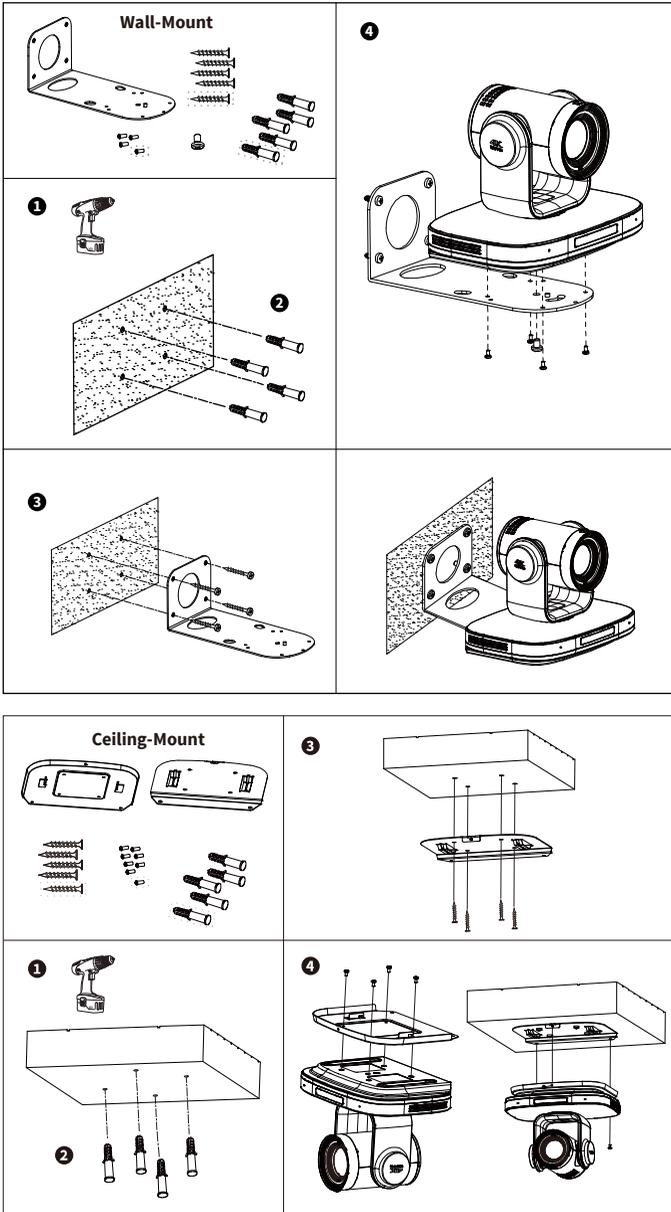
Note The installation diagram is for reference only. The brackets and screws are not standard.
For packing accessories, please refer to the actual product.

4.6 Remote Control

Key Description
1. Standby Key
Press to enter standby mode
2. Number Key
Press to set preset or call preset
3. *Key
Use with other keys
4. PRESET Key
Set preset: [PRESET] + Number key (0-9)
5. HOME Key
Confirm selection or press to turn PTZ back to the middle position

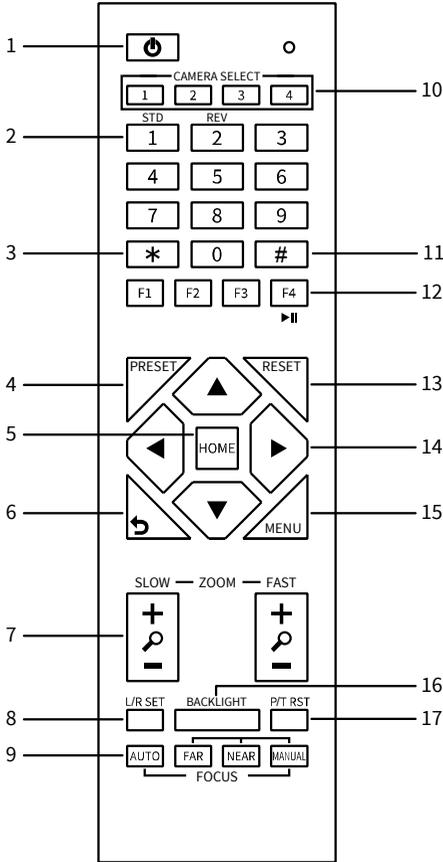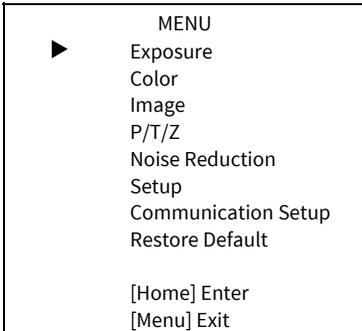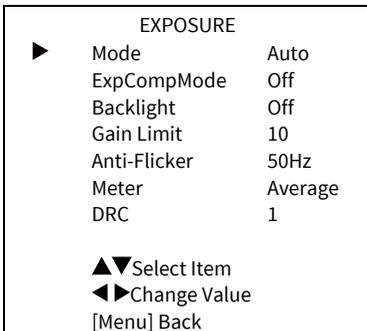| |
| --- |
| **6. Return Key** |
| Press to return to the previous menu |
| **7. ZOOM Key** |
| ● SLOW: Zoom In [+] or Zoom Out [-] slowly |
| ● FAST: Zoom In [+] or Zoom Out [-] fast |
| **8. L/R SET Key** |
| ● Standard: Simultaneously press L/R SET + 1 |
| ● Reverse: Simultaneously press L/R SET + 2 |
| **9. FOCUS Key** |
| Auto/Manual/Far/Near focus |
| **10. CAMERA SELECT Key** |
| Press to select and control the camera |
| **11. # Key** |
| Use with other keys |
| **12. IR Remote Control Key** |
| [*]+[＃]+[F1]: Address 1 |
| [*]+[＃]+[F2]: Address 2 |
| [*]+[＃]+[F3]: Address 3 |
| [*]+[＃]+[F4]: Address 4 |
| **13. RESET Key** |
| Clear preset position: [RESET] + Number key (0-9) |
| **14. PTZ Control Key** |
| PTZ moved according to the arrow indicates |
| **15. MENU Key** |
| Press to enter or exit OSD Menu |
| **16. BACKLIGHT Key** |
| Backlight ON/OFF: Press repeatedly to enable or disable the backlight compensation. NOTE: |
| ● Effective only in auto exposure mode. |
| ● If there is a light behind the subject, the subject will become dark, press the backlight key to enable the backlight compensation. Press again to disable this function. |
| **17. P/T RST (PTZ Reset) Key** |
| PTZ starts to self-test after pressed it |
| **Shortcut Set** |
| [*]+[＃]+[1]: OSD menu default English |
| [*]+[＃]+[3]: OSD menu default Chinese |
| [*]+[＃]+[4]: Display current IP address |
| [*]+[＃]+[6]: Quickly recover the default |
| [*]+[＃]+[8]: View the camera version |
| [*]+[＃]+[9]: Quickly set up inversion |
| [*]+[＃]+[MANUAL]: Restore default IP address |

5 GUI Settings

5.1 MENU

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

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

         [Home] Enter
         [Menu] Exit
```

5.2 EXPOSURE

Move the main menu cursor to [Exposure], and press [HOME] key enter the exposure page, as shown in the following figure.

```
            EXPOSURE
    ►    Mode           Auto
         ExpCompMode    Off
         Backlight      Off
         Gain Limit     10
         Anti-Flicker   50Hz
         Meter          Average
         DRC            1

         ▲▼Select Item
         ◄►Change Value
         [Menu] Back
```

Mode: Auto, Manual, SAE, AAE, Bright.
ExpCompMode: On, Off (Effective only in Auto mode).
ExpComp: -7 ~ 7 (Effective only in ExpCompMode item to On).
Backlight: On, Off (Effective only in Auto mode).
Bright: 0 ~ 17 (Effective only in Bright mode).

Gain Limit: 0 ~ 15 (Effective only in Auto, SAE, AAE, Bright mode).
Anti-Flicker: Off, 50Hz, 60Hz (Effective only in Auto, AAE, Bright mode).
Meter: Average, Center, Smart, Top.
Iris: 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).
Shutter: 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).
Gain: 0 ~ 7 (Effective only in Manual mode).
DRC: 0 ~ 8.

5.3 COLOR

Move the main menu cursor to [Color], and press [HOME] key enter the color page, as shown in the following figure.

```
             COLOR
    ►    WB Mode        Auto
         RG Tuning      0
         BG Tuning      0
         Saturation     100%
         Hue            7

         ▲▼Select Item
         ◄►Change Value
         [Menu] Back
```
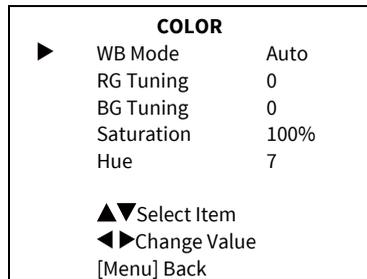
WB Mode: Auto, Indoor, Outdoor, One Push, Manual, VAR.
RG: 0 ~ 255 (Effective only in Manual mode).
BG: 0 ~ 255 (Effective only in Manual mode).
RG Tuning: -10 ~ +10 (Effective only in Auto, One Push, VAR Mode).
BG Tuning: -10 ~ +10 (Effective only in Auto, One Push, VAR Mode).
Saturation: 60% ~ 200%.
Hue: 0 ~ 14.
Color Temp: 2500K ~ 8000K (Effective only in VAR mode).

5.4 IMAGE

Move the main menu cursor to [Image], and press [HOME] key enter the image page, as shown in the following figure.

```
                IMAGE
   ▶    Luminance        6
        Contrast         9
        Sharpness        3
        Flip-H           Off
        Flip-V           Off
        B&W-Mode         Off
        Style            Default

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

Luminance: 0 ~ 14.
Contrast: 0 ~ 14.
Sharpness: 0 ~ 15, auto.
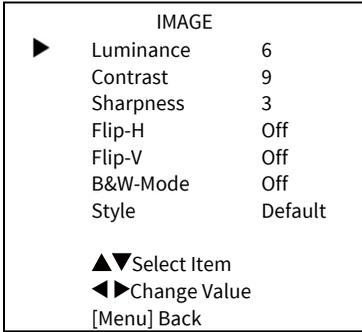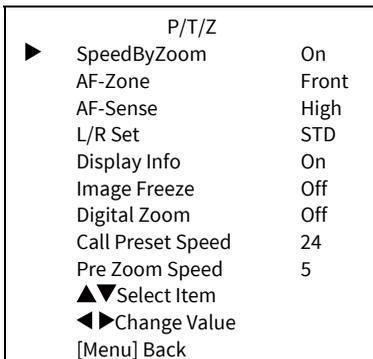**Flip-H:** On, Off.
Flip-V: On, Off.
B&W-Mode: On, Off.
Style: Default, Norm, Bright, PC.

5.5 P/T/Z

Move the main menu cursor to [P/T/Z], and press [HOME] key enter the P/T/Z page, as shown in the following figure.

```
                P/T/Z
   ▶    SpeedByZoom       On
        AF-Zone           Front
        AF-Sense          High
        L/R Set           STD
        Display Info      On
        Image Freeze      Off
        Digital Zoom      Off
        Call Preset Speed 24
        Pre Zoom Speed    5
        ▲▼Select Item
        ◀▶Change Value
   [Menu] Back
```

SpeedByZoom: On, Off.
AF-Zone: Front, Top, Center, Bottom.
AF-Sense: Low, Normal, High.
L/R Set: STD, REV.

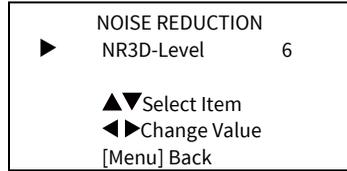**Display Info:** On, Off.
Image Freeze: On, Off.
Digital Zoom: Off, 2x, 4x, 8x, 16x.
Call Preset Speed: 1 ~ 24.
Pre Zoom Speed: 0 ~ 7.

5.6 NOISE REDUCTION

Move the main menu cursor to [Noise Reduction], and press [HOME] key enter the noise reduction page, as shown in the following figure.

```
          NOISE REDUCTION
   ▶    NR3D-Level        6

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

NR3D Level: Off, 1 ~ 9.

5.7 SETUP

Move the main menu cursor to [Setup], and press [HOME] key enter the setup page, as shown in the following figure.

```
                SETUP
   ▶    Language          EN
        DVI Mode          HDMI
        Video Format      1080P30
        Auto Scan Shoot   Off
        Video Mode
        Other

        ▲▼Select Item
        ◀▶Change Value
   [Menu] Back
```
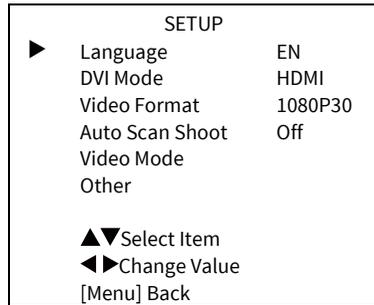
Language: EN, Chinese, Russian.
DVI Mode: HDMI, DVI.
Video Format: 4KP25, 4KP29.97, 4KP30, 4KP50, 4KP59.94, 4KP60, 1080P30, 1080P25, 1080P50, 1080P60, 1080P59.94, 1080P29.97, 1080I50, 1080I60, 1080I59.94, 720P60, 720P59.94, 720P50.
Auto Scan Shoot: On, Off.
Video Mode: SDI-3G Mode, Video Output.
SDI-3G Mode: LEVEL-A, LEVEL-B.
Video Output: HDMI, SDI.
Other: Auto Inversion, Tally Mode, USB2.0 Audio.
Auto Inversion: On, Off.

Tally Mode: On, Off.
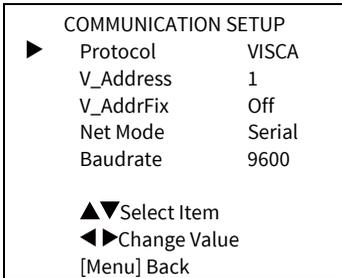**USB2.0 Audio:** On, Off (Only for USB2.0).

5.8 COMMUNICATION SETUP

Move the main menu cursor to
[Communication Setup], and press [HOME]
key enter the communication setup page,
as shown in the following figure.

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

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

Protocol: Auto, VISCA, PELCO-D, PELCO-P.
V_Address: 1 ~ 7 (Effective only in Auto,
VISCA protocol).
V_AddrFix: On, Off (When set to On, useless in 88
30 01 FF Command).
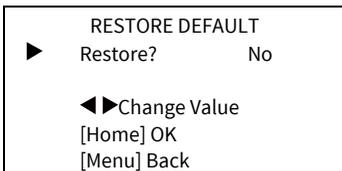**P_D_Address:** 0 ~ 254 (Effective only in Auto,
PELCO-D protocol).
P_P_Address: 0 ~ 31 (Effective only in Auto,
PELCO-P protocol).
Net Mode: Serial, Paral.
Baudrate: 2400, 4800, 9600, 38400.

5.9 RESTORE DEFAULT

Move the main menu cursor to [Restore
Default], press [HOME] key enter restore
default page, as shown in the following figure.

```
        RESTORE DEFAULT
  ▶     Restore?         No

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

Restore: Yes, No.

📝 **Note** GUI menu and parameters are subject to change without notice.

6 WEB Settings

6.1 Access Camera

Access camera's IP address (for example:
http://192.168.100.88) to pop up the login
window, then input username (default: admin)
and password (default: admin). After login, it will
show as below:

6.2 Control Camera

All pages include two menu bars:
Real time monitoring: displaying video image
Parameter setup: with function buttons.

A. Video Viewing Window

Video viewing window must be same as video
resolution, the bigger the resolution is, the bigger
the playing area is. Double click viewing window,
will show full-screen, double click again, will
return to initialized size.
Status bar in viewing window shown as below:
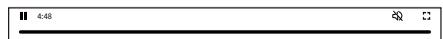
1) Video playback pause button: control
   real-time video pause, stop the last picture,
   click recoverable video again.
2) Audio control buttons: can adjust the volume
   or set silent mode.
3) Full screen switch button.

B. PTZ Setup
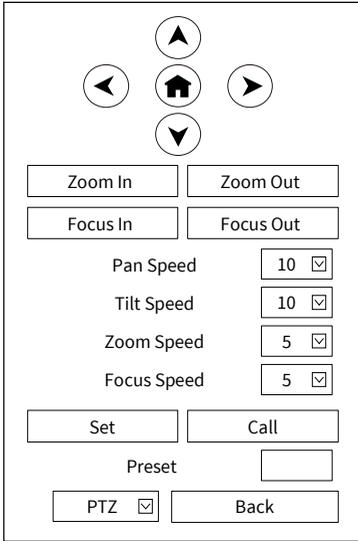
1) Pan and Tilt Control
Up, Down, Left and Right arrows and the home button allow you to manually drive the camera to the desired position.

2) Zoom
Zoom In and Zoom Out buttons allow for wide or narrow view of the space.

3) Focus
Focus In and Focus Out buttons allow for fine manual focus adjustment if the camera has any problems auto focusing on the difficult object.

4) PTZ Speeds
Pan speed can be set at any rate between 1 ~ 24, Tilt speed can be set at any rate between 1 ~ 20. Zoom and Focus speeds can be set at any rate between 1 ~ 7.

5) PTZ Presets
After manually setting up a shot that you would like to return to later, you can save presets for quick recall of these positions. Type a number between 0 and 254 into the Preset box.

Click the "Set" button to save the current location with that preset number. Click the "Call" button to cause the camera to return to that position. This enables smooth, quick and convenient control without the need to manually drive the camera.
You can set up preset that user want as below.
Method: Type preset number into the Preset box.

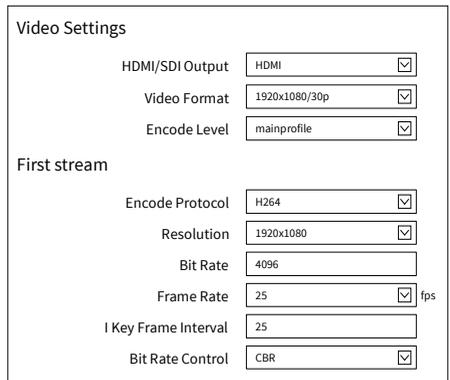
Preset: Optional items: 0 ~ 254.

6) PTZ/OSD Dropdown
From the dropdown menu, clicking the OSD option will open the on-screen display menu of the camera giving you control from within the IP interface.

C. Language Selection

Click either "Chinese", "English" or "Russian" to change the language of the webpage.

6.3 Video Settings

10

Second stream		
Encode Protocol	H264	☑
Resolution	640x360	☑
Bit Rate	4096	
Frame Rate	25	☑ fps
I Key Frame Interval	25	
Bit Rate Control	CBR	☑

Submit　　　Cancel

1) HDMI/SDI Output

Support HDMI and SDI Output.

Only control HDMI and SDI video parameters

2) Video Format

HDMI output support 3840x2160/60p, 3840x2160/59.94p, 3840x2160/50p, 3840x2160/30p, 3840x2160/29.97p, 3840x2160/25p. Both HDMI and SDI output support 1920x1080/60p, 1920x1080/59.94p, 1920x1080/50p, 1920x1080/60i, 1920x1080/59.94i, 1920x1080/50i, 1920x1080/30p, 1920x1080/29.97p, 1920x1080/25p, 1280x720/60p, 1280x720/59.94p, 1280x720/50p.

3) Encode Level

Support mainprofile and highprofile two levels.

4) Encode Protocol

Support H.264, H.265 and MJPEG protocols.

5) Resolution

First stream support 3840x2160, 1920x1080, 1280x720, 1024x576, 720x480, 720x408, 640x480, 640x360. Second stream support 720x480, 720x408, 640x480, 640x360, 480x320, 320x240; The bigger resolution is, the clearer the image will be, more network bandwidth will be taken. First stream and second stream only control IP/NDI Stream video parameters.

6) Bit Rate

The user can specify the bit rate. Generally speaking, the larger of the bit rate, the clearer of the image. However, the configuration of the bit rate needs to be combined with the network bandwidth. When the network bandwidth is narrow and the bit rate is configured larger, the video stream cannot be transmitted normally, and the visual effect is worse.

7) Frame Rate

User can specify the size of the frame rate, generally, the frame rate greater, the image more smooth; Frame rate is smaller, the more sense of beating.

8) I Key Frame Interval

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

9) Bit Rate Control

Code stream control way:

CBR (Constant Bit Rate): Video coder will be coding according to preset speed.

VBR (Variable Bit Rate): Video coder will adjust the speed based on preset speed to gain the best image quality.

6.4 Image Settings

Brightness	▭▭◯▭▭	6
Saturation	▭◯▭▭▭	4
Contrast	▭▭▭◯▭	9
Sharpness	▭◯▭▭▭	3
Hue	▭▭◯▭▭	7
Flip	● On　○ Off	
Mirror	● On　○ Off	

Submit　　　Default

1) Brightness

Brightness of image: 0~14 (Default value is 6).

2) Saturation

Saturation of image: 0~14 (Default value is 4).

3) Contrast

Contrast of image: 0~14 (Default value is 9).

4) Sharpness

Sharpness of image: 0~16 (Default value is 3).

5) Hue

Hue of image: 0~14 (Default value is 7).

6) Flip

Turn On/Off the Flip function.

7) Mirror

Turn On/Off the Mirror function.

6.5 Audio Settings

Audio Settings	
Audio Switch	On
Audio Type	AAC
Sample Rate	48K
Bit Rate	96K
Input Type	LINE IN
Input Vol	20 dB
ADTS Options	Off

Submit　　Cancel

1) Audio Switch

Enable or disable audio switch.

2) Audio Type

Optional items: AAC.

3) Sample Rate

Optional items: 44.1K, 48K.

4) Bit Rate

Optional items: 96K, 128K.

5) Input Type

Optional items: LINE IN, MIC.

6) Input Vol

The volume of the channel.

7) ADTS Options

Optional items: On, Off.

6.6 System Settings

Initialize	
Reboot	Reboot
User	
UserName	admin
Passwd	••••• ◉
Guest	guest
Passwd	••••• ◉

Submit　　Cancel

1) Reboot

Click the "Reboot" button, system restart.

2) Username and Password

The user can modify the password (letters and Numbers only).

6.7 Network Settings

Lan Settings	
IP Configuration Type	Fixed IP Address
IP Address	192.168.100.88
Subnet Mask	255.255.255.0
Gateway	192.168.100.1
DNS Address	8.8.8.8
MAC Address	D4:E0:8E:A9:73:45

Submit　　Cancel

Port Settings	
HTTP Port	80
RTSP Port	554
TCP Port	5678
UDP Port	1259
Sony Visca	52381

RTMP(S) Settings

First Stream	○ On ● Off ☐ Video ☐ Audio
MRL	rtmp://192.168.100.138/live/stream0
Second Stream	○ On ● Off ☐ Video ☐ Audio
MRL	rtmp://192.168.100.138/live/stream1

SRT Settings

SRT	● On ○ Off
SRT Port	4578
SRT Encryption	None ☑
SRT Password	1234564913131

RTSP Settings

RTSP Auth	○ On ● Off

ONVIF Settings

ONVIF	○ On ● Off
ONVIF Auth	○ On ● Off

Multicast Settings

Multicast	○ On ● Off
Address	224.1.2.3
Port	6688

NTP Settings

NTP time sync	○ On ● Off
Time Zone	(GMT+08:00) Beijing, China ☑
Server address	cn.ntp.org.cn
Time interval(min)	1440
Main time show	○ On ● Off
Position	X 0 Y 0
Sub time show	○ On ● Off
Position	X 0 Y 0

Submit   Cancel

1) Lan Settings

The camera enabled DHCP by default, camera's ip address will shown on the screen. When you finished to add the camera to your network, you'd better change the IP from "Dynamic IP Address" to "Fixed IP Address", then camera will keep currently IP, or when camera reboot or router reboot, router will assign a new IP address for the camera.

The MAC address cannot be modified.

2) Port Settings

A. HTTP Port

IP address identifies the network device, the device can run multiple web applications, each network program using network port to transmit data, so data transmission to be carried out between the port and port. Port setting is to set up web server program using which port to transmit. When port mapping, need to be consistent with the port number (default port: 80).

B. RTSP Port

The camera support RTSP protocol, use the VLC tools broadcast, default port: 554.

C. TCP Port

Support TCP connection then control camera, default port: 5678.

D. UDP Port

Support UDP protocol, default port: 1259.

E. Sony Visca

Support Sony Visca, default value: 52381.

3) RTMP(S) Settings

Setting the MRL of RTMP, select enable or disable video and audio. You can select control code stream of "On", "Off", "Video", "Audio" between in the two streams.

4) SRT Settings

Turn On/Off SRT, Setting the SRT Port, SRT Encry and SRT Password.

5) RTSP Settings

Turn On/Off RTSP Auth.

6) ONVIF Settings

Turn On/Off ONVIF and ONVIF Auth.

7) Multicast Settings

Turn On/Off multicast. Setting the multicast address (default value is 224.1.2.3) and port (default value is 6688, then 6688 is the multicast port of the first stream; 6690 is the multicast port of the second stream).

8) NTP Settings

Turn On/Off NTP time sync, main time show and sub time show. Setting NTP server address, time interval, main stream position and sub stream position.

6.8 Device Information

Information	
Device ID	HD Camera
Device Type	G50.V
Software Version	SOC v2.0.23 - ARM 6.0.64S
Webware Version	v1.5.5

<div align="center">[Submit]   [Cancel]</div>

6.9 Download Upgrade Program

If you need the camera upgrade program, please contact the manufacturer.

Note: WEB interface and parameters are subject to change without notice.

7 Troubleshooting

Image

● The monitor shows no image

1) Check that the camera power supply is connected, the voltage is normal, and the power indicator light is always on.
2) Turn off the power switch to check whether the camera is self-testing.
3) Check the cable of video platform and TV whether correct connection.

● The video image displayed by the camera lens is jittery

1) Check whether the camera installed position be stabled.
2) Check whether have vibrating machinery or object near the camera.

● There is no video image in Browser

IE browser does not support H5, you need to use VLC plug-in to view videos. Please access VLC website (http://www.videolan.org/vlc) download and install the 32-bit VLC media player, after it installed, access camera will have normal image display. Other mainstream browsers already support H5 and do not need to install the VLC plug-in.

● Unable to access camera through Browser

1) Using PC to access the network to test whether the network access can work properly, first of all, the network fault caused by the PC virus can be eliminated, until the PC and camera can communicate with each other Ping.
2) Disconnect the network, connect camera and PC separately, and reset the IP address of PC.
3) Check IP address, subnet mask, and gateway settings for camera.
4) Check whether the MAC address is conflicts.
5) Check whether the web port is modified.
6) The default web port is 80.

● Forget the IP address or login password

Please remember (The default IP address: 192.168.100.88; default user name: admin; default password: admin).

Control

● Remote control cannot control

1) Check and replace the new battery for the remote controller.
2) Check whether the camera working mode is correct.
3) Check whether the address of remote control can match the camera.

● Serial port cannot control

1) Check whether the camera protocol, address and baud rate such is the same.
2) Check whether the control line is connected well.

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