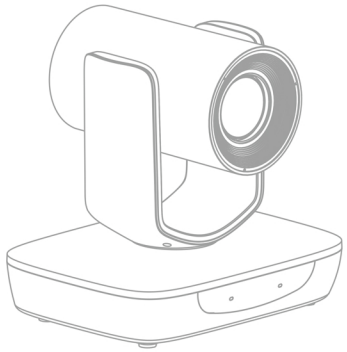
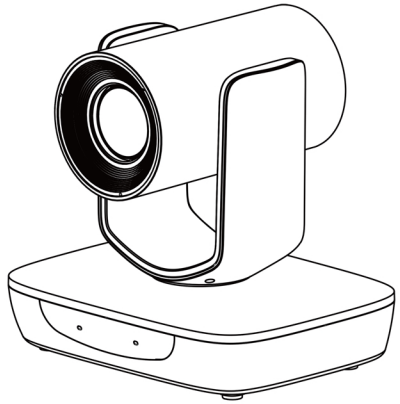


NEXIS

PTZ Video Camera

User Manual V1.0

PTZ520



Please read this instruction before using the device and keep it for future reference

AFTER-SALES SERVICE

Dear users, in order to ensure that you fully enjoy our quality service, please read the following product service articles carefully.

Limited warranty and lifetime maintenance services are provided.

1. Limited warranty period is 12 months from the date products leaving factory. During the limited warranty period, you will enjoy free service of repair service expect caused by man-made malfunction.
2. Outside the limited warranty period of 12 months, damaged products need be paid for their repair service.

Maintenance response time

1. 24-hour response service will be provided from the day defective products been sent back.
2. To ensure timely response or repair service, before sending defective product(s) back, please contact relevant sales person in advance and then send the product(s) back according to returning instructions provided.

COPYRIGHT INFORMATION

■ Copying, reproducing or transmitting this file is not allowed if no written permission is provided. This file can be copied as a backup only after you purchase this product.

■ In order to keep improving products, product specifications under this manual are subject to change without prior notice. This file is subject to change without prior notice.

■ To fully explain or describe how this product should be used, this manual may refer to names of other products or companies without any intention of infringement.

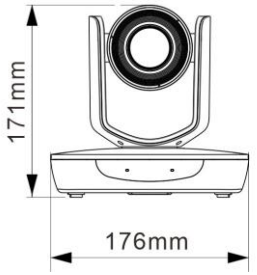
■ Disclaimer of warranties: Our company is neither responsible for any possible technical, editorial errors or omissions, nor responsible for any incidental or related damages arising from providing this file, using, or operating this product.

SYMBOLS INSTRUCTION

Symbol	Instructions
🕮 **Explanation**	To represent the supplement and explanation of the text.
🕮 **Note**	To remind the user of some important operations or to prevent the potential injury and property damage.
⚠ **Warning**	To indicate a potential risk that, if not avoided, may result in injury accidents, equipment damage or business interruption.
⚠**Dangerous**	To indicate a high potential risk that, if not avoided, may result in a significant risk of death or injury.

SIZE AND DIMENSION

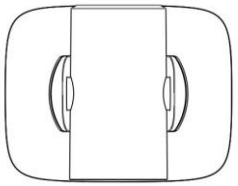
Front



Rear



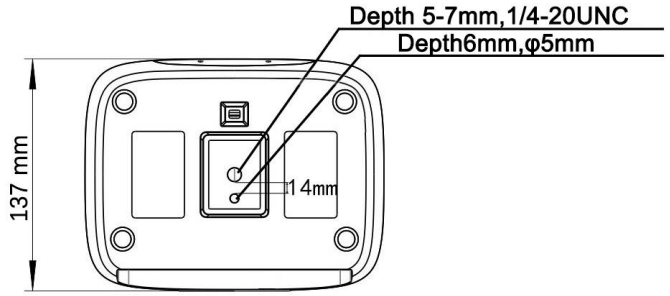
Top



Side



Bottom



Protocols	VISCA (support daisy chain) / PELCO-P / PELCO-D
Audio Input	1×LINE IN 3.5mm
Control Interface	1 channel RS-232 IN, 1 channel RS-232OUT/RS485
Storage Interface	MAX 256G
Power	DC12V
Power Consumption	<15W
Operating Temperature	0°C~+40°C
Storage Temperature	-20°C~+40°C
Dimensions （W×H×D）	176mmx137mmx171mm
Weight	≤1.2kg
Color	Gray

SAFETY NOTES

■ During the installation of this camera, please read this manual carefully and operate strictly.

■ in accordance with the installation instructions. Keep this manual for future reference.

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

■ Place the power cable in a place that is not easily accessible. Do not stack any objects on the power cable, protect the cable, especially the connection must be fully and securely contacted.

■ Do not run the camera beyond the specified temperature and humidity. The working temperature range is between 0℃ ~ +40℃. The working humidity range is between 10%RH~90%RH.

■ For safety, foreign matter is prevented from entering the device, do not splash the corrosive liquid onto the camera.

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

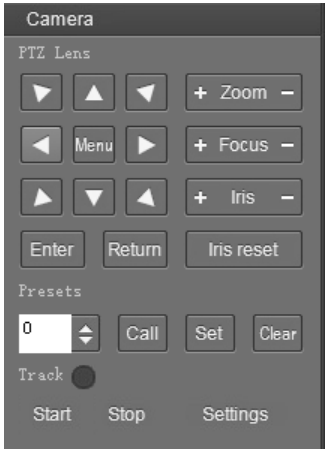
■ Do not disassemble the camera without authorization. If the camera is damaged, please contact professional maintenance personnel for repair.

■ Avoid pointing the camera at objects with strong light, such as the sun etc.

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

TECHNICAL SPECIFICATIONS

Items	
Image Sensor	1/2.8" CMOS, 2megapixel
Focal Lens	f=4.7mm ~ 94mm
Iris	F1.6 ~ F3.5
Optical Zoom	20x
Digital Zoom	16x
Field Of View	59.5° - 2.9°
Focus System	Auto, Manual, PTZ Trigger, One Push Trigger
Exposure Control	Auto, Manual, Shutter Priority, Iris Priority, Bright Priority
Min. Illumination	1.0Lux @ (F1.6, AGC ON)
Shutter Speed	1/50s ~1/10,000s
Gain	Auto /Manual
White Balance	Auto, One Push, Manual, ATW, Static Color Temperature
Wide Dynamic	Yes
Back Light Compensation	Yes
S/N	≥50dB
Menu	Yes
PTZ	
Pan Angle	-170°~+170°
Tilt Angle	-30°~+90°
Pan Speed	0.1°~120°/S
Tilt Speed	0.1°~90°/S
Preset Number	64
Image Flip	Support
3G-SDI	
Video Format	1080P60/P50/P30/P25,720P60/P50
HDMI	
Video Format	1080P60/P50/P30/P25，720P60/P50。
NETWORK	
Network Interface	1×10M/100M RJ45 (optional POE)
Image Compression	H.265, H.264
Audio Compression	AAC
Protocols	ONVIF, RTSP, RTMP, SRT, TCP, UDP
Video Output Format	Max 1080P60
	Support Multiple Dual streams Support NDI(Optional)
USB	
	1×USB 3.0 Support UVC1.1 Video Format Support YUY2/H.264/H.265/MJPEG Video resolution:1080P30/P25,720P30/P25,360P30/P25 UAC Audio Format PCM



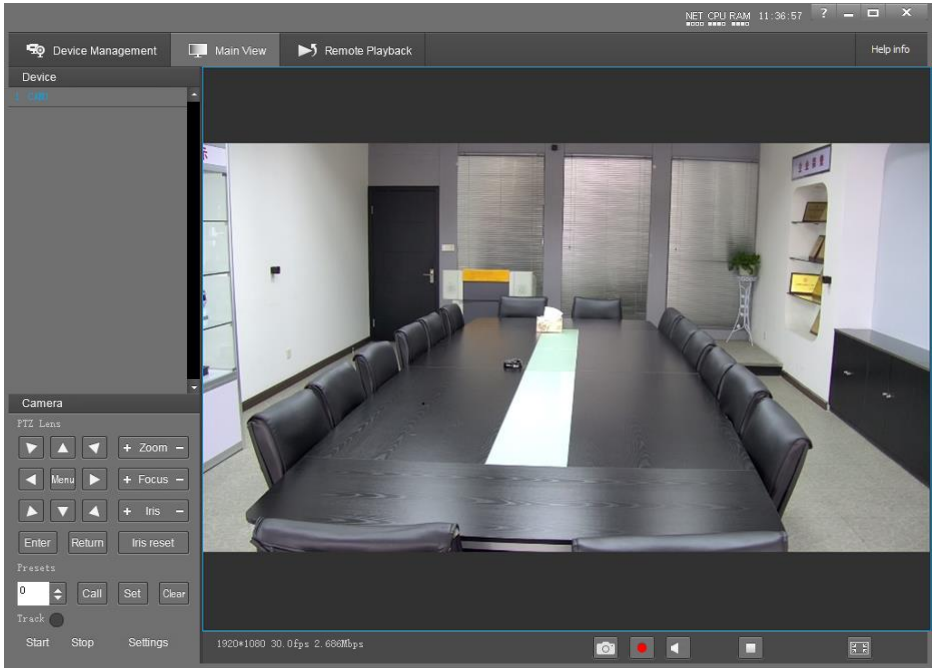
- Video Preview: double click the camera in the list, main camera stream will be displayed in the preview window; or right click the selected camera from the left column to get its main or sub stream video. Video preview mode can be single video or four video's, when in four video's mode, select one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

CONTENTS

ABOUT THE PRODUCT ---- 1
Features ---- 1
List Of Parts & Accessories ---- 1
Main Parts & Interfaces ---- 2
Remote Controller ---- 3
INSTALLATION ---- 4
Desktop Mount Installation ---- 4
Wall Mount Installation ---- 4
(Wall Bracket Supplied separately) ---- 4
MENU SETTINGS ---- 6
Menu Configuration ---- 6
Menu Explanation ---- 10
Network Connection ---- 13
LAN Connection ---- 13
WAN Connection ---- 14
Client Software Instruction ---- 16
Search and list the camera ---- 16
Configuration ---- 18
Preview ---- 25
TECHNICAL SPECIFICATIONS ---- 27
SIZE AND DIMENSION ---- 29
AFTER-SALES SERVICE ---- 30

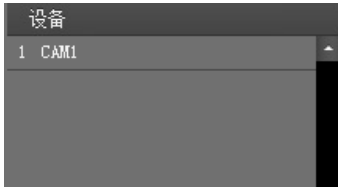
Preview

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



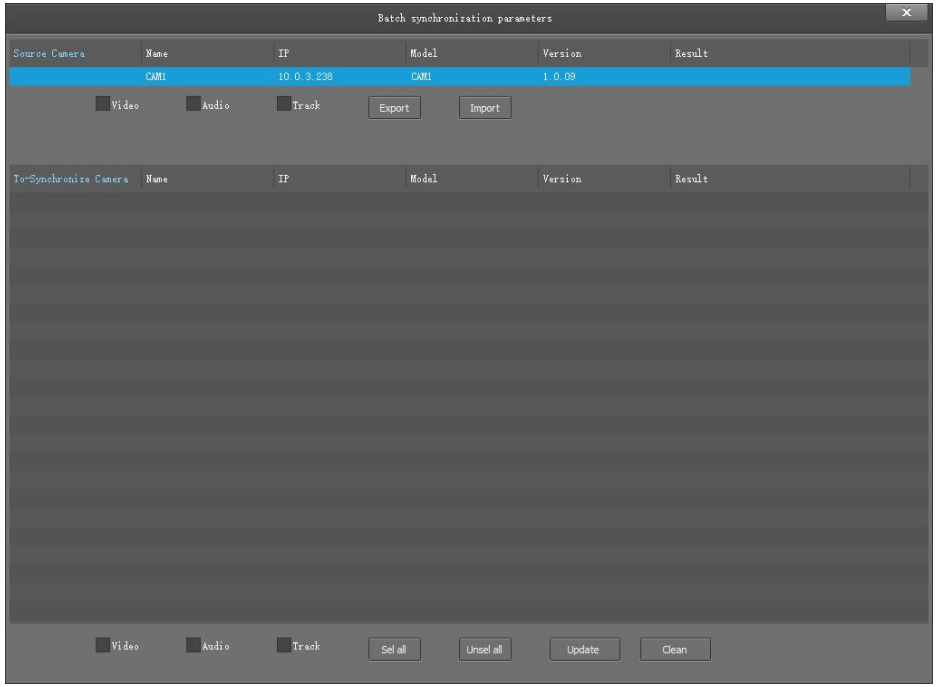
This interface includes three main parts: Device List, Device Control, Video Preview

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



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

Sync parameters



Select the camera to be synchronized of the same model which are currently managed and unselected, and then click any option or multiple options among the video, audio and track. After clicking the “Update”, the current camera to be synchronized will be synchronized with the Source camera parameters.

■ Import, Export: only operate on the source camera, the camera parameters can be exported to the file, or the parameters be imported into the camera from the file.

■ Update: only operate on the camera to be synchronized.

ABOUT THE PRODUCT

Features

■ 1/2.8 inch CMOS sensor, 2megapixel;

■ H.265, H.264 video compression;

■ 20x optical zoom, up to 1080P60 resolution;

■ With 3G-SDI, HDMI, Ethernet and USB3.0 video interface;

■ 256GB TF card is supported for local storage;

■ RS-232 IN/OUT，support daisy chain;

■ Dual Stream;

■ Support POE;

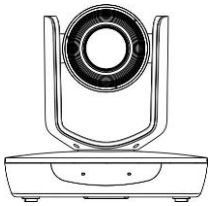
■ Supports YUY2 uncompressed video formats, up to 1080P30 resolution;

■ Desktop/ Wall mount optional.

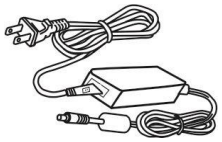
List Of Parts & Accessories

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

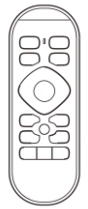
Camera (1)



Power Adapter (1)



Remote Control (1)



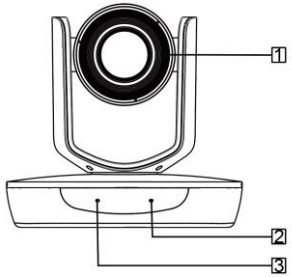
RS-232 Control Cable (1)



Main Parts & Interfaces

Camera

Front View

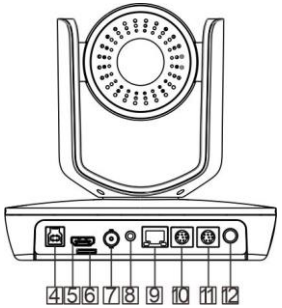


1 Camera Module

2 Power Indicator

3 Communication Indicator

Rear View



4 USB3.0

5 HDMI

6 TF Card Slot

7 3G-SDI

8 Audio

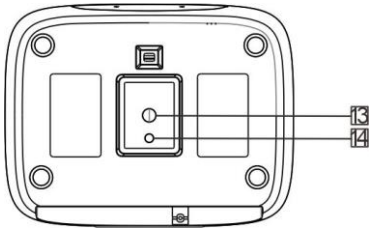
9 RJ45

10 RS232-IN

11 RS232-OUT

12 Power（DC12V）

Bottom View



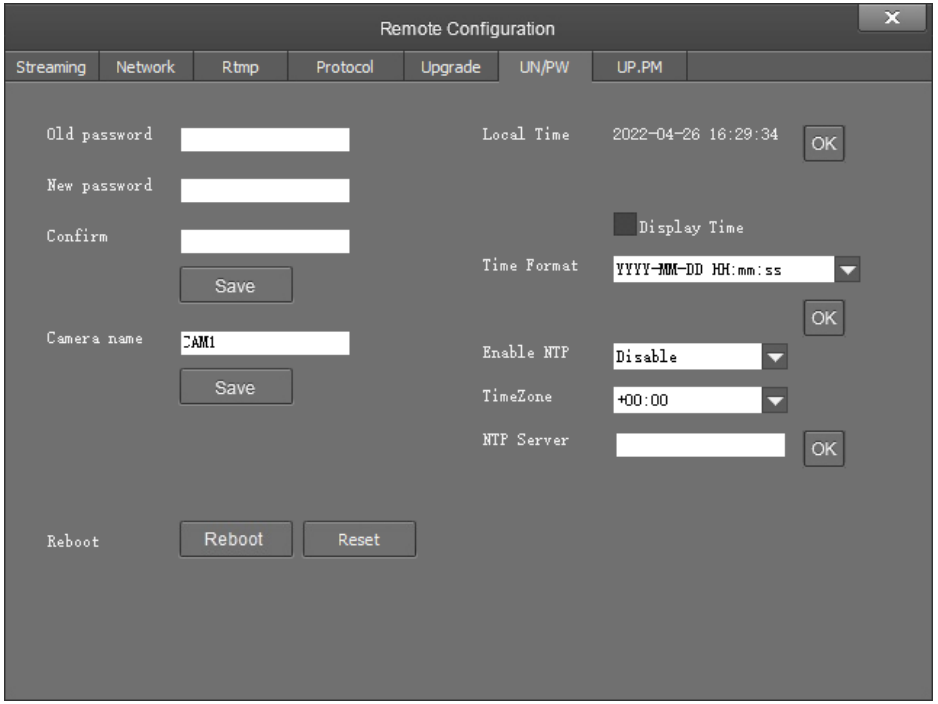
13 Mounting Hole

1/4”inch screw thread for fixing camera.

14 Locating Hole

To define installation direction of camera.

Setting



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

■ Maintenance: Reboot or Recovery;

■ Device name: set the camera name, click “Save”;

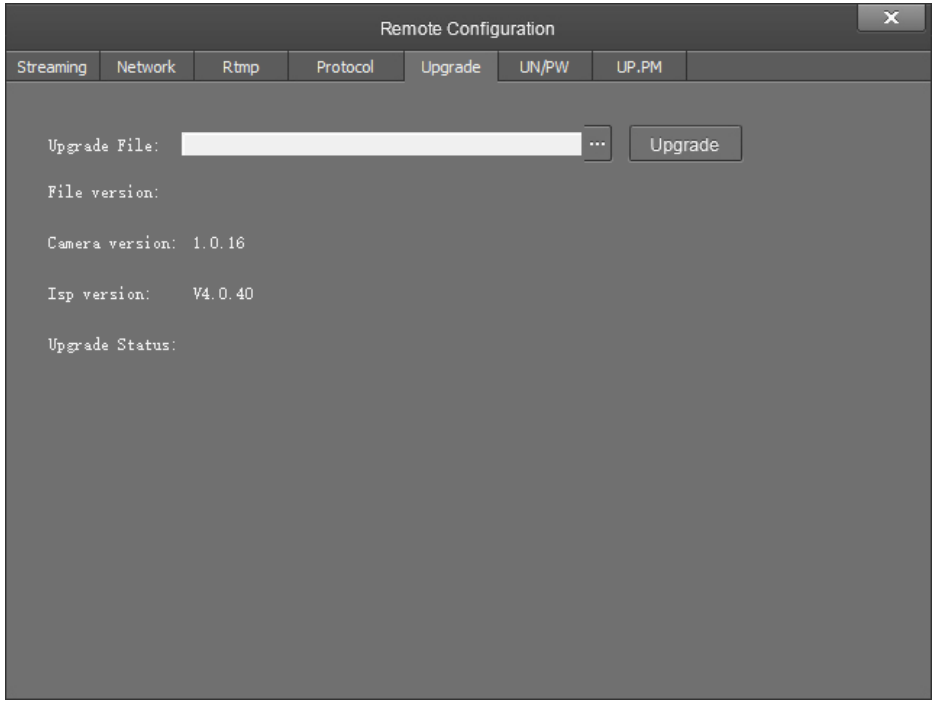
■ Time setting:

■ a. Synchronize local time;

■ b. Show time or not on the CMS video and set the time format;

■ c. NTP Server setting.

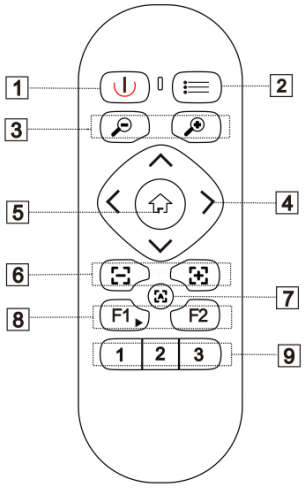
Upgrade



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.

Remote Controller



No.	Name	Description
1	**Power**	Power on/off the camera
2	**Menu**	Open/Close OSD menu
3	**Zoom**	– zoom in – zoom out
4	**Direction / Menu Operation**	In Menu status: press ▲ or ▼ button to select among menu options, press◄ or ►button to change options / value. In None-menu status, press the direction buttons to control the Pan and Tilt movement of the camera
5	**HOME**	In Menu status: save menu operation. In None-menu status： Press HOME button, the camera moves to the initial position.
6	**Focus**	– Focus Near – Focus Far
7	**Auto Focus**	–Auto focus, camera turns to auto focus mode.
8	**F1/F2**	F1： Press for 5 seconds to set IR address of camera. F2: Reserved.
9	**Number Keys**	Long press to set preset, short press to call the preset.

INSTALLATION

The camera has 2 installation types: desktop, wall mount 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.

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 angle of inclination is less than 15 degrees to ensure proper pan /tilt operation.

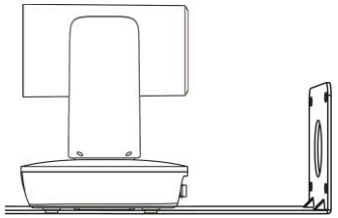


Note

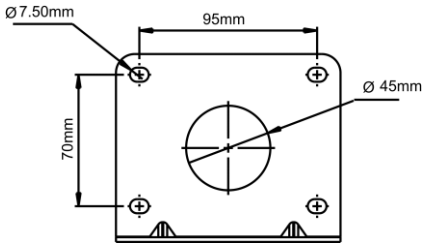
- Take effective measures to avoid camera from dropping.
- Do not grab the camera head when carrying.
- Do not rotate the camera head with hand. It may cause malfunction to the camera.

Wall Mount Installation

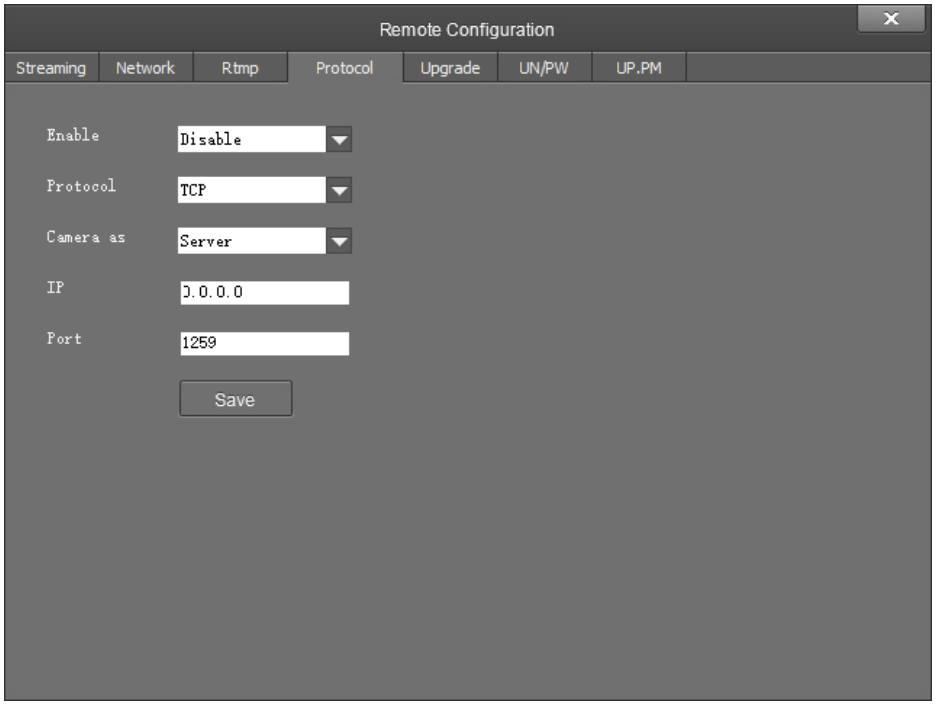
(Wall Bracket Supplied Separately)



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 needs to be prepared by the users.



Transparent Transmission



Transmission camera control code.

■ 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.

■ IP Address: input the IP address not used for the camera;

■ Mask: same as those used by other PC's on the network;

■ Gateway: input gateway IP address;

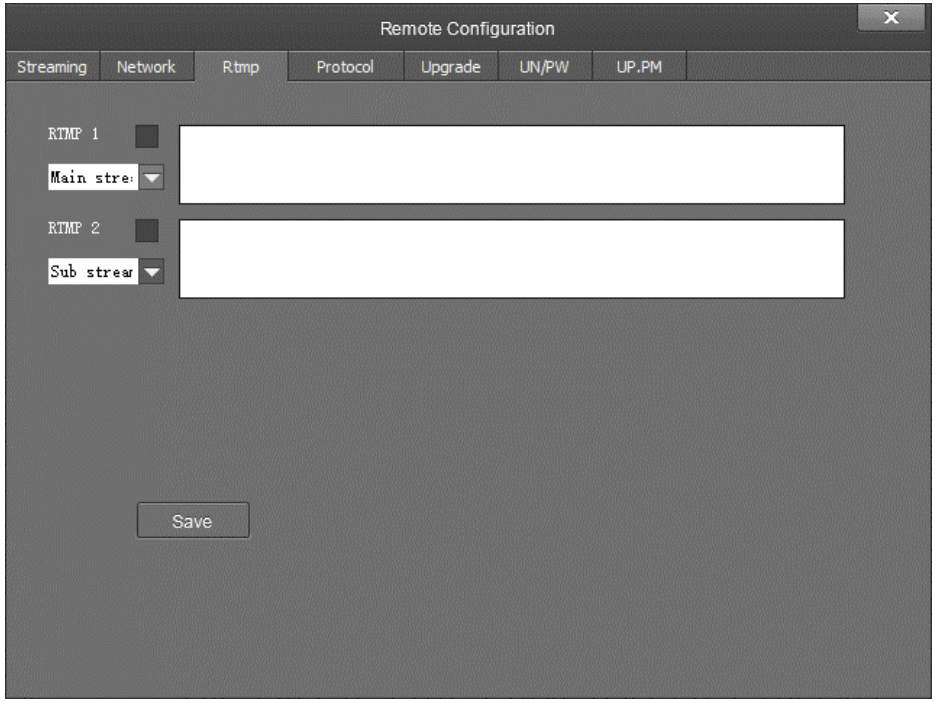
■ DNS 1: server-prior, same as other PC's on the LAN;

■ 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 5000;

■ Click the "Save" button after setting is completed.

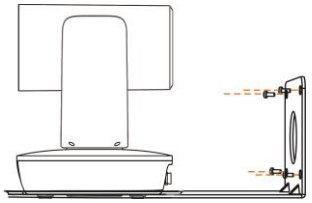
RTMP



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

Support common RTMP servers, such as red5, nginx, crtmpserver, fms, wowza.

2. 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.



MENU SETTINGS

Menu Configuration

<IMAGE>
- SHARPNESS — 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
- 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 — 0, 1, 2, 3, 4
- 2DNR — 0, 1, 2, 3, 4, 5, 6, 7
- 3DNR — 0, 1, 2, 3, 4, 5, 6, 7
- DRC — 0, 1, 2, 3, 4, 5
- MIRROR — ON, OFF
- FLIP — ON, OFF

poor. Vice versa, the larger the fluctuation of the byte will be, the higher the image quality will be. Default values are recommended;

■ Video coding type: choose H.264 or H.265;

■ Encode Level: choose from Base Profile, Main Profile, and High Profile;

■ Channels: Support STEREO;

■ Encode type: Only support AAC, set sampling rate and Audio rate at the same time;

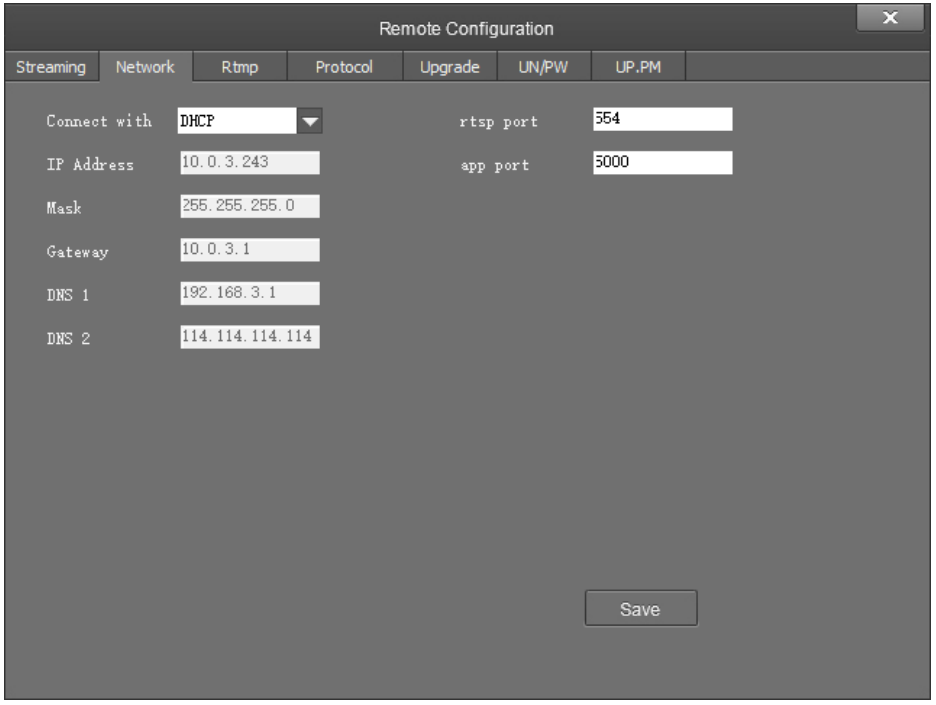
■ Sampile rate: 48KHz;

■ Audio rate: choose from 48Kbps, 64Kbps, 96Kbps, 128Kbps;

■ Input pin: choose the type of audio input;

■ Volume: pull the volume bar to set the volume, the volume ranges from 0 to 100.

Network

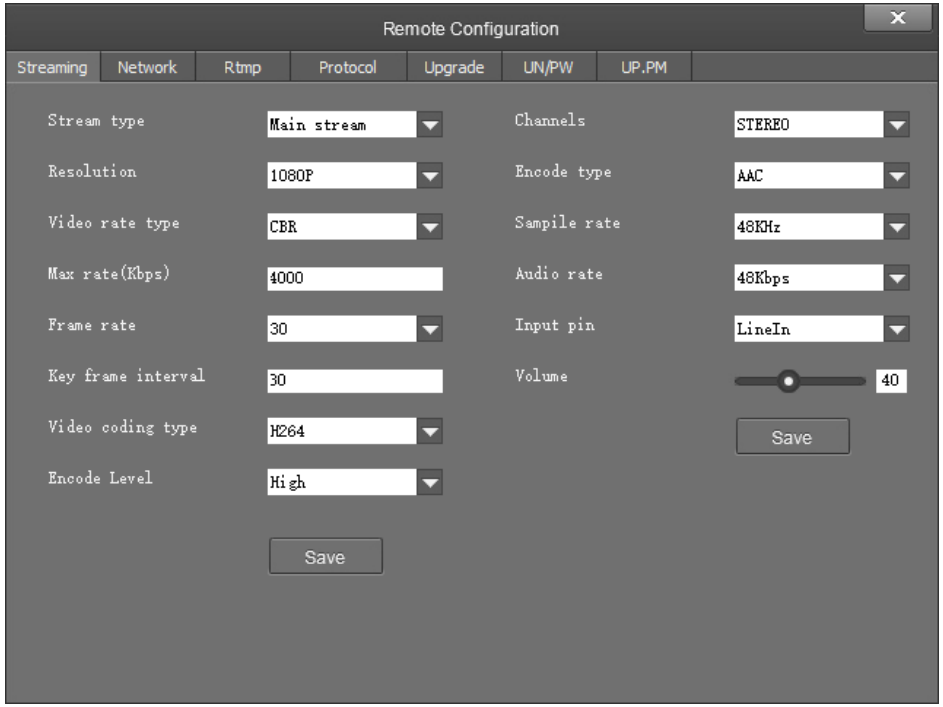


■ Connect with: please choose from Static IP or dynamic IP address;

Configuration

Choose the camera in the device list, click Remote Configuration in the column to upgrade or Configure the camera.

Streaming



■ Stream type: set the parameters of main stream and sub stream. Different devices support different streams;

■ Resolution: set among1080P(1920*1080), HD720P(1280*720), 640*360, choose resolutions based on actual requirements and capability of device. The higher the resolution is, the better network requirements will be needed;

■ Video rate type: support CBR or VBR;

■ Frame rate: represent the number of frames per second of the video;

■ 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

<EXPOSURE>
- AUTO
  - ANTI FLICKER — OFF, 50HZ, 60HZ
  - BLC — OPEN, OFF
  - EXP-COMP — ON — -7, -6, -5, -4, -3, -2, -1, 0, +1, +2, +3, +4, +5, +6, +7
  - EXP-COMP — OFF
- MANUAL
  - GAIN — 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14
  - SPEED — 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
  - LEVEL — F14, F11, F9.6, F8, F6.8, F5.6, F4.8, F4, F3.4, F2.8, F2.4, F2, F1.6, CLOSE
- SHUTTER — SPEED — 1/60, 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 — LEVEL — F14, F11, F9.6, F8, F6.8, F5.6, F4.8, F4, F3.4, F2.8, F2.4, F2, F1.6, CLOSE
- BRIGHT
  - BRIGHTNESS — 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
  - ANTI –FLICKER — OFF, 50HZ, 60HZ

Notes

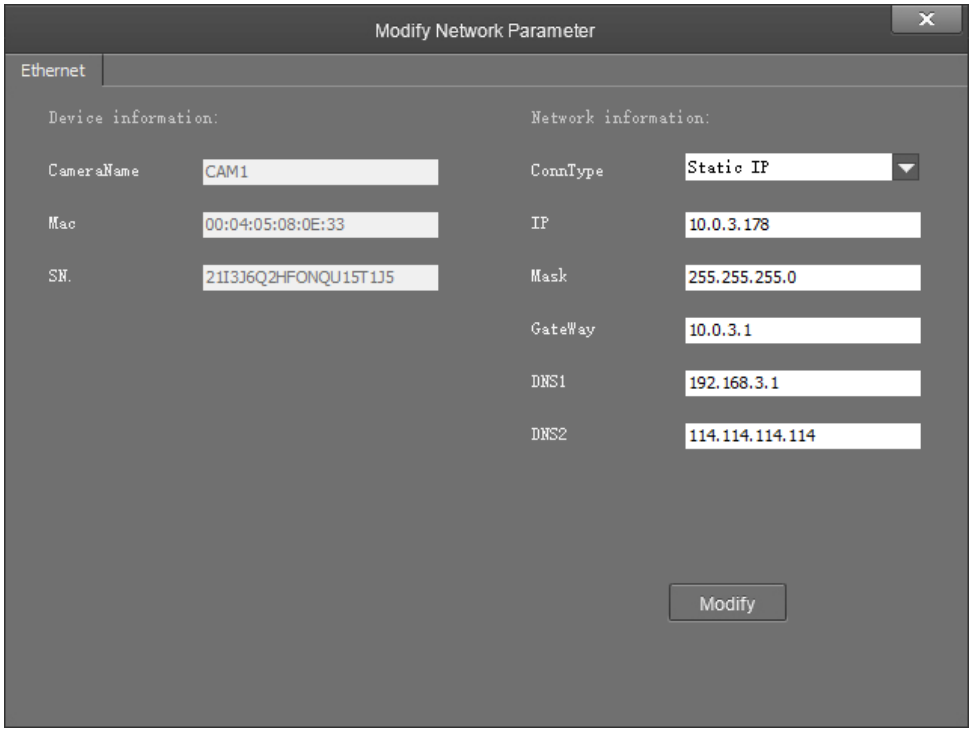
The reference shutter speed parameters from the exposure is based on the 30/60fps for the camera.

<COLORTONE>
- WB
  - AUTO
    - R.GAIN — -7~+7
    - G.GAIN — -7~+7
    - B.GAIN — -7~+7
    - WB-SENSI — LOW, MIDDLE, HIGH
  - ATW
  - MANUAL
    - R.GAIN — 0~16
    - B.GAIN — 0~16
  - OPWB — OPT
  - STATIC — COLOR TEMP — 2800~6500
- SATURA — 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

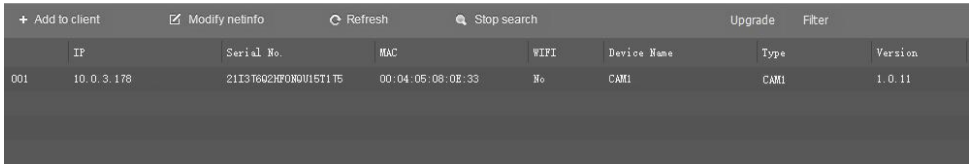
<CAMERA>
- RUM SCENE — INDOOR
- DIGITAL ZOOM — CLOSE/OPEN
- ZOOM TIMES — ×1, ×2, ×3, ×4, ×5, ×6, ×7, ×8 ×9, ×10, ×11, ×12, ×13, ×14, ×15, ×16

<PTZ>
- P/T SPEED — 1, 2, 3, 4, 5, 6, 7
- PTZ TRIG AF — OPEN, OFF
- POWER UP — HOME, PRESET1, PRESET2, PRESET3

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.

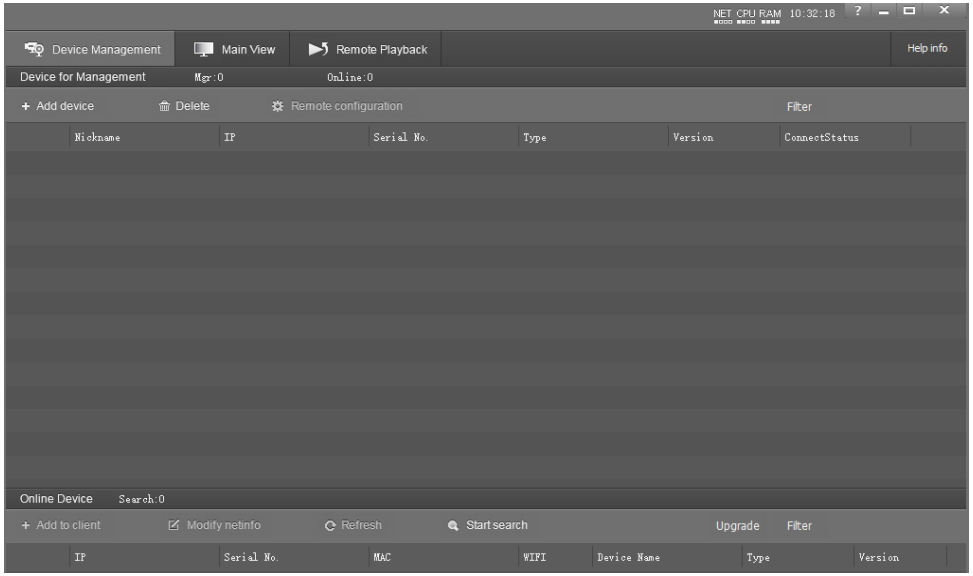


Add the camera in the WAN according to the WAN Connection instructions.

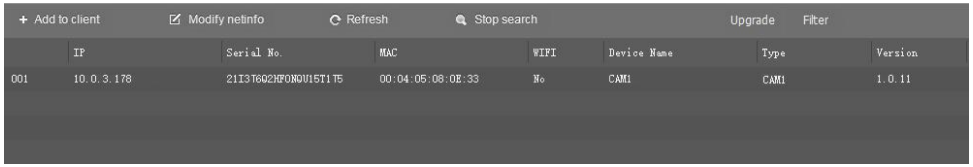
Client Software Instruction

Search and list the camera

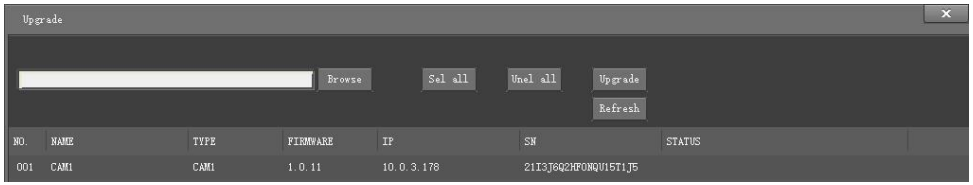
Install and open the Camera CMS software on the PC, enter the interface of Device Management.

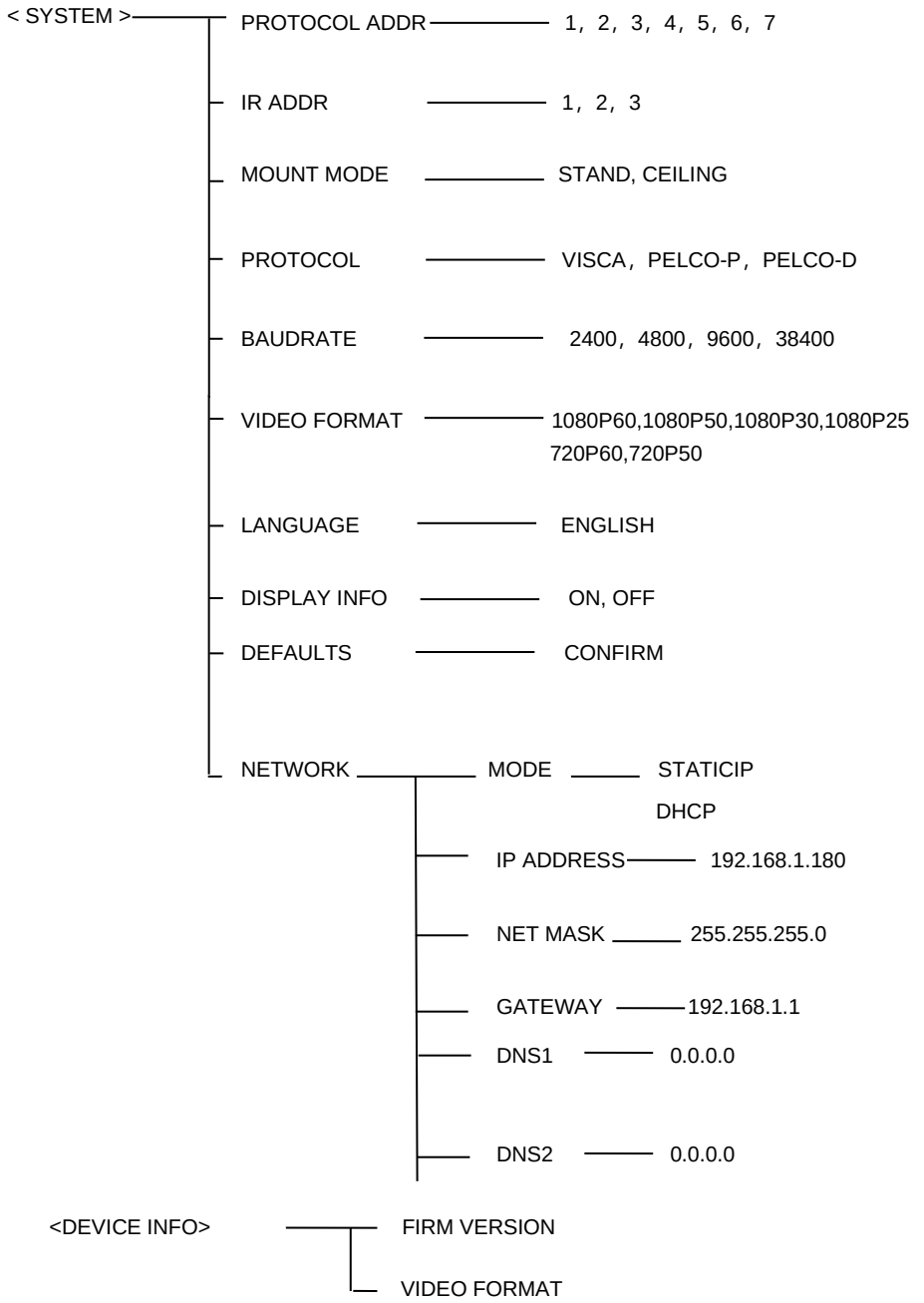


If the camera and PC are in the same LAN, click Start Search, then searching starts and all online devices will be listed, as the picture shown below:



To upgrade multiple cameras in batch, first select multiple devices in the list and Select the upgrade file in the camera program file path, click Upgrade.





Menu Explanation

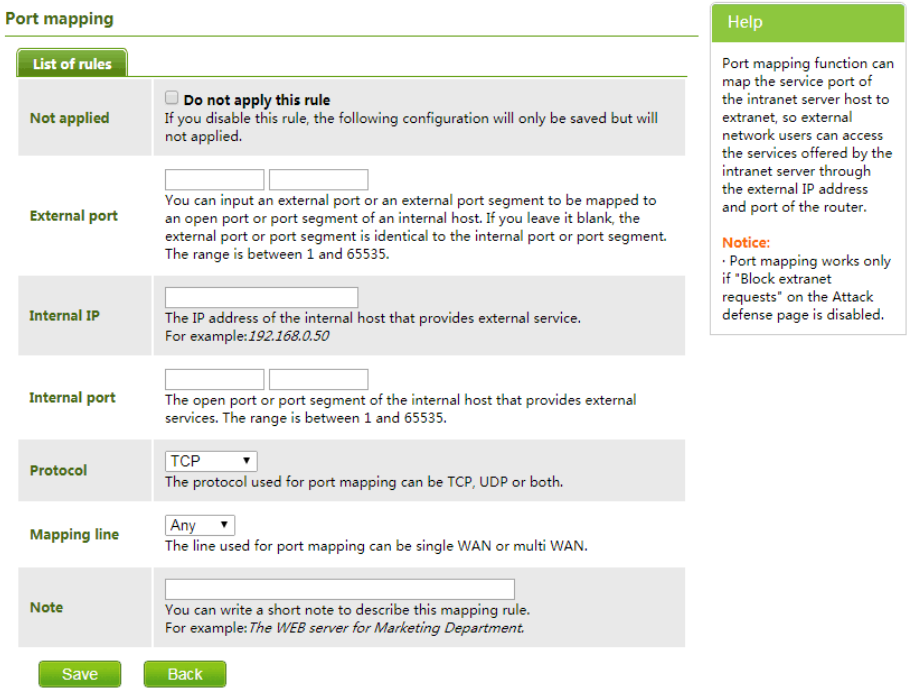
1.Press MENU button to enter / exit menu.

2. Press ▲ or ▼ button to select among menu options, when the font is enlarged, it indicates the menu has been selected, press **ENTER** button to enter and operate the menu.

3. Press ◄ or ► to change the menu options.

Type	Options	Functional description
IMAGE	SHARPNESS	Used to adjust the sharpness of image and image edge. The higher the sharpness, the higher and clearer the contrast. If the sharpness value is too high, easy to cause the image distortion.
	BRIGHTNESS	Used to adjust the brightness of the image.
	CONTRAST	Refers to the ratio between the brightest and darkest areas of the image. The greater the ratio, the clearer and brighter the image; low contrast will make the image gray.
	GAMMA	Used to adjust the brightness value of the image, the lower the gamma value is, the brighter the image will be, the higher the gamma value is, the darker the image will be.
	2DNR	When the camera shows color image, it is advised to disable the digital noise reduction function; otherwise, the image sharpness will be affected.
	3DNR	By comparing several adjacent frames of images, the noise wave is automatically filtered out, so that the image noise is significantly reduced, the image is more thorough, the picture is more pure and delicate. The higher the level of noise reduction is, the more delicate the picture quality will be, the smaller the shaking feeling is. The lower the level of noise reduction is, the more blurred the picture quality will be, the greater the feeling of filter is.
	DRC	It refers to the adaptability of the camera to strong light, specifically to different range of brightness and color temperature.
	MIRROR	The camera image flips 180° horizontally.
	FLIP	The camera image flips 180° vertically.

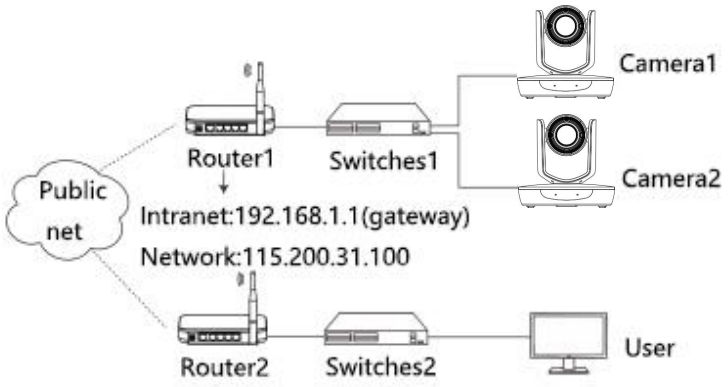
of the internal port (all cameras are fixed to this value). "Protocol" and "image line" can be selected by default. Descriptions such as "port mapping of camera 1" can be filled in the description.



Condition3: Router of the LAN where camera is connected has fixed public IP address

Access from external network: For example, if the external IP address of router 1 is 115.200.31.100, the WAN user under router 2 can access camera 1 through IP address 115.200.31.100 and port 10200 through steps 1 and 2 above. That is to say , in WAN, camera 1 is mapped to (IP 115.200.31.100 + port 10200). Camera 2 can use another external port such as 10320, so camera 2 is mapped to (IP 115.200.31.100 + port 10320) . In the "Managed Device" of the client software iSmart CMS, click the button "+Add", enter the IP address 115.200.31.100 and port 10200 and other information, then the camera 1 can be accessed and controlled.

WAN Connection



As shown in the above diagram, user and the camera are in different routers, which means in a WAN. In this case, the CameraCMS software cannot automatically search for the camera as it does on a LAN. However, if the following three conditions are satisfied, the CameraCMS software can still search for the camera through the following network configurations:

Condition1: Set camera's IP address as static IP address

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 CamCMS 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.

Condition2: Router of the LAN where camera is connected supports Port Mapping

Router Port Mapping: User's 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", in the first frame of "External port", fill in any number from 1~65535, such as 10200 (try to select port greater than 10000 to avoid port conflict); Fill in the IP of camera 1 in the internal IP, such as 192.168.1.179, and fill in the internal port 3478 of the camera in the first box

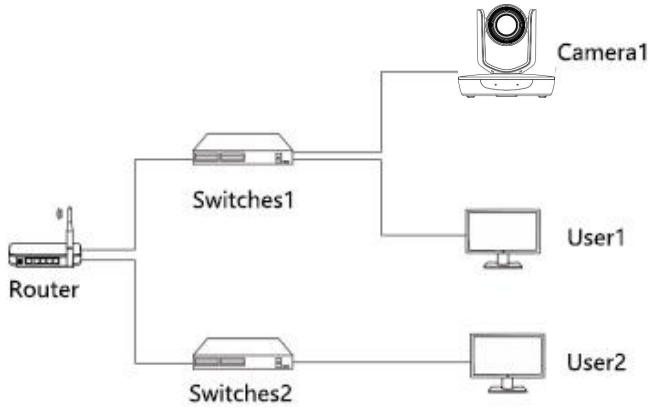
EXPOSURE	EXPOSURE MODE	Switch from exposure modes.
	BLC	The camera lens can automatically compensate the brightness of darker targets under strong light background. Adjust the lighting of the bright background, so as to obtain a clear image to avoid the background brightness caused by the whole picture a bright, when the target is indistinguishable because of the darkness.
	Exposure Compensation	Display levels when exposure compensation Settings are on.
COLORTONE	White Balance	Switch the white balance mode.
	Saturation	Refer to the purity and brightness of the image color. The higher the saturation is, the brighter the color effect is. Vice versa, the lower the saturation is, the more the effect tends to be black and white.
	Tone	Used to adjust the overall tendency of the color of an image, causing the color to rotate.
CAMERA	RUM SCENE	Used to set the scene suitable for the best camera shooting effect.
PTZ	P/T SPEED	Set the camera control speed level. The higher the level is, the faster the speed will be.
	PTZ TRIG AF	Focus automatically when the camera pans, tilts and zooms.
	POWER UP	The action performed before the camera receives a control command when it powers on.
System	PROTOCOL ADDR	Change the camera address by software without setting the camera address through dip switch.
	IR ADDR	Set the IR remote address of the camera.
	MOUNT MODE	The camera image flips 180° vertically.
	PROTOCOL	Set the current control protocol of the camera.
	BAUDRATE	View and set the current baud rate of the camera.
	VIDEO FORMAT	View and set the video format of the camera.
	LANGUAGE	View and set the language of the camera.
	DISPLAY INFO	Turn on/off display of zooming times.
	DEFAULTS	Used to restore all menu parameter settings to factory default settings.

	NETWORK	View and set the current network of the camera.
Device Information	VIDEO FORMAT	View the video format of the current camera.
	FIRM VERSION	Displays the firmware version of the current camera.

Network Connection

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

LAN Connection



As shown in the above diagram, user1 and user 2 are in the same router, which means in the same LAN. Connecting the camera to the same LAN where the PC is, and referring to the below CameraCMS software instructions, then all the cameras can be found and connected by searching for the online device list.