

# Quick Start Guide Student Tracking Camera

Product Manual | Edition | Release 11 2022 | PPL-PVC-PCS-FHD-ST-20X

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## Student Tracking Camera Quick Start Guide

(English Version)

Please read this Manual before setting up Student Track Camera and stick to its requirements strictly for Safety reason. Suggest you save this manual for further inquiries reference.

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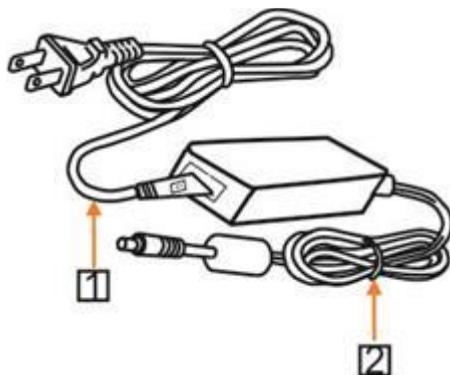
Therefore, you must treat the software like any other copyrighted material (e.g., a book or sound recording). Every effort has been made to ensure that the information in this manual is accurate.

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# 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°C and +40°C. The ambient humidity range is less than 95 % .
- 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/RS232 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.
- 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.



### Attention



If you need to extend the power cable, please extend the power cable from the part 1 on below picture (220V/110V), do not extend from part 2 on below picture (DC12V), otherwise it will cause unexpected damage to the device.

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# ABOUT THE PRODUCT

## Quick Guide

LTC can be accessed and controlled via the following ways:

- Client software Room Tracker: tracking setting, camera search and control, network setting etc;
- RTSP: view of main stream and sub video stream;
- RTMP: view of main stream video stream;
- Internet Explorer: view of main stream video stream, camera control, network setting;
- Onvif: version 2.1 supported.

### RoomTracker Software

1. Make sure PC and LTC in the same LAN;
2. Setup and open RoomTracker to find and display ETC devices online in cam list;
3. In CONFIGURE menu, set camera IP and port;
4. Click CONFIGURE to set tracking parameters.

### Rtsp

1. Make sure PC and LTC in the same LAN;
2. Open VLC software and input the following URL for each stream;
3. Main stream: `rtsp://IP:port/main.h264;`
4. Sub stream: `rtsp://IP:port/sub.h264;`
5. The IP and port number can be checked with RoomTracker software.

### Rtmp

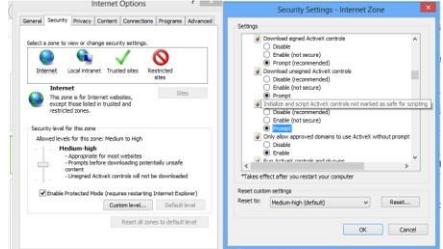
1. Make sure PC and LTC in the same LAN;
2. Setup rtmp server, such as FMS;
3. Enable rtmp from Setting>Network in RoomTracker. Set rtmp stream ID such

as EST0, and input rtmp server IP (default port is 1935);

4. Open VLC and input the following: `rtmp://IP/live/TEST0.`

### Internet Explorer

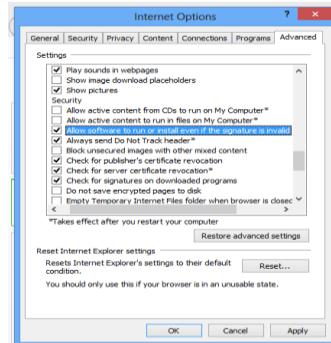
1. Make sure PC and LTC in the same LAN;
2. Open Internet Explorer and Enter Internet Options for Security Setting;



Mainly setting over the following two options:



Meanwhile make sure the following setting options are checked;



3. Input IP address+ port number 88 (default is 88) in the IE address bar:

`http://IP:88`, such as:  
`http://192.168.18.229:88;`

4. Install plugin;
5. Name: admin Password: NULL.

---

# FEATURES

The lecturer tracking camera adopts the most advanced face and motion detection technology, it can lock and track moving target; it can realize smooth tracking performance automatically; it can precisely lock the moving target in the center of the image.

With its stability, easy-to-use and excellent performance, it is widely used in electronic classroom, distance learning, technical training and video conferencing room, etc.

## Characteristics & Functions

### Featured Advantages

- Advanced face and motion detection technology;
- Integrated Full HD full view camera and Full HD tracking camera;
- The camera can track lecturer all around the classroom, even if lecturer walks into students area;
- The camera can adjust automatically as per the height of lecturer;
- Excellent locking and anti-interference: the camera keeps tracking on the object even the object is still for a long period. Other moving objects and video from projectors do not interfere the tracking performance;

- Precisely and stably track a specific target, free from any light & moving interference;
- Smart AE: keeps the same exposure with considerable lighting variability;

### Intelligent Tracking

- Smooth tracking performance, free from interference of other moving objects, also even if the target turns around, stands still for a long time or his / her other small gestures will not affect the tracking effect;
- Auto zoom performance during tracking.;
- Suits all kinds of classroom with different size, shape and type;

### IP (Network)

- H.264 video compression;
- Support dual stream to output tracking image;

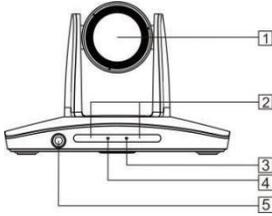
### Simple Configuration

- 1 priority zone, and 8 blocking zones can be easily set through control software installed on PC;
- User-friendly interface, simple parameter settings, parameters can be set via network.

# Main Parts & Interfaces

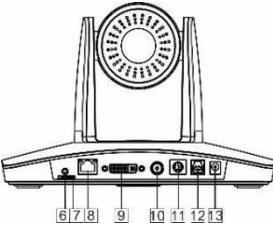
## Camera

### Front View



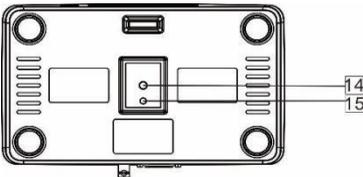
- 1 Camera Module
- 2 Remote Controller Indicator
- 3 Power Indicator
- 4 Communication Indicator
- 5 Full-view camera

### Rear View



- 6 Audio
- 7 TF Card Slot
- 8 RJ45 (Network)
- 9 DVI Video Output
- 10 3G-SDI
- 11 RS-232 / RS-485
- 12 USB
- 13 Power (DC12V)

### Bottom View



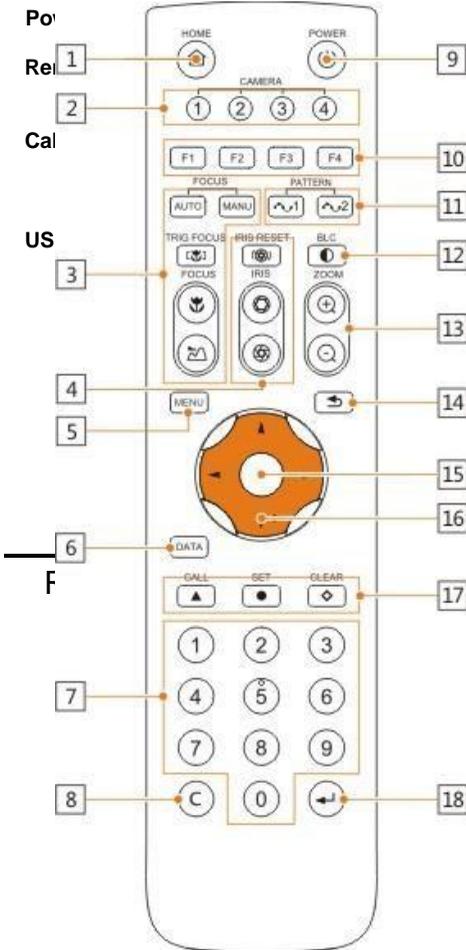
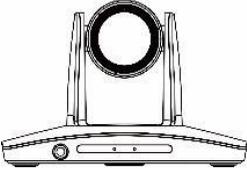
- 14 Mounting Hole  
1/4"inch screw thread for fixing camera.
- 15 Location Hole  
To define installation direction of camera

# List Of Parts & Accessories

When you open the box, check all accessories

According to the packing list

## Camera (1)

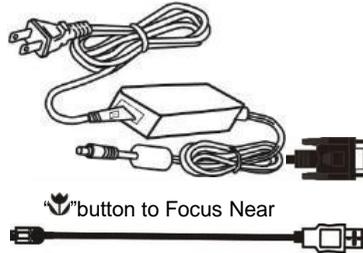


## 2 Camera Selection Button

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 value to default. "" button to Iris Open  
 button to Iris Close.

## 5 Menu

Press

Press

## 6 Data

**MENU**

button to enter / exit menu.

**DATA** button to set on / off the

## **1 HOME**

display of pan tilt angel, zoom times and other prompt message.

Press **HOME** button, camera moves to

initial position where both pan and tilt angle is zero.

## **7 Number Keys**

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

Used to activate Pattern Scan 1 and Pattern Scan 2.

## 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.

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# INSTALLATION

## INSTRUCTIONS

The camera has 2 installation types: desktop, wall (optional) installations.

### Note



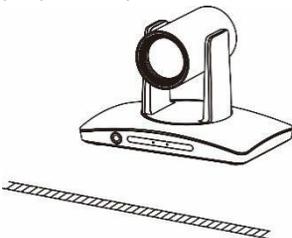
Before installing, make sure there is enough space to install the camera and its parts.

Make sure the installed place is strong and safe enough to hold the camera and relative parts, it is suggested that the installed place can withstand 4 times the weight of the camera and its relative parts.

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### 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.



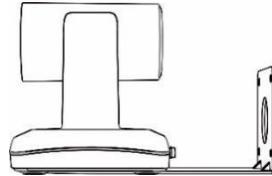
### Note



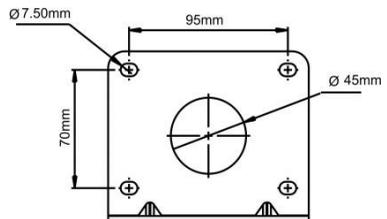
- Take effective measures to avoid camera from dropping.
- Do not grab the camera head when carrying.
- Do not rotate the camera head with hand. It may cause malfunction to the camera.

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### Wall Mount Installation

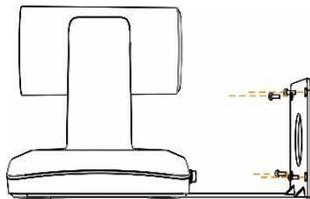


1. According to diameter and position of the 4 installation holes (As shown below) on the bracket, drill 4 holes on the wall and fix the bracket onto the wall by using 4 screws which should be prepared by you.



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.



## BLS Requirements

BLS device shall be installed up-left or up-right of the blackboard, with a distance of 15~20cm from the blackboard. The view angle of the camera built in BLS is 90°. Please capture the camera view and adjust the installation position till the camera view is fully covered to the whole blackboard and the bottom boundaries of blue rectangle and the blackboard in parallel, shown as follows:



## SETTINGS

### Software Connection

Take out Disc from the camera package, install "Camera CMS" from the disc on your PC, turn on "Camera CMS", connect and add camera to the management device list, and enter into the main interface. Select one of a camera to do the following settings:

#### Tracking Settings



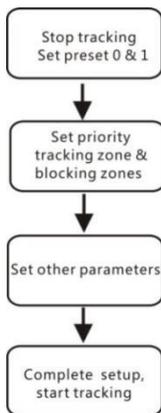
**Start:** Turn on tracking, use controller or software to call preset 80 can also turn on tracking.

**Stop:** Turn off tracking, use controller or software to call preset 81 can also turn off tracking.

**Settings:** Click this button to get into detailed tracking parameters for configuration.

Once this button is clicked, main stream will automatically switch from tracking camera to full view camera. Once configuration is completed, main stream will return to tracking camera again.

## Setting Process



Preset 0 and Preset 1 are set as presets of full view image, or as presets of any zoom or position. When there is no target, camera will return to preset 0 or preset 1. Please refer to Basic Setting.

Basic1
Basic2
Senior1
Senior2

Basic params

Video format 1080p30 ▼

Baud rate 9600bps ▼

Protocols VISCA ▼

Device addr 01 ▼

Pos correct  ▲

Face hight ◀ OK ▶

Debug  ▼

Zone settings

TrackArea

Blocking zone

1  2  3  4  
 5  6  7  8

Refresh
Save
Exit

Basic1 Basic2 Senior1 Senior2

Tracking params

Track Sens.  3

Zoom Sens.  7

Zoom Limit  7

Target lost action

▼

Power On State

▼

Basic1 Basic2 Senior1 Senior2

Mode

▼

Connect protocol

▼

As

▼

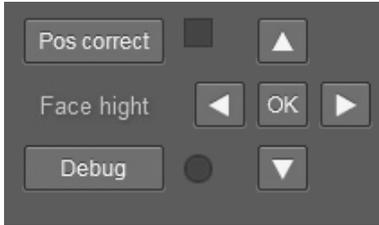
Director ip

Director port

Connect test

## Basic Parameters Setting

The factory default setting of the camera is 1 (address), 9600bps, VISCA protocol, 1080p30 resolution for tracking camera and full view camera.



### Position Calibration

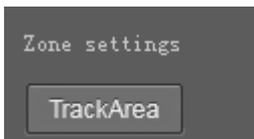
Adjust object's position in the video when he/she is not in the center of image.

**Note:** The position has been adjusted to the best value before leaving the factory, do not change it until it is necessary.

### Debug

Enable and disable the rectangles of full view camera, showing been detected targets.

### Zone Settings



The tracking zone and blocking zones (up, bottom, left and right limits) have to be set. The tracking zone is an area where the targets are.

**Track Area:** The area that meeting attendees will move within.

**Blocking zones:** There are 8 blocking zones shown in green rectangle, they can be configured independently. The moving objects inside the blocking zones of the full view camera will not be detected and tracked while the tracking camera still tracks the lecturer.

### Tracking Params



**Tracking Sens:** Set sensitivity of tracking enable to detect and track. High sensitivity easily, and not lose the object.

**Zoom Sens:** It defines how big the movement range will trigger camera to PTZ to frame after object is tracked.

**Zoom Limit:** Higher value enables higher zoom times of the object in the image.



**Target Lost Action:** Used to define the action to be performed if the camera loses the tracked object for a period of time.

**Power On State:** The action to be performed when the camera is powered on.

Mode  
Serial port

Connect protocol  
TCP

As  
Client

Director ip  
0.0.0.0

Director port  
0

Connect test  
 Network test

**(Code Send) Mode:** Choose to send codes via network or serial port;

**Connect Protocol:** Once “Network” is chosen as “Mode”, choose TCP or UDP as communication protocol.

**(Tracking Camera) As:** Once “Network” is chosen as “Mode”, choose “Client” to actively communicate with recorder, choose “Server” to await to be communicated from recorder.

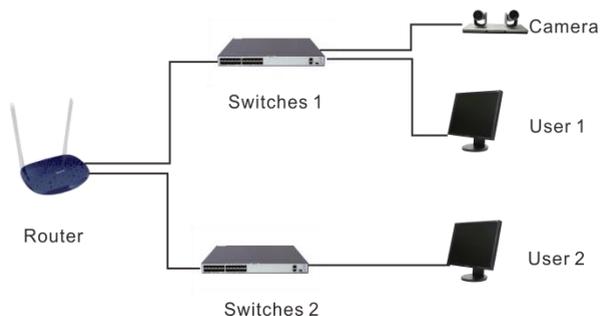
**Director IP and Port:** Once “Network” is chosen as “Mode”, configure recorder’s IP address and Port at these two frames.

# Camera CMS Application Software Guide

## Network Connection

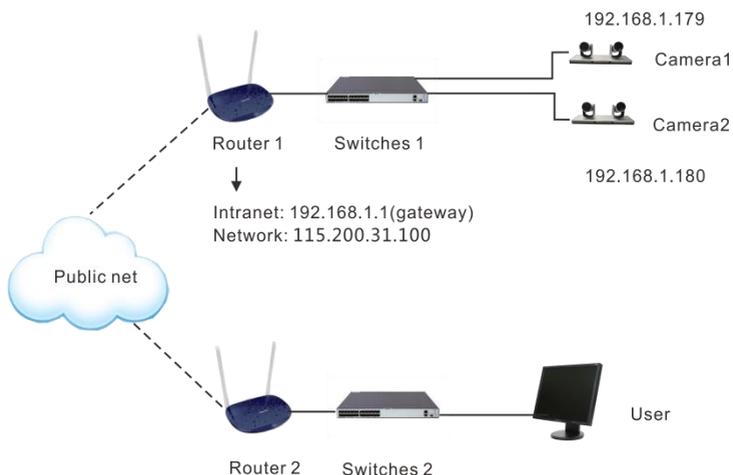
Connect the camera to network with an Ethernet cable, power on the camera.

### 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 CameraCMS 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:

1. 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 CameraCMS 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.

2. 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 camera'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

<b>Not applied</b>	<input type="checkbox"/> <b>Do not apply this rule</b> If you disable this rule, the following configuration will only be saved but will not applied.
<b>External port</b>	<input type="text"/> <input type="text"/> 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.
<b>Internal IP</b>	<input type="text"/> The IP address of the internal host that provides external service. For example: <i>192.168.0.50</i>
<b>Internal port</b>	<input type="text"/> <input type="text"/> The open port or port segment of the internal host that provides external services. The range is between 1 and 65535.
<b>Protocol</b>	TCP ▾ The protocol used for port mapping can be TCP, UDP or both.
<b>Mapping line</b>	Any ▾ The line used for port mapping can be single WAN or multi WAN.
<b>Note</b>	<input type="text"/> You can write a short note to describe this mapping rule. For example: <i>The WEB server for Marketing Department.</i>

Save

Back

### Help

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:

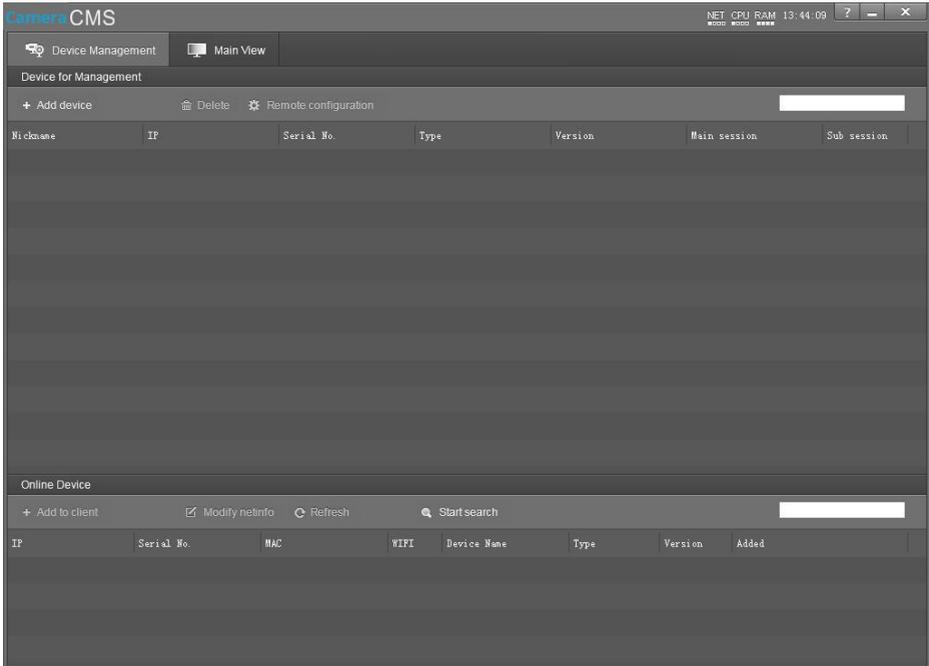
- Port mapping works only if "Block extranet requests" on the Attack defense page is disabled.

3. 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 Camera 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.

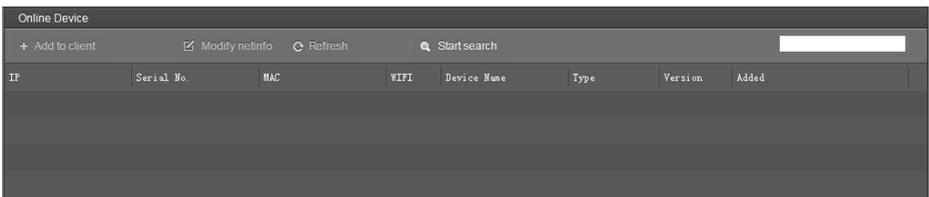
# Client Software Instruction

## 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.

Modify Network Parameter

Ethernet

Device information:

CameraName: av200\_4K

Mac: 00:04:05:01:88:89

SN: L6D3V3H2B9OUQUK4G224

Network information:

ConnType: Static IP

IP: 10.0.3.168

Mask: 255.255.255.0

GateWay: 10.0.3.1

DNS1: 10.0.0.1

DNS2: 10.0.0.1

Modify

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.

Online Device

+ Add to client  Modify netinfo Refresh Stop search

IP	Serial No.	MAC	WIFI	Device Name	Type	Version	Added
10.0.3.128	L6D3V3H2B9OUQUK4G224	00:04:05:01:88:89	No	av200_4K	L2CS-FT8H	1.0.00	
10.0.3.212	828663H2E101QV4515K2	00:04:05:01:88:7E	No	e200t-rdtst	E200T	2.0.00	
10.0.3.240	S00T05H2B10SQ10241W0	00:04:05:01:88:36	No	S00T05H2B10SQ10241W0	LTC	5.0.04	

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

Choose the camera in the device list, click “Remote Configuration” in the column to upgrade or configure the camera.

## Streaming

The screenshot shows a 'Remote Configuration' dialog box with a dark grey background. At the top, there are several tabs: 'Streaming', 'Network', 'Rtmp', 'Protocol', 'UP.PM', 'Upgrade', and 'UN/PW'. The 'Streaming' tab is selected. The dialog is divided into two columns of settings. The left column includes: 'Stream type' (Main stream), 'Resolution' (HD720), 'Video rate type' (CBR), 'Max rate (Kbps)' (8000), 'Frame rate' (30), 'Key frame interval' (30), 'Video coding type' (H264), and 'Encode Level' (Base). The right column includes: 'Channels' (MONO), 'Encode type' (AAC), 'Sample rate' (16000), 'Audio rate' (48Kbps), 'Input pin' (LineIn), and a 'Volume' slider set to 50. There are 'Save' buttons at the bottom of each column.

- Stream type: Set the parameters of main stream, sub stream, third stream, fourth stream.
- Resolution: Set among 1080P (1920\*1080), HD720P (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.

## Network

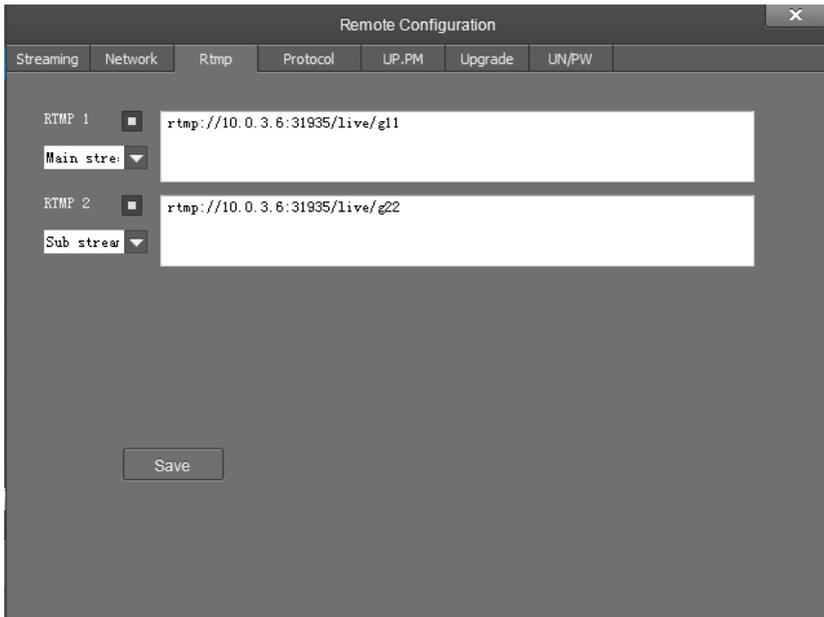
The screenshot shows a 'Remote Configuration' window with a 'Network' tab selected. The configuration fields are as follows:

Field	Value
Connect with	Static IP
IP Address	10.0.3.146
Mask	255.255.255.0
Gateway	10.0.3.1
DNS 1	10.0.0.1
DNS 2	0.0.0.0
rtsp port	554
app port	5000

A 'Save' button is located at the bottom center of the dialog.

- 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.

## RTMP



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

## Protocol

Remote Configuration ✕

Streaming   Network   Rtmp   Protocol   UP.PM   Upgrade   UN/PW

Enable  

Protocol  

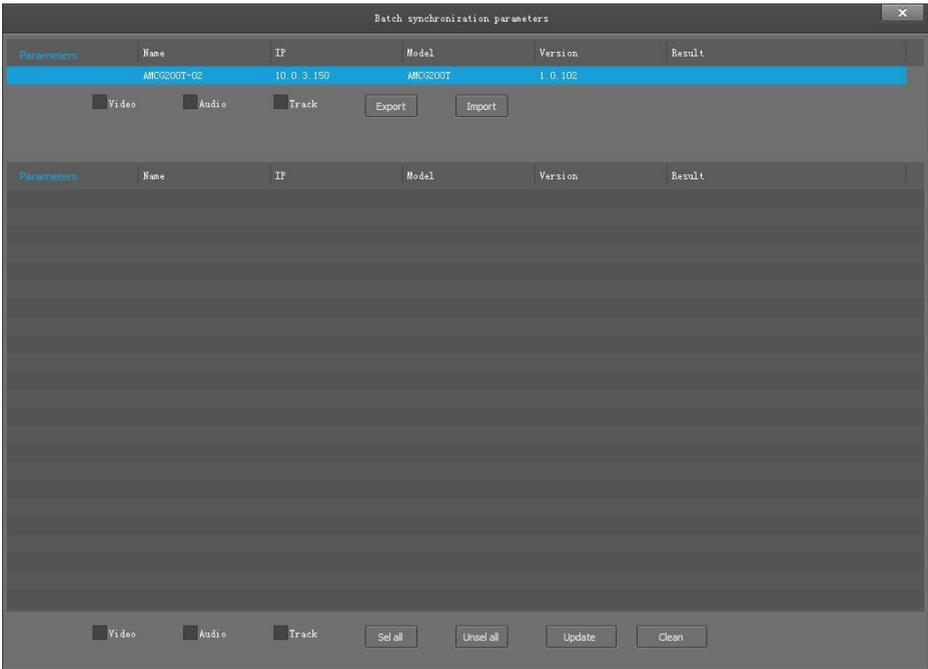
Camera as  

IP  

Port  

- 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.

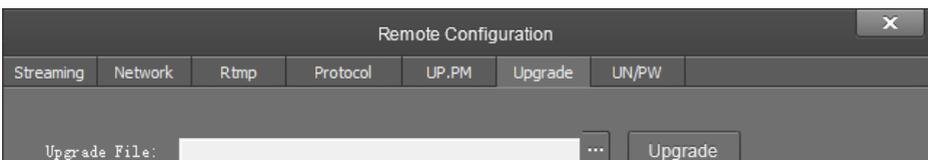
## UP PM



After selecting the same model of the device to be synchronized that is currently managed and unchecked, tick any or more of the video parameters, audio parameters, and trace parameters, and when you click the sync parameters, the device that you are currently synchronizing will synchronize with the source device parameters.

- Parameter import, parameter export: Only for source device operations, you can export camera parameters to a file, or you can import parameters from a file into the camera.
- Bulk synchronization: Only for synchronous device operations.

## Upgrade



---

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.

## UP/PW

- 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

Streaming Network Rtmp Protocol UP.PM Upgrade UN/PW

Old password  Local Time 2019-05-11 11:01:08

New password

Confirm   Display Time

Time Format YYYY-MM-DD HH:mm:ss

Camera name AMCG200T-02

Enable NTP

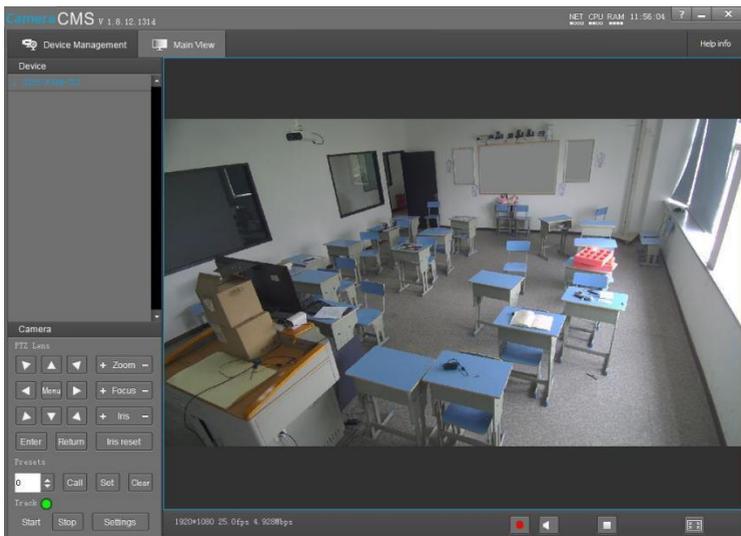
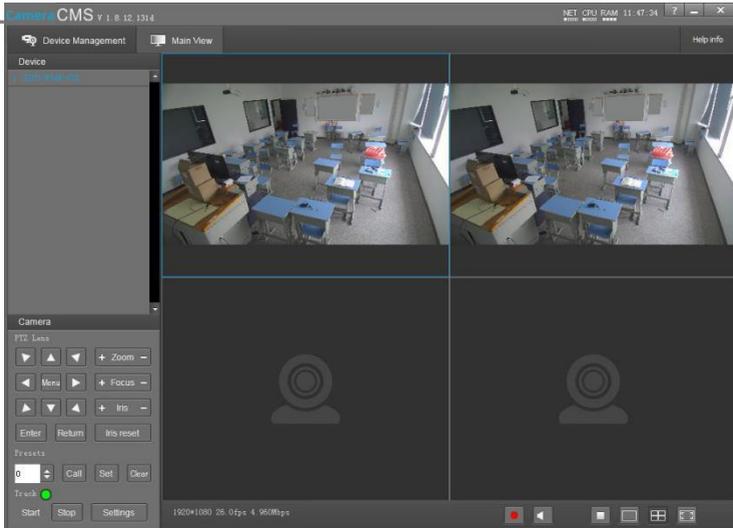
TimeZone +08:00

NTP Server

Reboot

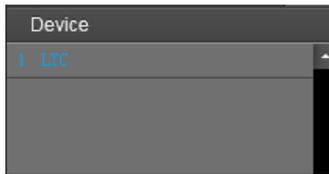
## Preview

Click "Main View" to get into camera control and preview part as below.

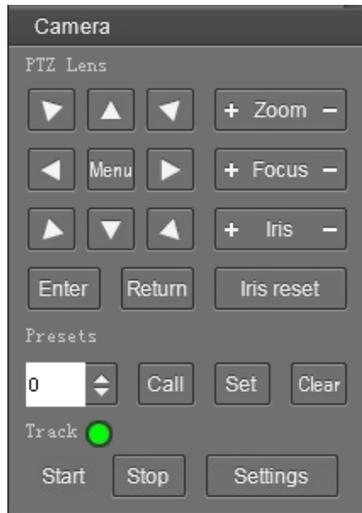


This interface includes three main parts: Device List, Device Control, Video Preview

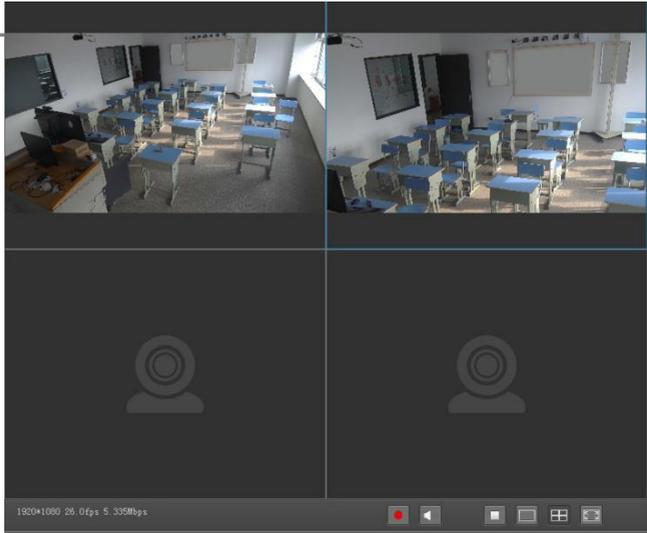
- Device: It displays all online cameras added to “Device Management”.



- Device Control: Get control of the selected camera (camera name in blue).

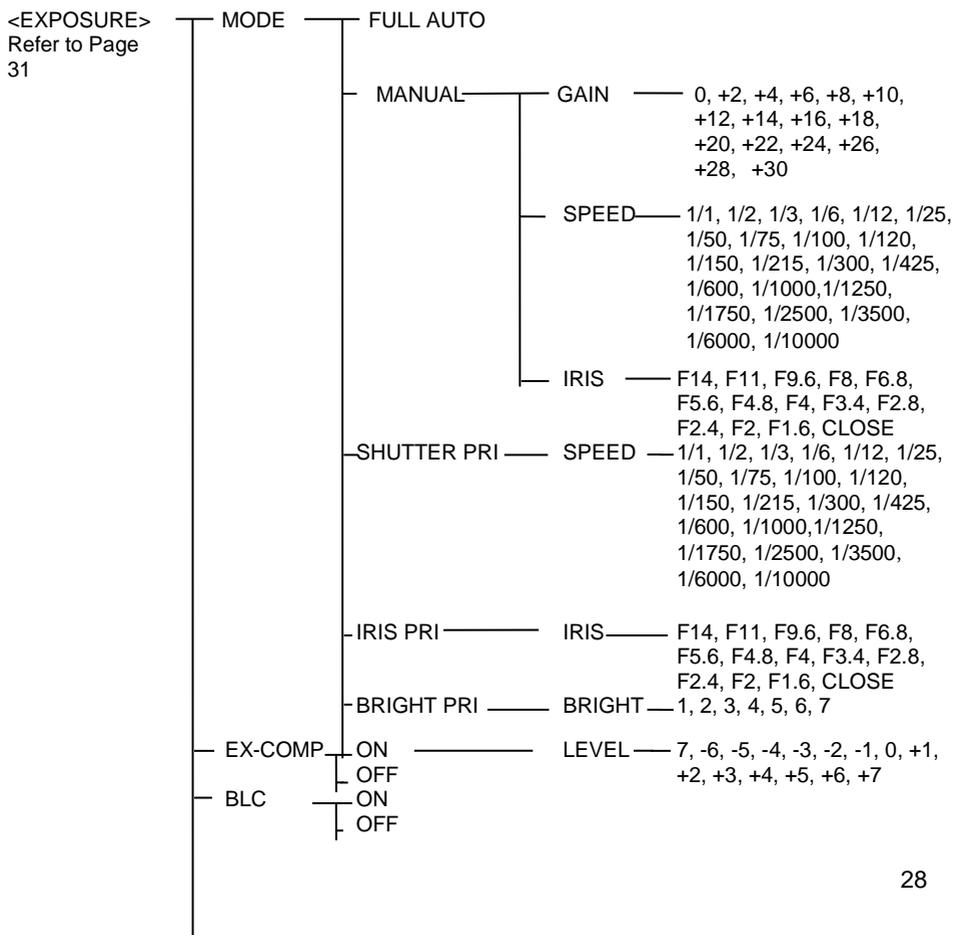
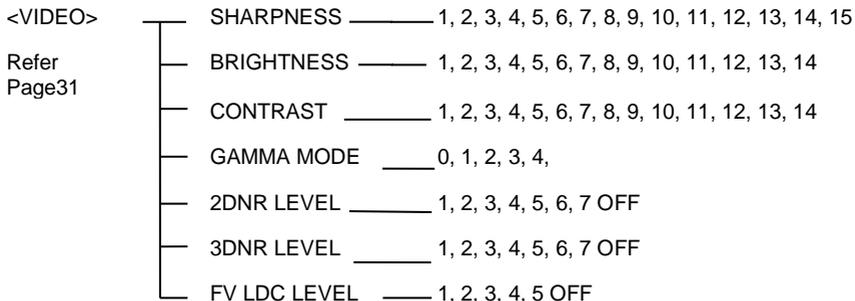


- Video Preview: Double click the camera in the list, main camera stream will be displayed in the preview window; or right click the selected camera from the left column to get its main or substream video. Video preview mode can be single video or four video's, when in four video's mode, select one of the four video's then choose the bottom right icon to enlarge this selected video to a big single window.



## MENU SETTINGS

# Menu Configuration



< COLOR >  
Refer to Page 32

WB MODE	—	AUTO, ATW, ONE PUSH, INDOOR, OUTDOOR, MANUAL, SODIUM LAMP, FLUO LAMP, COLOR TEMP
SATURATION	—	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14
HUE	—	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14

<PAN TILT ZOOM>  
Refer to Page 33

PAN/TILT SPEED	—————	1, 2, 3, 4, 5, 6, 7, 8
PTZ TRIG AF	—————	ON, OFF
RATIO SPEED	—————	ON, OFF

<SYSTEM>  
Refer to Page 33

ADDRESS	—————	1, 2, 3, 4, 5, 6
PROTOCOL	—————	VISCA
BAUD RATE	—————	9600
VIDEO FORMAT	—————	1080p60, 1080p50, 1080i60, 1080i50, 1080p30, 1080p25, 720p60, 720p50

<STATUS>  
Refer to Page 34

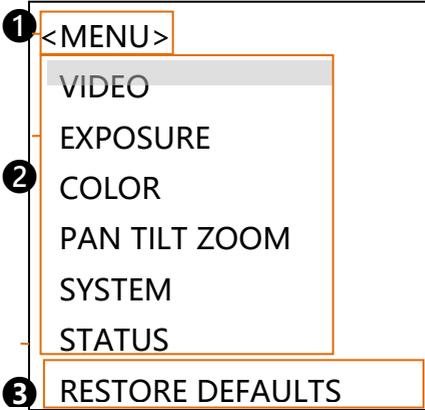
ADDRESS	—————	1
PROTOCOL	—————	VISCA
BAUD RATE	—————	9600
VIDEO FORMAT	—————	1080p30
FIRMWARE VER.F	—————	1.0.1016BETA
FIRMWARE VER.P	—————	1.0.2016BETA
FIRMWARE VER.A	—————	1.1.3000

<RESTORE DEFAULTS>  
Refer to Page 34

# Menu Explanation

## Main Menu

Press **[MENU]** button to enter / exit menu.



### 1 Menu Hint

It displays currently selected menu option.

### 2 Menu Options

It displays options under current menu hint. Press **▲** or **▼** button to select among menu options, once font of options turned from white color to yellow color, it indicates the menu has been elected, press OK button to get into this menu.

### 3 Prompt Message

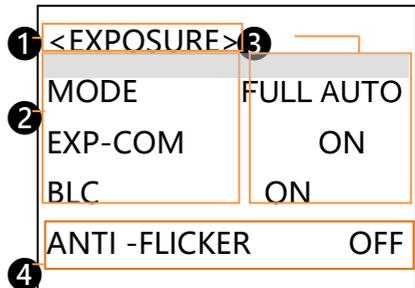
“**[▲▼] SELECT**” indicates it is possible to press **▲** or **▼** button to select menu options.

“**[OK]NEXT**” indicates it is possible to press **[OK]** button to enter next level menu.

“**[OK] EXIT**” indicates it is possible to press **[OK]** button to exit menu.

## Sub menus

From main menu, navigate to select <EXPOSURE> menu, press **[OK]** to enter.



### 1 Menu Hint

It displays currently selected menu option.

### 2 Menu Options

It displays options under current menu hint. Press **▲** or **▼** button to select among menu options, once font of options turned from white color to yellow color, it

indicates the menu has been elected, press **OK** button to get into this menu.

### 3 Manual Exposure

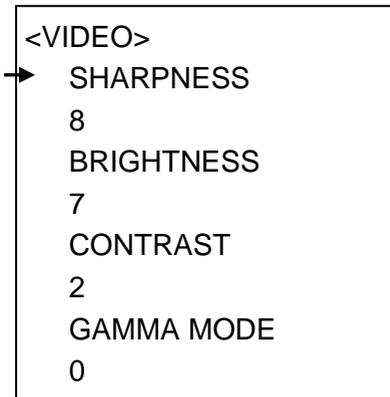
Press **◀** or **▶** button to change value.

### 4 Prompt Message

“**SELECT**” indicates it is possible to press **▲** or **▼** to select menu options, press **◀** or **▶** to change value  
“**BACK**” indicates it is possible to press **◁** to return to previous menu.

## Video

VIDEO menu is used to change video value.



**SHARPNESS:** 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.

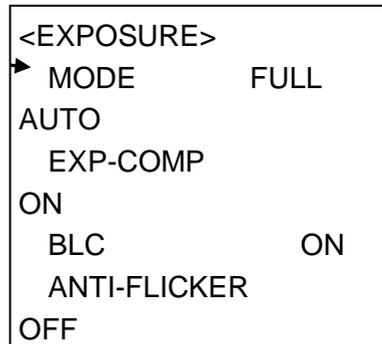
**2DNR LEVEL:** 1, 2, 3, 4, 5, 6, 7 OFF.

**3DNR LEVEL:** 1, 2, 3, 4, 5, 6, 7 OFF.

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

## Exposure

EXPOSURE menu is used to adjust exposure value.



**MODE:**

**FULL AUTO:** Gain, Shutter

Speed and Iris value are adjusted automatically according 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:** 1/1, 1/2, 1/3, 1/6, 1/12, 1/25, 1/50, 1/75, 1/100, 1/120, 1/150, 1/215, 1/300, 1/425, 1/600, 1/1000, 1/1250, 1/1750, 1/2500, 1/3500, 1/6000, 1/10000s.

**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:** 1/1, 1/2, 1/3, 1/6, 1/12, 1/25, 1/50, 1/75, 1/100, 1/120, 1/150, 1/215, 1/300, 1/425, 1/600, 1/1000, 1/1250, 1/1750, 1/2500, 1/3500, 1/6000, 1/10000s.

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

**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.

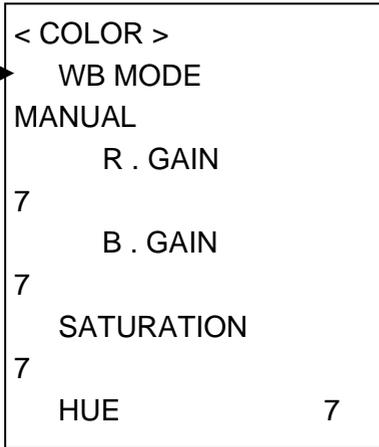
**BLC:** ON, OFF.

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:



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

**“ONE PUSH”:** In “ONE PUSH TRIGGER” mode, aim the camera at a pure white object (say a white paper), then press OK 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

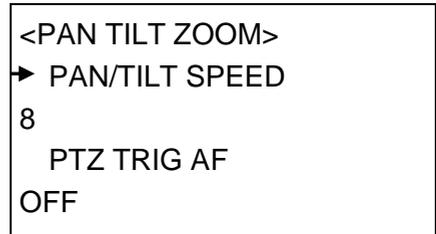
chosen from 0~255.

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

**HUE:** 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 SPEED:** 1, 2, 3, 4, 5, 6, 7, 8 the bigger the number is, the faster the speed is.

**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.

### System

```
<SYSTEM>
  ADDRESS
  1
  PROTOCOL
  VISCA
  BAUD RATE
```

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

**PROTOCOL:** VISCA.

**BAUD RATE:** 9600.

**VIDEO FORMAT:** 1080p60,  
1080p50, 1080p30, 1080p25,  
1080i60, 1080i50, 720p60,  
720p50.

---

## Status

Display information (address, protocol, baud rate, IR address, video format, mount mode, image and firmware version) of the current camera.

```
< STATUS>
  ADDRESS           1
  PROTOCOL
  VISCA
  BAUD RATE
  9600
  FIRMWARE VER.F
  1.0.1016BETA
```

## Restore Defaults

```
< RESTORE DEFAULTS>
  PRESS
  CONFIRM
  PRESS
```

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
80	Turn on tracking
81	Turn off tracking
95	Turn on/off OSD
96	Clear all presets(0-64)
99	Reboot system
121	SDI or HDMI output tracking view 1
122	SDI or HDMI output tracking view 2
123	SDI or HDMI output tracking dual screen
125	Camera calibration

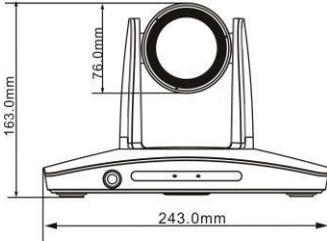
# ANNEX 1 TECHNICAL SPECIFICATIONS

LENS	
Tracking Camera	
Image Sensor	1/2.8" CMOS, 2.14MP
Lens	f=3.9mm-46.8mm
Iris	F1.6-F2.8
Optical Zoom	12x
Digital Zoom	12X
Angle of view	72.5°-6.3°
Focus	Auto, Manual, PTZ Trigger, One Push Trigger
Min. Illumination	0.5lux(color), 0.1lux(B/W)
Shutter	1/1 ~ 1/10,000 sec
Gain	Auto/Manual
White Balance	Auto, Indoor, Outdoor, One Push, Manual, Auto Tracking Sodium Lamp, Fluorescent Lamp
Exposure	Auto, Indoor, Outdoor, One Push, Manual, Auto Tracking Sodium Lamp, Fluorescent Lamp
DNR	2D/3D
BLC	Support
S/N Ratio	≥50dB
Full-view Camera	
Image Sensor	1/2.8" CMOS
Effective Pixels	2.14MP
White Balance	Auto
Exposure	Auto
Focus	Manual
focal distance	2.4mm
Angle of view	Horizontal:68°, Vertical:41°(before geometric distortion correction)
Network	
Resolution	Max Support 1920*1080@60fps

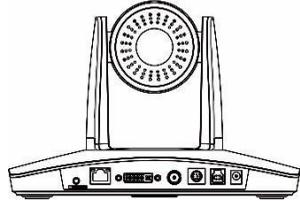
Video Compression	H.264
Audio Compression	AAC
Network Protocol	ONVIF,RTSP,HTTP, TCP,UDP,RTMP
Dual Stream	Yes
<b>PTZ</b>	
Pan Range	-170°~+170°
Tilt Range	-30°~+90°
Pan Speed	0.1°~120°/s
Tilt Speed	0.1°~90°/s
Preset Number	256
Comm. Port	RS-232/RS-485/USB3.0
Debug Interface Protocol	RJ45/100M, PELCO-D, VISCA, UVC1.1
<b>SDI Video</b>	
Video Output	3G-SDI, DVI-D, USB3.0
Video Format	1080P60, 1080I60, 1080P30, 1080P25, 1080P50, 1080I50, 720P60, 720P50
<b>General</b>	
OSD	Yes
Power Input	DC12V
Power Consumption	<30W
Working Temp	0°C ~+40°C
Storage Temp	-20°C~+60°C
Dimensions	243mm×145mm×163mm
Color	Grey

# ANNEX 2 SIZE AND DIMENSION

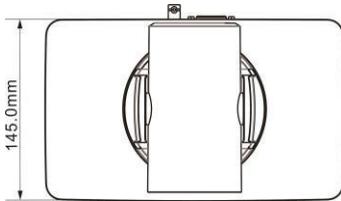
**Front**



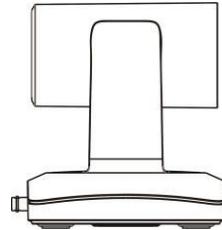
**Rear**



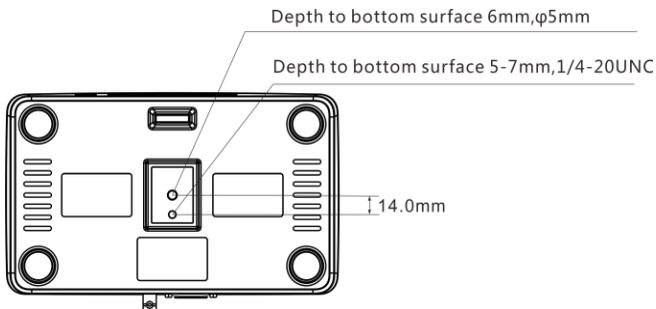
**Top**



**Side**



**Bottom**



# 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	Not enough power supply	Check & reconnect power cable connection
	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 short circuit of RS-485/RS-232 or RS-232 cable	Check & reconnect
Video loss when pans / tilts / zooms	Not enough power supply	Check & reconnect power cable
	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