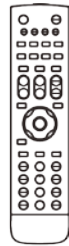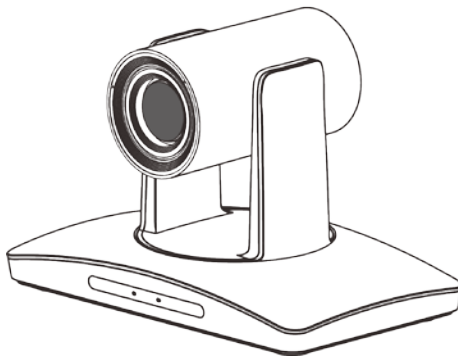# IP HD PTZ Color Video Camera

User Manual V1.0

SAFETY NOTICE-IMPORTANT!!!

The following important notes must be followed carefully to run the camera and respective accessories in total safety. The camera and relative accessories are called video system in this section.

■ Before installing the camera, please read this manual carefully. Please follow installation instructions indicated in this manual during installation. Please keep this manual for future use.

■ The installation should be performed by qualified service personnel or system installers in accordance with all local rules.

■ Before powering on the camera, please check the power voltage carefully. Make sure that you are using the correct power source.

■ Please put the power cable, video cable and control cable in safe place.

■ Do not operate the camera beyond the specified temperature and humidity. Working temperature range of the camera is between 0℃ and +40℃. The ambient humidity range is less than 90 ﹪.

■ During transporting, avoid violent shake or force to the camera.

■ To prevent electric shock, do not remove screws or housing of the camera. There are no self-serviceable parts inside. Refer to qualified service personnel for servicing.

■ Video cable and RS485 cable should be kept far away from other cables. Shielded and independent wiring is necessary for video and control cables.

■ Never aim the lens of the camera at the sun or other extremely bright objects. Otherwise, it may cause damage.

■ When cleaning the camera, please use soft cloth. If the camera is very dirty, wipe it off gently with a soft cloth moistened with a weak solution of water and a neutral kitchen detergent. Wring all liquid from the cloth before wiping the camera, then wipe off all remaining dirt with a soft, dry cloth. Use lens cleaning paper to clean the lens.

- Do not move the camera head manually. In doing so would result in malfunction of the camera. Do not hold the camera head when carrying the video camera.
- This camera is for indoor use only. It is not designed for outdoor use.
- Make sure the camera is not directly exposed to rain and water.
- Make sure the camera is far away from area where radiation, X-rays, strong electric waves, or magnetism is generated.

CONTENTS

ABOUT THE PRODUCT

Features

- 1/2.8 inch CMOS sensor, 2.14 megapixel;
- H.265, H.264 video compression;
- 3G-SDI, DVI output;
- Support 1080p60 video output;
- 20x optical zoom, 12x optical zoom;
- 20X: Max FOV: 59.5°;

  12X: Max FOV: 72.5°;
- Dual stream, supporting multi-levels configuration of video quality;
- 1 channel audio input and 1 channel output;
- Max. 64G TF card for local storage;
- Precise driving system with high reliability and precision;
- Support multi protocols & control interfaces and Daisy chain;
- OSD menu;
- With IR remote controller;
- Smart AE technology to effectively avoid the interference of complicated lights from projectors ,monitors etc;
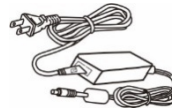- Desktop/Ceiling/ Wall mount optional.

List Of Parts & Accessories

When you open the box, check all accessories according to the packing list.

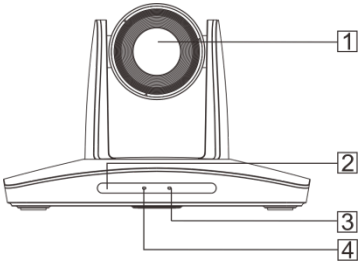**Camera (1)**

Power Adapter (1)

Remote Controller (1)

RS-232 Control Cable (1)

Main Parts & Interfaces

Camera

Front View
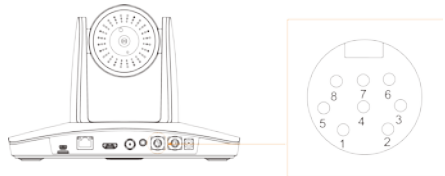
1 Camera Module

2 IR Sensor

3 Power Indicator

4 Communication Indicator

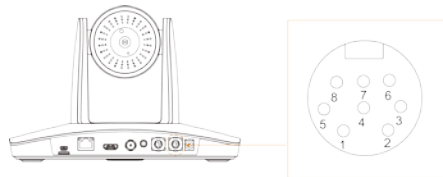**Rear View**

5 TF Card Slot

6 USB

7 RJ45 (Network)

8 HDMI Video Output

9 3G-SDI

10 Audio

11 RS-232IN/IR

12 RS-232OUT/RS-485

13 Power（DC12V）

RS-232IN/IR Pin Definition	
Number	Definition
1	/
2	/
3	TXD
4	GND
5	RXD
6	GND
7	IR
8	/

RS-232OUT/RS-485 Pin Definition	
Number	Definition
1	/
2	/
3	TXD
4	GND
5	RXD
6	GND
7	485+
8	485-

Bottom View
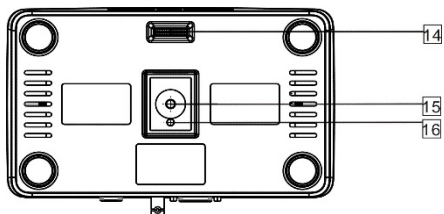
14 DIP Switch

Set camera address, protocol, baud rate,

video format and mounting type.

15 Mounting Hole

1/4"inch screw thread for fixing camera.

16 Locating Hole

To define installation direction of camera.

DIP Switches Settings

Before installing and operating the camera, set the camera address, baud rate and video output format etc through DIP switches. The camera has two 8-digit DIP switches: SW1 and SW2 as below:
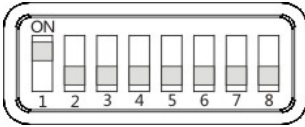

⌸Note

SW1 is used to set address, and mounting type, SW2 is used to set protocol, baud rate and video output format.

Default Settings	
Address	1
Baud Rate	9600bps
Protocol	VISCA
Video Format	1080P25
Mounting Type	Desktop Installation

SW1 settings

No 1~6 are used to set camera address, the DIPs adopt binary system. No. 8 is used to set mounting type. Refer to page 36 for details.

SW2 settings

No. 1 and 2 of SW2 is used to set protocol; no. 3 and 4 is used to set baud rate; No. 5, 6, 7, 8 is used to set video output format. Refer to below chart for details:

SW2				
DIP No.	1	2		
Protocol	OFF	OFF	VISCA	
	ON	OFF	PELCO- D	
	OFF	ON	PELCO- P	
	ON	ON	Reserved	
DIP No.	3	4		
Baud Rate(bps)	OFF	OFF	2400	
	ON	OFF	4800	
	OFF	ON	9600	
	ON	ON	38400	
DIP No.	5	6	7	8	
Video Format	OFF	OFF	OFF	OFF	1080P60
	ON	OFF	OFF	OFF	1080P50
	OFF	ON	OFF	OFF	1080I60
	ON	ON	OFF	OFF	1080I50
	OFF	OFF	ON	OFF	720P60
	ON	OFF	ON	OFF	720P50
	OFF	ON	ON	OFF	1080P30
	ON	ON	ON	OFF	1080P25

When No.5~8 is all ON, camera address, protocol, baud rate, video format and mounting type can be programmed by OSD menu. Please refer to page18 for detais of changing video formats through special presets.

⌸Note

PTZ reboot is necessary for the new setting to take effect.

Remote Controller
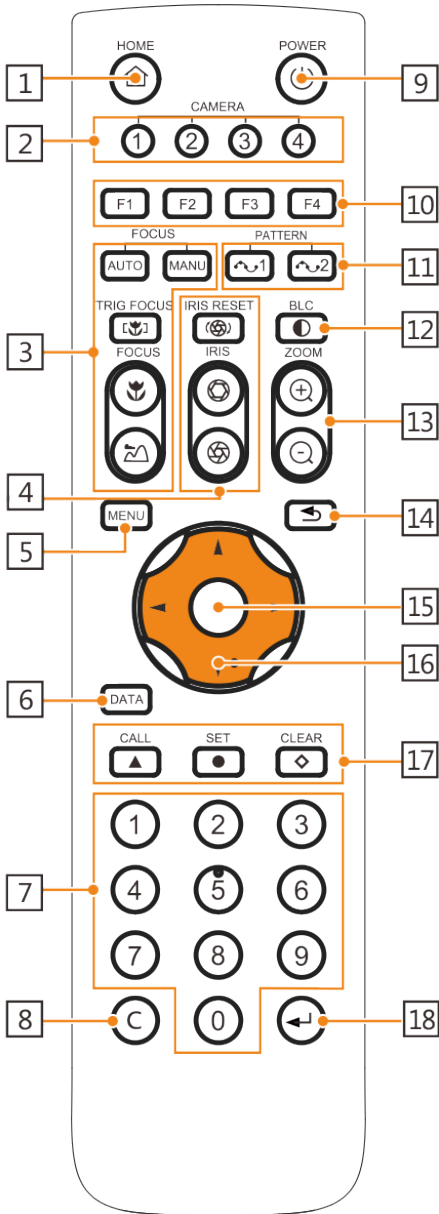
1 HOME

Press HOME button, camera moves to initial position.

2 Camera Selection Button

Used to switch among 4 cameras, press 1-4 number buttons to control cameras with 1-4 addresses respectively. For example, press button 1 to control the camera with address 1.

3 Focus

Press "AUTO" button to switch to Auto Focus, press "MANU" button to switch to Manual Focus mode.

"🌷"button to Focus Near

"〰"button to Focus Far

"[🌷]"button to Auto Focus once every time it is pressed, then switch back to Manual Focus mode.

4 Iris

Press"(🔄)"button to reset iris (image brightness) value to default. "〇"button to Iris Open (brighter image)

"🔄"button to Iris Close (darker image).

5 Menu

Press MENU button to enter / exit menu.

6 Data

Reserved.

7 Number Keys

5

Used to input numbers, for example, preset number.

8 Cancel

To cancel numbers input

9 Power

After the camera has been connected to power source, in none-menu status, press this button to turn on / off the camera.

10 Reserved buttons (F1, **F2**, **F3**, **F4)**

These buttons are reserved for future use.

11 Pattern

Reserved

12 BLC

Used to open / close back light compensation.

13 Zoom

Used to adjust zooming times.

"⊕"button to zoom in

"⊖"button to zoom out.

14 Back

Press"⤺ "button to go back to previous menu.

15 OK

In None-menu status: press this button to switch among pan / tilt control speeds.

In Menu status: get into relative menu option after it has been selected.

16 Direction / Menu Operation

In None-menu status, press these four buttons to pan left/right and tilt up/down.

In Menu status:▲ or ▼ button to select among menu options, ◄ or ► to change option / value.

17 Preset Setting

"▲" button to call a preset.

Input number key(s), and then press this button to call a preset.

"●"button to set a preset.

Move the camera to a specific position, adjust focus value and etc, and then press this button to set a preset.

"◆"button to clear a preset.

Input number key(s), and then press this button to clear a preset.

18 Enter

After inputting numbers, press this button to confirm.

6

INSTALLATION

The camera has 3 installation types: desktop,

ceiling, wall mount installations.

Desktop Mount Installation

1. Put the camera on a flat surface. In case the camera has to be placed on an inclined surface, make sure the cline angle is less than 15 degrees to ensure proper pan /tilt operation.
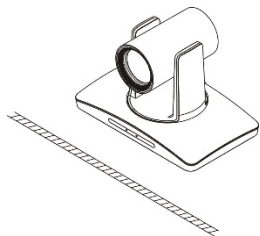
Wall Mount Installation

(Wall Bracket Supplied separately)
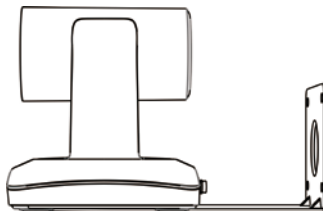
1. According to diameter and position of the 4 installation holes (As shown below) on the bracket, drill 4 holes on the wall and fix the bracket onto the wall by using 4 screws which should be prepared by you.
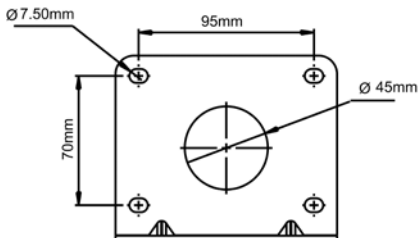
2. Before fixing the camera, set the DIP switches of the camera correctly.

3. Use inch screws to fix the camera on the bracket, fix the limit screw according to actual requirement, and make sure the camera is tightly fixed onto the bracket before your hands leave the camera.

Ceiling Mount Installation

Ceiling Plates Supplied Separately

1. According to diameter and position of the 4 installation hole (as shown below), drill 4 holes on the ceiling or cement roof correspondingly.
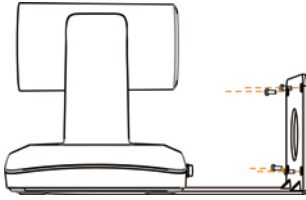
2. Fix the mounting plate onto the ceiling or cement roof with 4 screws which should be prepared by you.
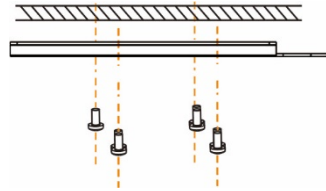
3. Before fixing the camera, set the DIP switches of the camera correctly.

4. Use 1 screws to fix the camera on the ceiling mount plate.
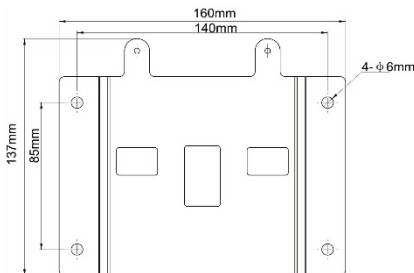
5. Push forward camera's bottom slide according to the mounting plate's bottom slide until they reach their limit. Fix the ceiling mount plate and camera's bottom plate with M3×8 screws.

CONNECTIONS

USB interface(optional)
Network interface(optional)
HDMI interface (optional)
SDI interface(optional)
Power
RS-485 interface(optional)
RS-232 interface
Audio interface(optional)
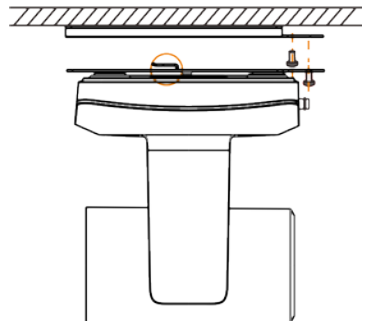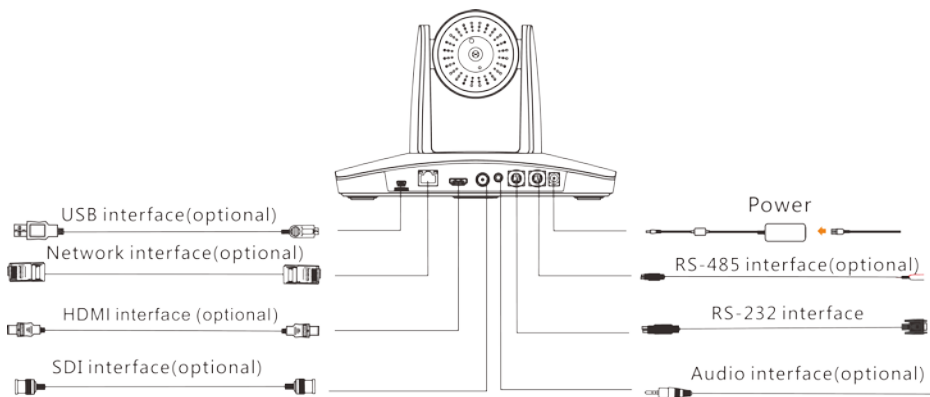
📖Note

If preset 0 has been saved, after powered on, camera moves to preset 0 automatically; if preset 0 has not been saved, after powered on, camera moves to Home position, where both pan and tilt angle is zero and zooming time is 1x.

MENU SETTINGS

Menu Configuration

<VIDEO>

Refer to
Page 15

SHARPNESS ———— 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15

BRIGHTNESS ———— 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14

CONTRAST ———— 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14

GAMMA MODE ——— 0, 1, 2, 3, 4

2DNR LEVEL ———— 1，2，3，4，5，OFF

3DNR LEVEL ———— 1，2，3，4，5，OFF

WIDE DYNAMIC ——— 1，2，3，4，5，OFF

```
<EXPOSURE> ─┬─ MODE ─┬─ FULL AUTO
Refer to Page
15          │        ├─ MANUAL ─┬─ GAIN ─── 0, +2, +4, +6, +8, +10,
            │        │          │           +12, +14, +16, +18,
            │        │          │           +20, +22, +24, +26,
            │        │          │           +28，+30
            │        │          │
            │        │          ├─ SPEED ── 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
            │        │          │
            │        │          └─ IRIS ─── F14, F11, F9.6, F8,
            │        │                      F6.8, F5.6, F4.8, F4,
            │        │                      F3.4, F2.8, F2.4, F2,
            │        │                      F1.6, CLOSE
            │        │
            │        ├─ SHUTTER ── SPEED ── 1/30, 1/60, 1/90, 1/100,
            │        │  PRI                 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
            │        │
            │        ├─ IRIS PRI ── IRIS ── F14, F11, F9.6, F8,
            │        │                      F6.8, F5.6, F4.8, F4,
            │        │                      F3.4, F2.8, F2.4, F2,
            │        │                      F1.6, CLOSE
            │        │
            │        └─ BRIGHT PRI ── BRIGHT ── 0, 1, 2, 3, 4, 5, 6, 7, 8, 9,
            │                                   10, 11, 12, 13, 14, 15,
            │                                   16, 17, 18,19, 20, 21,
            │                                   22, 23, 24, 25, 26, 27
            │
            ├─ EX-COMP ─┬─ ON ─── LEVEL ── -7, -6, -5, -4, -3, -2, -1,
            │           └─ OFF             0, +1, +2, +3, +4, +5,
            │                              +6, +7
            │
            ├─ BLC ─┬─ ON
            │       └─ OFF
            │
            └─ ANTI-FLICKER ── OFF,50HZ,60HZ
```

11

```
<COLOR>          ┬ WB MODE ─────── AUTO, ATW, ONE PUSH, INDOOR, OUTDOOR, MANUAL,
Refer to Page    │                 SODIUM LAMP, FLUO LAMP
16               │
                 ├ SATURATION ─── 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14
                 │
                 └ HUE ────────── 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14


<PAN TILT ZOOM> ─┬ PAN/TILT SPEED ───────── 1, 2, 3, 4, 5, 6, 7, 8
Refer to Page 17 │
                 ├ D-ZOOM LIMIT ──────────── X1, X2, X3, X4, X5, X6, X7,
                 │                           X8, X9, X10, X11, X12
                 ├ PTZ TRIG AF ───────────── ON, OFF
                 │
                 ├ RATIO SPEED ───────────── ON，OFF
                 └ POWER UP ACTION ───────── PRESET 1,  PRESET 2,
                                             PRESET 3,  PRESET 4,
                                             PRESET 5,  PRESET 6,
                                             PRESET 7,  PRESET 8,
                                             PRESET 9, HOME


< SYSTEM >──────┬ ADDRESS ─────── 1, 2, 3, 4, 5, 6, 7
Refer to Page   ├ PROTOCOL ────── VISCA, PELCO-P, PELCO-D
17              ├ BAUDRATE ────── 2400, 4800, 9600, 38400
                ├ IR ADDRESS ──── 1,2,3,4
                ├ VIDEO FORMAT ── 1080P60, 1080P50, 1080I60,
                │                 1080I50, 1080P30, 1080P25,
                │                 720P60, 720P50
                ├ MOUNT MODE ──── STAND，CEILING
                ├ RS485 PORT ──── HALF-DUPLEX-1，HALF-DUPLEX-2
                └ LANGUAGE ────── ENGLISH
```
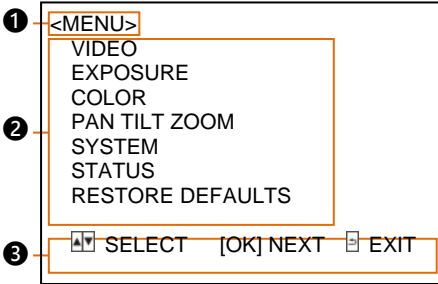
```
<STATUS> ————  ADDRESS  ————  1
Refer to Page    ├─ PROTOCOL ————— VISCA
18               ├─ BAUD RATE ———— 9600
                 ├─ IR ADDRESS ———— 1
                 ├─ VIDEO FORMAT — 1080P25
                 ├─ MOUNT MODE ——— STAND
                 └─ FIRMWARE VER ——1.0.06
```

<RESTORE DEFAULTS>   Refer to Page18

Menu Explanation

Main Menu

Main MenuCall Preset #95 to enter menu.

➊ ── <MENU>
     VIDEO
     EXPOSURE
     COLOR
➋ ── PAN TILT ZOOM
     SYSTEM
     STATUS
     RESTORE DEFAULTS

➌ ── ▲▼ SELECT   [OK] NEXT ⊟ EXIT

➊ Menu Title

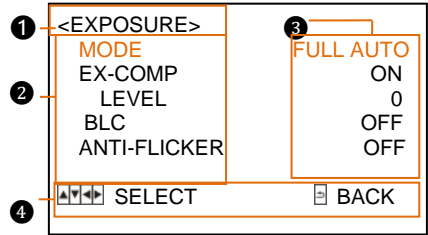It displays currently selected menu option

➋ Menu Options

It displays options under current menu title.
Click UP or DOWN button to select among
menu options, once color of options turned to
different color, it indicates the menu has been
elected, click IRIS+ button to get into this
menu.

Submenus

From main menu, navigate to select

<EXPOSURE> menu, click IRIS ⊕ to enter.
<EXPOSURE>Set menu.

➊ ── <EXPOSURE>   ➌
     MODE   FULL AUTO
     EX-COMP   ON
➋ ── LEVEL   0
     BLC   OFF
     ANTI-FLICKER   OFF

➍ ── ▲▼◄► SELECT   ⊟ BACK

➊➋ Please refer to the same controls to the Main Menu

➌ Menu options

Click ◄ or ► to change the values.

Video

VIDEO menu is used to change video value.

```
<VIDEO>
 SHARPNESS              8
 BRIGHTNESS             7
 CONTRAST               2
 GAMMA MODE             0
 2DNR LEVEL           OFF
 3DNR LEVEL           OFF
 WIDE DYNAMIC         OFF

 ▲▼◄► SELECT        ⊟ BACK
```

Available Options:

SHARPNESS: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15.

BRIGHTNESS: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14.

CONTRAST: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14.

GAMMA MODE: 0, 1, 2, 3, 4.

2DNR LEVEL: 1, 2, 3, 4, 5, OFF

3DNR LEVEL: 1, 2, 3, 4, 5, OFF.

WIDE DYNAMIC: 1, 2, 3, 4, 5, OFF.

Exposure

EXPOSURE menu is used to adjust exposure value.

```
<EXPOSURE>
 MODE           FULL AUTO
 EXP-COMP              ON
   LEVEL               0
 BLC                  ON
 ANTI-FLICKER        OFF

 ▲▼◄► SELECT        ⊟ BACK
```

MODE:

FULL AUTO: Gain, Shutter Speed and Iris value are adjusted automatically accordingly to working environment.

MANUAL: manually adjust Gain, Shutter Speed and Iris

GAIN: 0, +2, +4, +6, +8, +10, +12, +14, +16, +18, +20, +22, +24, +26, +28, +29, +30.

SPEED: 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.

IRIS: F14, F11, F9.6, F8, F6.8, F5.6, F4.8, F4, F3.4, F2.8, F2.4, F2, F1.6, CLOSE.

SHUTTER PRI: Gain and Iris value are adjusted automatically according to working environment; shutter speed value is adjustable manually.

SPEED: 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.

IRIS PRI: Gain and shutter speed value are adjusted automatically according to working environment; Iris value is adjustable manually.

IRIS: F14, F11, F9.6, F8, F6.8, F5.6, F4.8, F4, F3.4, F2.8, F2.4, F2, F1.6, CLOSE.

BRIGHT PRI: Manually adjust the video brightness.

BRIGHT: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27.

EXP-COMP: Once EXP-COMP is set as On, below level options become available -7, -6, -5, -4, -3, -2, -1, 0, +1, +2, +3, +4, +5, +6, +7

+7 is the maximum compensation value for bright, -7 is the maximum compensation value for dark.

BLC: ON, OFF.

Backlight compensation (BLC) is video gain done automatically to correct the exposure of subjects that are in front of a bright light source.

ANTI-FLICKER (OFF, 50Hz, 60Hz): To avoid video flicker at power systems of different frequency.

COLOR

COLOR menu is used to adjust color related values. Available options:

```
< COLOR>
  WB MODE              MANUAL
    R.GAIN                  7
    B.GAIN                  7
  SATURATION              7
  HUE                     7

 ▲▼◄►  SELECT          ⊟ BACK
```

WB MODE: AUTO, ATW (auto tracking), ONE PUSH, INDOOR, OUTDOOR, MANUAL, SODIUM LAMP, FLUO LAMP

"ONE PUSH": In "ONE PUSH TRIGGER" mode, aim the camera at a pure white object (say a white paper), then press 🔵 button.

"AUTO" mode: R.GAIN, G.GAIN and B.Gain can be chosen from -7~+7.

"MANUAL" mode: R.GAIN and B. GAIN value can be chosen from 0~255.

SATURATION: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14.

HUE: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14.

Pan/Tilt/Zoom

PAN/TILT/ZOOM is used to change

pan/tilt/zoom value, available options:

```
<PAN TILT ZOOM>
  PAN/TILT SPEED              8
  D-ZOOM LIMIT              X1
  PTZ TRIG AF              ON
  RATIO SPEED              ON
  POWER UP ACTION       HOME

 ▲▼◄► SELECT          ⊟ BACK
```

PAN/TILT SPEED: 1, 2, 3, 4, 5, 6, 7, 8 the

bigger the number is, the faster the speed is.

D-ZOOM LIMIT: X1, X2, X3, X4, X5, X6, X7,

X8, X9, X10, X11, X12.

PTZ TRIG AF: Turn ON / OFF the auto focus

when the camera pans / tilts / zooms.

RATIO SPEED (ON, OFF): Set the relation of

PT speed as per zoom time. When it's on,

PTZ speed will be faster when zoom time is

bigger.

POWER UP ACTION: PRESET 1, PRESET 2,

PRESET 3, PRESET 4, PRESET 5, PRESET

6, PRESET 7, PRESET 8, PRESET 9,

HOME.

System

```
<SYSTEM>
  ADDRESS                    1
  PROTOCOL               VISCA
  BAUD RATE              9600
  IR ADDRESS                1
  VIDEO FORMAT       1080P25
  MOUNT MODE         STAND
  RS485 PORT   HALF-DUPLEX-1
  LANGUAGE          ENGLISH

 ▲▼◄► SELECT          ⊟ BACK
```

ADDRESS: 1, 2, 3, 4, 5, 6, 7.

PROTOCOL: VISCA, PELCO-D, PELCO-P;

BAUD RATE: 2400, 4800, 9600, 38400;

IR ADDRESS: 1,2,3,4, set camera address to

be controlled by remote controller.

VIDEO FORMAT: 1080P60, 1080P50,

1080P30, 1080P25, 1080I60, 1080I50,

720P60, 720P50;

MOUNT MODE: STAND, CEILING;

RS485 PORT:

HALF-DUPLEX-1: the camera will not return

ACK/FINISH/FAULT msg.

HALF-DUPLEX-2: the camera will return

ACK/FINISH/FAULT msg.

LANGUAGE: ENGLISH

STATUS

```
< STATUS>
  ADDRESS                    1
  PROTOCOL               VISCA
  BAUD RATE               9600
  IR ADDRESS                 1
  VIDEO FORMAT        1080P25
  MOUNT MODE          STAND
  FIRMWARE VER        V3.1.02

                     ⊟ BACK
```

Display information (address, protocol, baud

rate, IR address, video format, mount mode,

image version and firmware version) of the

current camera.

Restore Defaults

```
< RESTORE DEFAULTS>
  PRESS OK       CONFIRM
  PRESS BACK      CANCEL



                 ⊟ BACK

```

RESTORE DEFAULTS option is used to reset

all menus to default value.

Press ⊕ to confirm or press ⊕ to cancel

and return to previous menu.

List of Special Preset Commands

| Preset No.	Function
95	Get into menu
96	Delete all presets
99	Reboot the PTZ
100	Video format: 1920X1080P50
101	Video format: 1920X1080P25
102	Video format: 1920X1080I50
103	Video format: 1280X720P50
105	Video format: 1920X1080P60
106	Video format: 1920X1080P30
107	Video format: 1920X1080I60
108	Video format: 1280X720P60

Network Connection

Connect the camera to network with an Ethernet cable, power on the camera.

LAN Connection
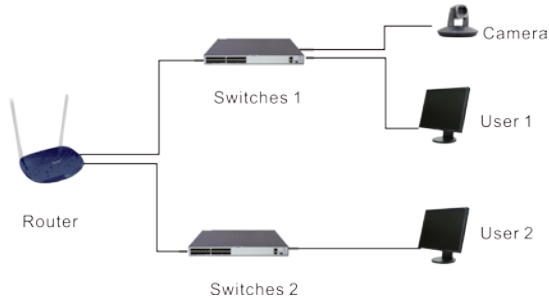
Please refer to the above diagram, user1 and user 2 are in the same router, they are considered as in the same LAN, connect the camera to the same LAN as where the PC is, and refer to below instructions as how to use the application software, then the camera can be found and connected from the online device list.

WAN Connection
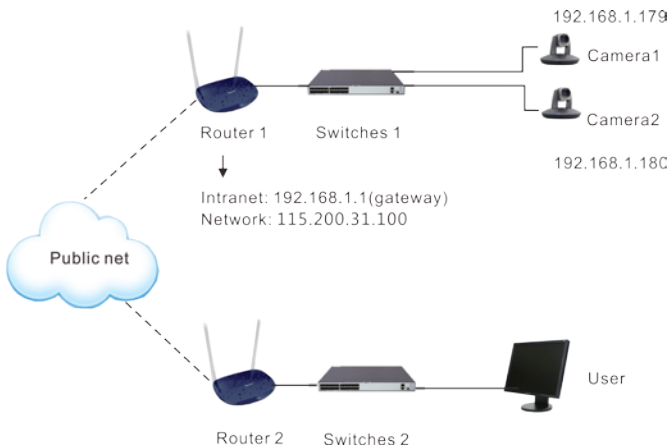
Please refer to the above diagram, user and the camera are in different routers, they are considered as in a WAN; in this condition, application software iSmartCMS can not search and find the camera automatically. User can still connect after below conditions are satisfied: (1) Set camera's IP address as static IP address (2) Router of the LAN where camera is connected supports Port Mapping. (3) Router of the LAN where camera is connected has fixed public IP address. Follow below steps to connect:

Step One

Set camera's IP address in LAN: connect user PC to the LAN (Router 1) where the camera is connected according to LAN connection instructions, use application software iSmartCMS to search and find the camera, then add it to manage; then set camera's IP address in the same network segment as the router 1. Camera's gateway is usually set at Router 1's LAN IP address, for example, 192.168.1.1, then camera's IP address can be set as for example 192.168.1.179 or 192.168.1.180 as long as they are in the same network segment.

Steps Two

Route Mapping: User PC logs into router configuration menu, gets into "Port Mapping" (router management authorization may be required); refer to below picture, DO NOT tick "Do not apply this rule", from first frame under "External port", input any number from 1~65535, but preferred to be set at more than 10000 like 10200 so there will be less port conflict possibility. From "Internal IP", input the camera1's IP address 192.168.1.179, from first frame of "Internal Port", input 3478, (all cameras use this same port number). "Protocol" and "Mapping Line" can be default, from "Note", input "Camera 1's mapping port" or something to understand.

Port mapping

List of rules	
Not applied	☐ **Do not apply this rule** If you disable this rule, the following configuration will only be saved but will not be applied.
External port	You can input an external port or an external port segment to be mapped to an open port or port segment of an internal host. If you leave it blank, the external port or port segment is identical to the internal port or port segment. The range is between 1 and 65535.
Internal IP	The IP address of the internal host that provides external service. For example: *192.168.0.50*
Internal port	The open port or port segment of the internal host that provides external services. The range is between 1 and 65535.
Protocol	TCP ▾ The protocol used for port mapping can be TCP, UDP or both.
Mapping line	Any ▾ The line used for port mapping can be single WAN or multi WAN.
Note	You can write a short note to describe this mapping rule. For example: *The WEB server for Marketing Department.*

Save   Back

Port mapping function can map the service port of the intranet server host to extranet, so external network users can access the services offered by the intranet server through the external IP address and port of the router.

Notice:
· Port mapping works only if "Block extranet requests" on the Attack defense page is disabled.

Step Three

Access from external network: Router 1's public IP address is 115.200.31.100, for example, go through the above steps one and two, WAN users under router 2 can access camera 1 through IP address 115.200.31.100 + port 10200. Then, in WAN, the mapping of camera 1 and (IP 115.200.31.100 + port 10200) is established. Camera 2 can use another external port such as 10320, so mapping of camera 2 with (IP 115.200.31.100 + port 10320) is established. In the "Managed Device" of the client software iSmart CMS, click "+ Add", enter the IP address 115.200.31.100 and port 10200 and other information, then the camera 1 can be accessed and controlled.
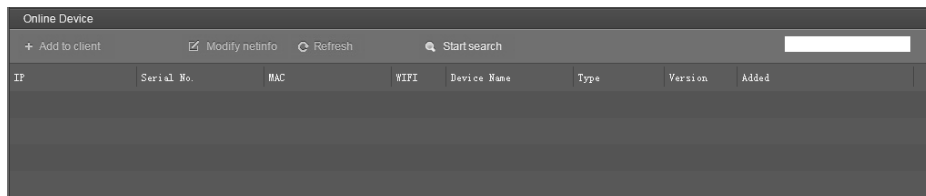
Client Software Instruction

Search and list the camera

Install and open the client software in PC, enter the main interface:
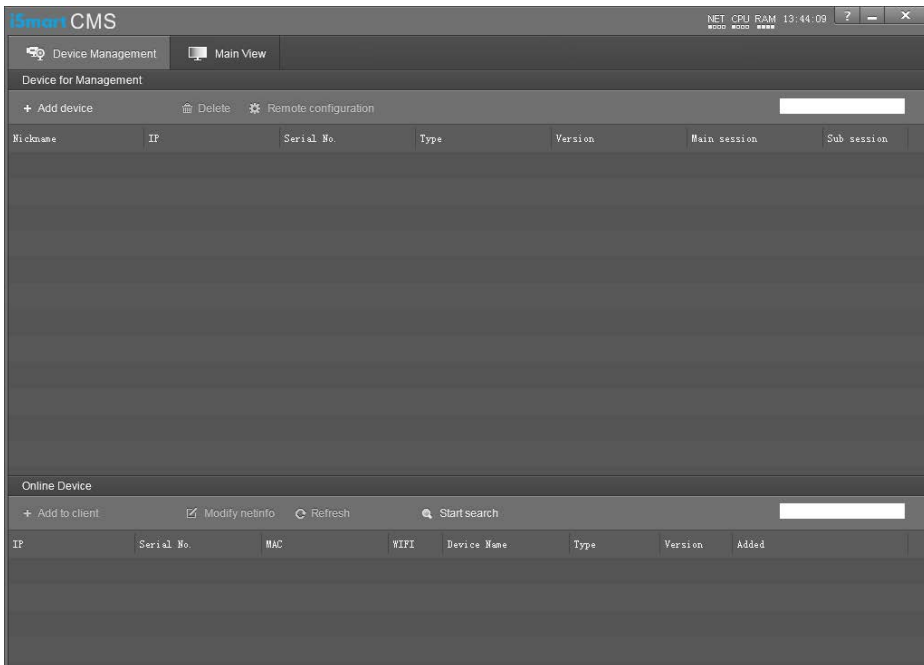
If the camera and PC are in the same LAN, click "Start Search", then searching starts and all online devices will be listed, as the picture shown below:

To modify the device IP address, input the IP address, mask, gateway in the "Modify Network" column.

To control and preview a camera, first choose the device, modify its IP address as the IP address of the same LAN, then click "Add to Client" as the picture shown below.

Please check that all IP addresses are in the same LAN.

Remote Configuration

Choose the camera in the device list, click "Remote Configuration" in the column to upgrade or config the camera.
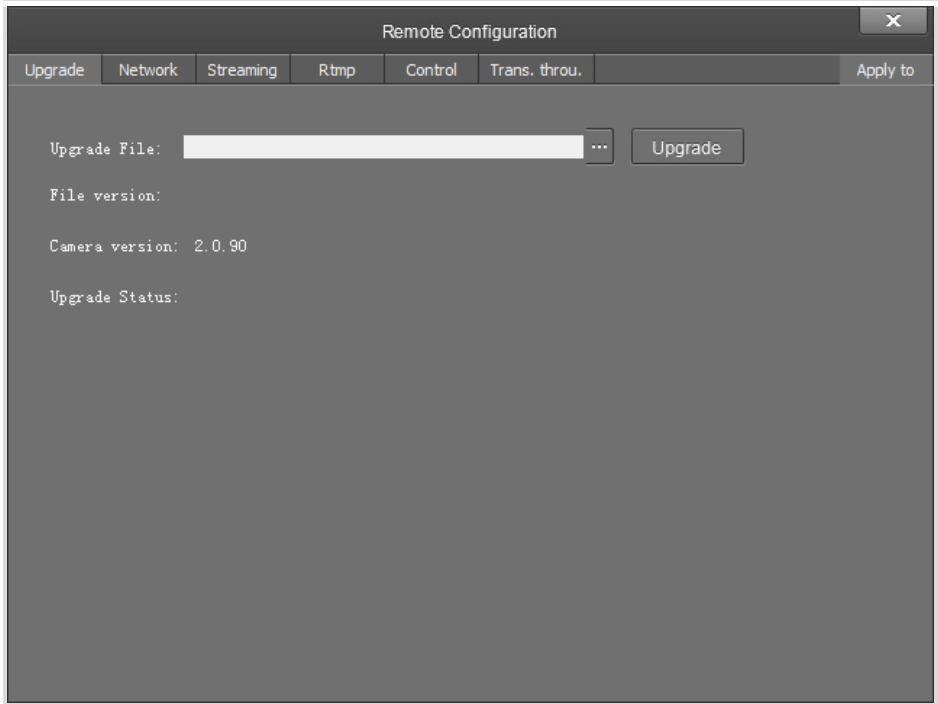
Click "Upgrade" menu to enter the main interface, as the picture shown above.

Click [...] to search and load the updating firmware, then click "Upgrade" to start upgrading. Do not power off the camera during upgrading. After upgrading is completed, camera will reboot.

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- Connect with: please choose from Static IP or dynamic IP address;

- IP address: input IP address for the camera;

- Mask: input mask address for the camera;

- Gateway: input gateway IP address;

- DNS 1: server-prior, input DNS address for the device;

- DNS 2: It will be used in case DNS1 server is not working;

- Port: streaming port(RTSP) and application port(SDK connection) can be configured. The range of stream ports is 3479~7999 and 554, default is 554. The range of application ports is 3479~7999, default is 5002;

- Click the "Save" button after setting is completed;

- Camera will connect to ethernet after above-mentioned operations;

Streaming

- Stream type: set the parameters of main stream, sub stream, third stream, fourth stream.

- Resolution: set among 4K(3840*2160), 1080P(1920*1080), 720P(1280*720),

  D1&QVGA(320*240), choose resolutions based on actual requirements and capability of device.

  The higher the resolution is, the better network requirements will be needed.

- Max rate: configure max stream rate or adjustable stream rate.

- Frame rate: choose from different frame per second

- Key frame interval: configure the number of frames between the two key frames. The larger the

  key frame interval is, the smaller the fluctuation of the byte will be, but the image quality is

  relatively poor. Vice versa, the larger the fluctuation of the byte will be, the higher the image

  quality will be.

- Video coding type: choose H.264 or H.265.

- Encode level: choose from Base, Main and High.

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RTMP

In RTMP1 and RTMP2, main stream, sub stream, third stream, fourth stream can be chosen to stream.

Control

● Password setting: when a password is required, the camera can be accessed only after a correct password is input.

● Reboot: reboot the camera.

Remote Configuration	✕

| Upgrade | Network | Streaming | Rtmp | Control | Trans. throu. | | Apply to |

Old password   [   ]

New password   [   ]

Confirm   [   ]

         [Save]

Reboot   [Reboot]

Device name   [LZC5-F79N]

         [Save]

Local Time   2018-12-17 14:24:28   [OK]

☐ Show Time

Time Format   [YYYY-MM-DD HH:mm:ss ▼]

[OK]

☐ Refresh NTP

TimeZone   [-07:00 ▼]

NTP Server   [202.120.2.101]   [OK]

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Transparent Transmission

- Enable / Disable: enable / disable transparent transmission;

- Protocol: choose TCP or UDP protocols;

- Camera as: choose Client or Server;

- IP: when the camera is set as client, the IP address of the transmitted camera is needed. When the camera is set as server, the IP address can be left as black;

- Port: choose from 1-65535 as transparent transmission port.

Click "Main View" to get into camera control and preview part as below.
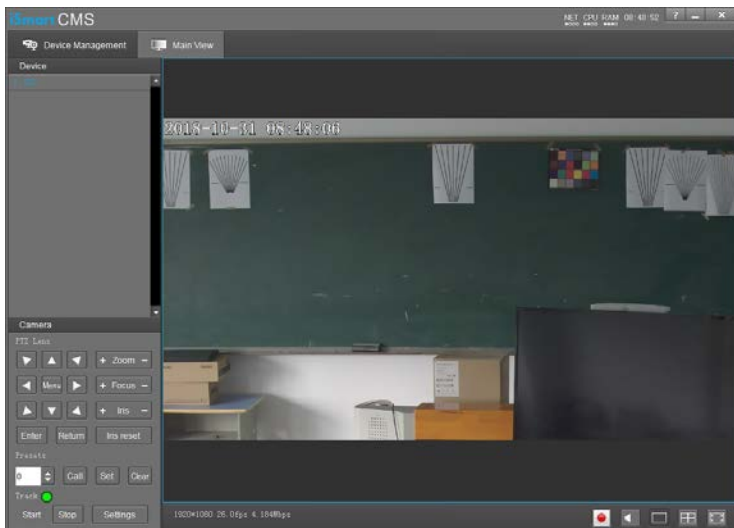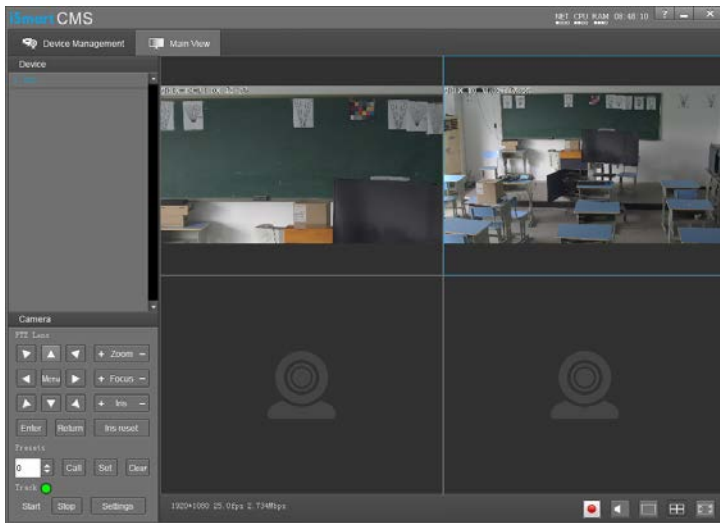
This interface includes three main parts: Device List, Device Control, Video Preview

● Device: It displays all online cameras added to "Device Management".

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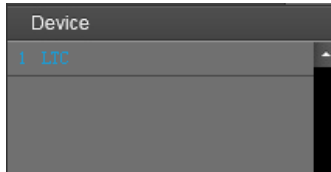
● Device Control: get control of the selected camera (camera name in blue).
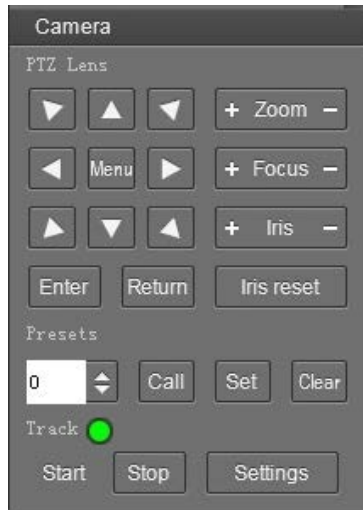
● Video Preview: double click the camera in the list, main camera stream will be displayed in the preview window; or right click the selected camera from the left column to get its main or substream video. Video preview mode can be single video or four video's, when in four video's mode, select one of the four video's then choose the bottom right icon to enlarge this selected video to a big single window.
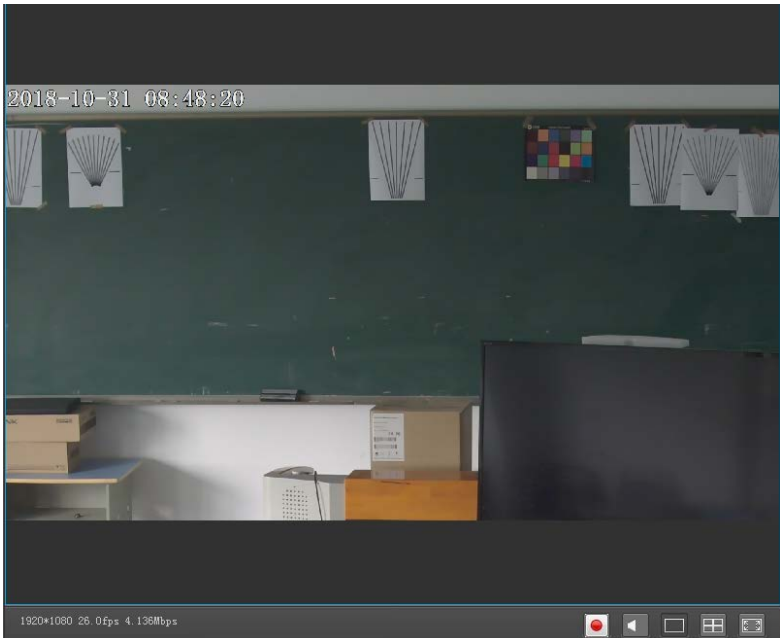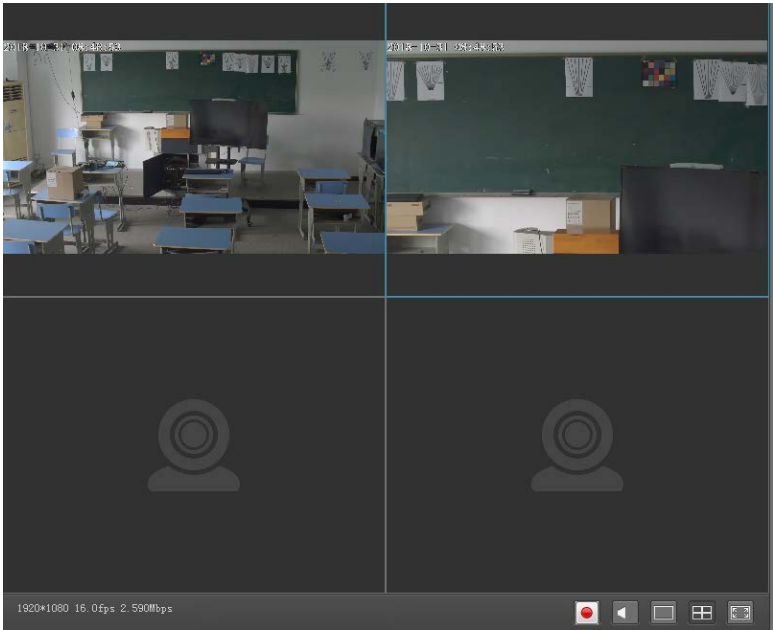
ANNEX 1 TECHNICAL SPECIFICATIONS

Items	Value	
Image Sensor	1/2.8" CMOS, 2.14 megapixel	
Focal Lens	f=4.7~94.0mm	f=3.9mm-46.8mm
Iris	F1.6 – F3.5	F1.6-F2.8
Optical Zoom	20x	12x
Digital Zoom	12x	
Horizontal Viewing Angle	59.5° -2.9°	72.5° -6.3°
Focus System	Auto, Manual, PTZ Trigger, One Push Trigger	
Exposure Control	Auto, Manual, Shutter Priority, Iris Priority, Smart	
Min. Illumination	0.5lux(color), 0.1lux(B/W)	
Shutter Speed	1/1 to 1/10,000s	
Gain	Auto /Manual	
White Balance	Auto, Indoor, Outdoor, One Push, Manual, Auto Tracking, Sodium Lamp, Fluo Lamp	
Wide Dynamic	Yes	
Back Light Compensation	Yes	
Digital Noise Reduction	2D/3D	
S/N	≥50dB	
Function		
Pan Angle	-170°~+170°	
Tilt Angle	-30°~+90°	
Pan Speed	0.1°~120°/S	
Tilt Speed	0.1°~80°/S	
Preset Number	256	
OSD	Yes	
Image Flip	Yes	
SDI Output		
Video Format	1080P60, 1080I60, 1080P30, 720P60	
	1080P50, 1080I50, 1080P25, 720P50	
NETWORK		
Resolution	Max Support 1920*1080@60fps	
Image Compression	H.265, H.264	
Audio Compression	AAC	
Protocols	ONVIF, RTSP, RTMP, HTTP, TCP, UDP	
Dual Stream	Support	
Interface		
Video Output	1 channel 3G-SDI, 1 channel HDMI	
Audio	1 channel LINE IN, 1 channel LINE OUT	
Network Interface	RJ45 (10M/100M) interface, Optional POE (Power over Ethernet)	
Local Storage	TF card, max 64G	
Control Interface	1 channel RS-485, 1 channel RS-232 IN, 1 channel RS-323 OUT	

IR Throughout Output	1 channel IR throughout output
General	
Protocols	VISCA (support daisy chain) / PELCO-P / PELCO-D
Address	0~63
Power	DC12V
Power Consumption	<20W
Operating Temperature	0°C~+40°C
Storage Temperature	-20°C~+60°C
Dimensions （W×H×D）	243mm×145mm×163mm
Weight	1.2KG
Body color	grey

ANNEX 2 SIZE AND DIMENSION

Front

Rear

Side

Top
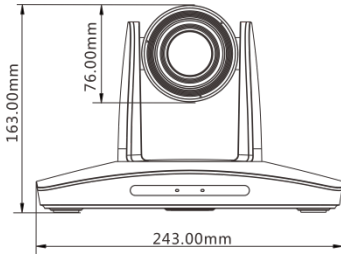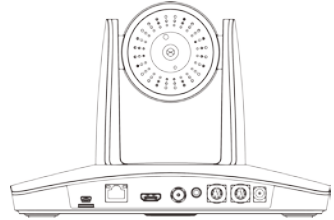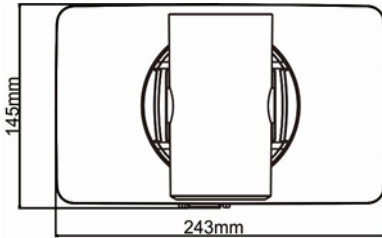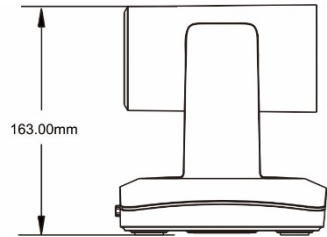
Bottom
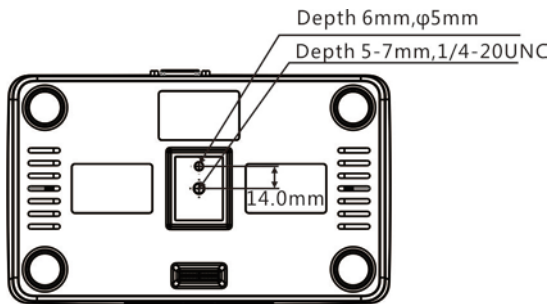
ANNEX 3 SW1 DEFINITION

DIP No. Address	1	2	3	4	5	6
0	OFF	OFF	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	OFF	OFF	OFF
2	OFF	ON	OFF	OFF	OFF	OFF
3	ON	ON	OFF	OFF	OFF	OFF
4	OFF	OFF	ON	OFF	OFF	OFF
5	ON	OFF	ON	OFF	OFF	OFF
6	OFF	ON	ON	OFF	OFF	OFF
7	ON	ON	ON	OFF	OFF	OFF
8	OFF	OFF	OFF	ON	OFF	OFF
9	ON	OFF	OFF	ON	OFF	OFF
10	OFF	ON	OFF	ON	OFF	OFF
11	ON	ON	OFF	ON	OFF	OFF
12	OFF	OFF	ON	ON	OFF	OFF
13	ON	OFF	ON	ON	OFF	OFF
14	OFF	ON	ON	ON	OFF	OFF
15	ON	ON	ON	ON	OFF	OFF
16	OFF	OFF	OFF	OFF	ON	OFF
17	ON	OFF	OFF	OFF	ON	OFF
18	OFF	ON	OFF	OFF	ON	OFF
19	ON	ON	OFF	OFF	ON	OFF
20	OFF	OFF	ON	OFF	ON	OFF
21	ON	OFF	ON	OFF	ON	OFF
22	OFF	ON	ON	OFF	ON	OFF
23	ON	ON	ON	OFF	ON	OFF
24	OFF	OFF	OFF	ON	ON	OFF
25	ON	OFF	OFF	ON	ON	OFF
26	OFF	ON	OFF	ON	ON	OFF
27	ON	ON	OFF	ON	ON	OFF
28	OFF	OFF	ON	ON	ON	OFF
29	ON	OFF	ON	ON	ON	OFF
30	OFF	ON	ON	ON	ON	OFF
31	ON	ON	ON	ON	ON	OFF
32	OFF	OFF	OFF	OFF	OFF	ON
33	ON	OFF	OFF	OFF	OFF	ON
34	OFF	ON	OFF	OFF	OFF	ON
35	ON	ON	OFF	OFF	OFF	ON
36	OFF	OFF	ON	OFF	OFF	ON
37	ON	OFF	ON	OFF	OFF	ON
38	OFF	ON	ON	OFF	OFF	ON
39	ON	ON	ON	OFF	OFF	ON

40	OFF	OFF	OFF	ON	OFF	ON
41	ON	OFF	OFF	ON	OFF	ON
42	OFF	ON	OFF	ON	OFF	ON
43	ON	ON	OFF	ON	OFF	ON
44	OFF	OFF	ON	ON	OFF	ON
45	ON	OFF	ON	ON	OFF	ON
46	OFF	ON	ON	ON	OFF	ON
47	ON	ON	ON	ON	OFF	ON
48	OFF	OFF	OFF	OFF	ON	ON
49	ON	OFF	OFF	OFF	ON	ON
50	OFF	ON	OFF	OFF	ON	ON
51	ON	ON	OFF	OFF	ON	ON
52	OFF	OFF	ON	OFF	ON	ON
53	ON	OFF	ON	OFF	ON	ON
54	OFF	ON	ON	OFF	ON	ON
55	ON	ON	ON	OFF	ON	ON
56	OFF	OFF	OFF	ON	ON	ON
57	ON	OFF	OFF	ON	ON	ON
58	OFF	ON	OFF	ON	ON	ON
59	ON	ON	OFF	ON	ON	ON
60	OFF	OFF	ON	ON	ON	ON
61	ON	OFF	ON	ON	ON	ON
62	OFF	ON	ON	ON	ON	ON
63	ON	ON	ON	ON	ON	ON

DIP No.	7	
Reserved	Reserved	Reserved
DIP No.	8	
Mounting Type	ON	Ceiling
	OFF	Stand

TROUBLESHOOTING

Problem	Possible Cause	Solution
No action or image after powered on	Power supply failure	Check power supply
	Power adapter damaged	Replace power adapter
	Power cable connection got loosen	Check & reconnect
No self-testing after powered on, or with motor noise	Power cable is too long	Use a shorter cable
	Power adapter damaged	Replace power adapter
	Mechanical failure	Repair
Not controllable from remote controller	Low battery of remote controller	Change battery for remote controller
	Exceed remote control distance	Control within distance of 8M
After power on, self-test successfully, but not controllable	Wrong address / protocol / baud rate	Check & set again
	Wrong connection or open circuit of RS-485/RS422 or RS-232 cable	Check & reconnect
Video loss when pans / tilts / zooms	Power cable is too long	Use a shorter cable
	Power adapter damaged	Replace power adapter
	Video cable not properly connected	Replace with a good video cable
Video captured after connected to digital video interface of a capture device is not good as the video captured after connected directly analog video interface of the capture device	Different video capture devices have different video capturing performance, image quality maybe worse after it has been converted from analog to digital	Consult video capture device supplier for more information

The user manual is only for a reference, if there are any changes or differences, please ask for the latest version from your supplier