HD
Conferencing Camera
USER MANUAL

Multimedia Imaging Technology Expert
Providing Superior High-definition Solution

Contents

Safeguard

1. Before install camera, please read this manual carefully, please follow this manual during installation and operation, and keep this manual for future reference.

2. Power adapter of camera can transfer external AC 110-240V to DC 12V with 2.0A in maximum, please follow local electric safety regulation strictly during installation and operation.

3. Heavy stress, strong vibration and soaking shall be avoided during transportation, storage and installation, which will make damage to camera.

4. Please operate camera within temperature and humidity range as described in this manual, foreign bodies shall be prevented from camera, and don't spill corrosive liquid to camera surface.

5. Don't disassemble camera by yourself, please turn to professional and qualified personnel for help when necessary.

6. When installing and moving camera, please hold camera main body, not head, please pay attention to handle with care, and don't squeeze the camera avoiding damage internal structure. Please keep camera un-plugged before all installation procedure completed.

7. When cleaning camera, please use soft cloth. If 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 excess liquid from the cloth before wiping the camera. Next, wipe off all remaining solution with a soft, dry cloth. Use lens cleaning paper to clean the lens.

8. Video and control cables should be well-shielded to keep stable signal transporting.

9. Please put power, video and control cables to safe place to avoid trampling, don't pile up sundries over cables. Cables shall be protected well especially the connection part.

Product Brief

1. Introduction

This product is an industry leading High-definition conference room engineering camera, it uses a powerful 1/2.8 inch high-definition image processor with 5M pixels, output high-definition video with 16:9 ratio in high quality. It is a perfect match to any codec, videoconferencing endpoint, and other video systems.

This camera has a built-in zoom lens, it achieves high-speed and quiet pan/tilt operation, and cover subjects across wide areas, it also achieves excellent and quick auto-focus and auto-exposure.

It can save up to 241 presets, and provides good accuracy and quick response in camera positioning benefit from its outstanding mechanical design. This camera is an ideal choice for applications including AV integration, videoconferencing, distance education, and video streaming.

2. Features

1) Built-in 1/2.8-type HD CMOS image sensor with 5M pixels.

2) Multiple video outputs, 2-ways HD video and 1-way IP video can be outputted simultaneously in high quality.

3) Reliable, quiet and quick Pan/Tilt camera positioning.

4) Multiple control interfaces and multiple protocol support, achieves full camera control, can work perfectly with other video system (codec, video endpoints, and video tracing system).

5) Multiple installation methods (ceiling and walling), video can be vertically flipped easily by operating OSD menu.

6) Support up to 241 presets, pan, tilt and zoom values can be stored even after rebooting.

7) Built-in OSD menu, multi-functional IR remoter, ease-to-use operating.
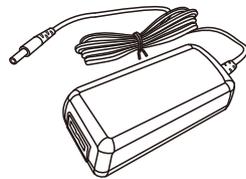
Standard Accessories
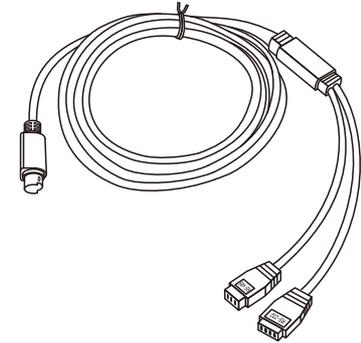
1. Camera
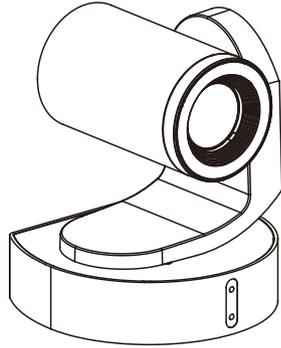
2. IR remote controller
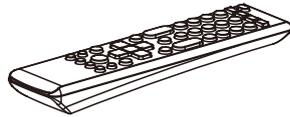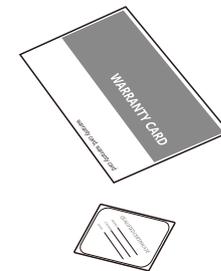
3. Power adapter

4. Power cable

5. RS-485 / RS-232 cable

6. User manual

7. warranty card and
   Quality certificate

System Connection

POWER ADAPTER

RJ45 CABLE

RS-232 CABLE

RS-232 CABLE

RS-485 CABLE

HD-SDI CABLE

HDMI CABLE
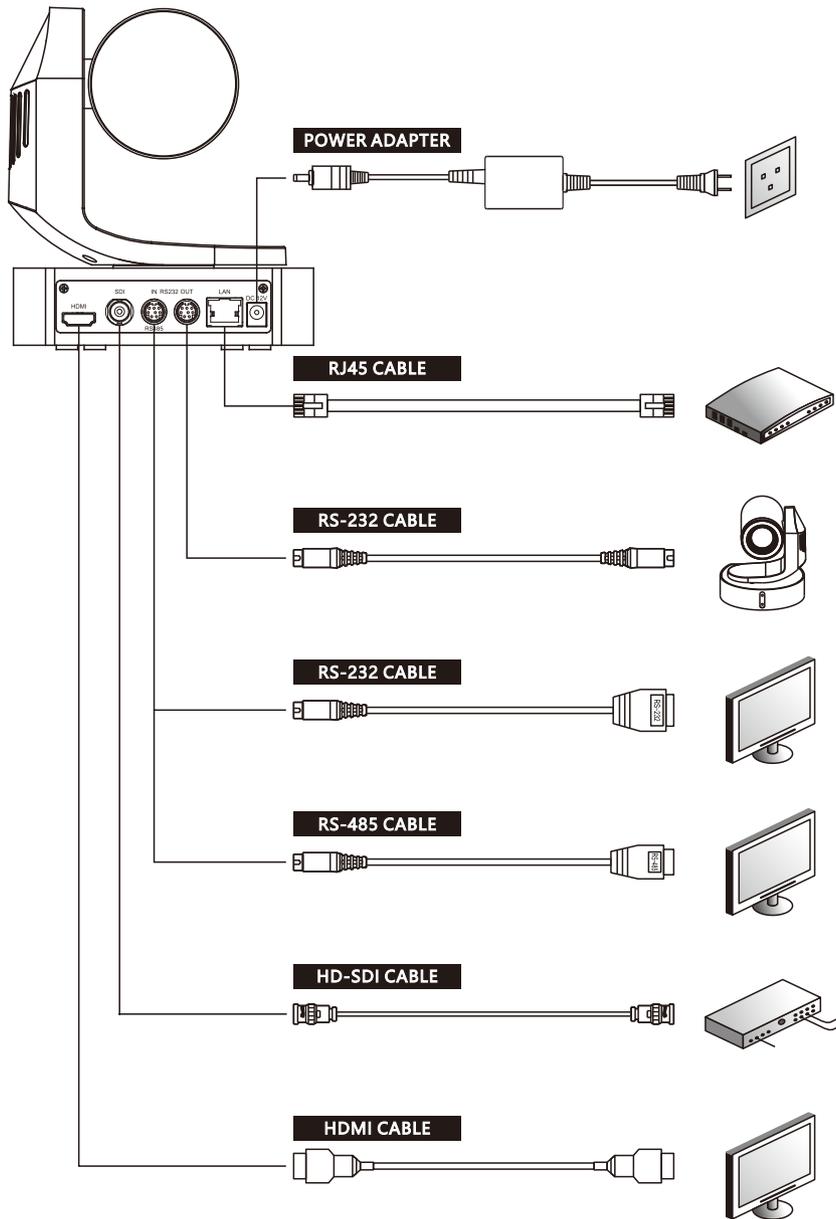
Panels and Interfaces

1. Front panel

❶ Lens

❷ COM indicator

❸ Receive window of IR remote controller

❹ POWER indicator
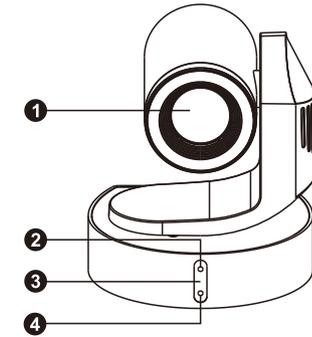
※ Notes ※
● POWER indicator will flash during starting up, when starting up completed, it will keep lighting before the first command arrives from IR remote controller or COM ports, after then, each flashing means one command received.

2. Back panel

❶ HDMI interface

❷ HD-SDI interface

❸ RS-485 interface

❹ RS-232 IN interface

❺ RS-232 OUT interface

❻ LAN interface

❼ DC 12V Power interface

3. Interfaces
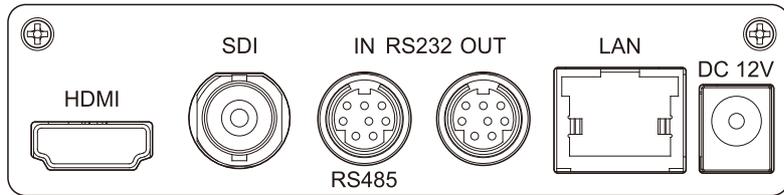
1) HD-SDI interface: BNC connector, carrying HD video, maximum transmission distance is usually 100 meters using standard 75ohm coaxial cable.

2) HDMI interface: standard HDMI connector, carrying HD video.

3) RJ-45 interface: carrying IP HD video Encoding stream.

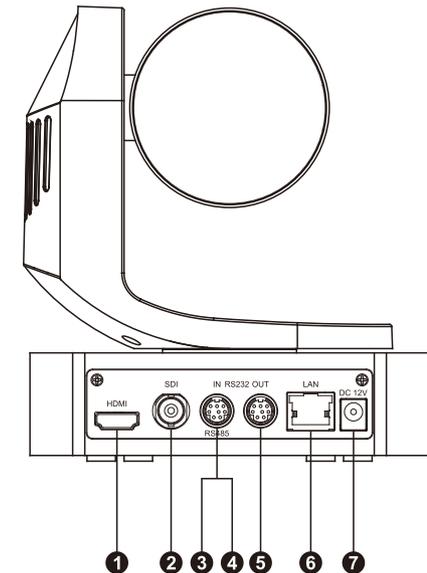4) Control interfaces: one RS485/422 connector, two RS232 connectors, and all support protocols including VISCA and PELCO-D.

COM Connection

1. RS-232/RS-485 input interface pin definition
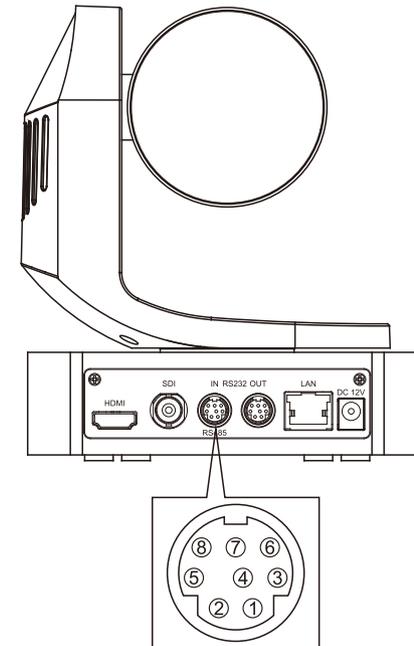
Pin number	Pin definition	DB9 Pin definition
1	RS485-A+	
2	RS485-B−	
3	TXD	2
4	GND	5
5	RXD	3
6	GND	
7	IR	9
8	NC	

2. RS-232 input interface cable connection

```
Camera            Windows
                   DB-9

1. RS485-A+       1. CD
2. RS485-B+       2. RXD
3. TXD            3. TXD
4. GND            4. DTR
5. RXD            5. GND
6. GND            6. DSR
7. IR             7. RTS
8.NC              8.CTS
                  9.RI
```

```
Camera            Windows
                   DB-25

1. RS485-A+       1. FG
2. RS485-B+       2. TXD
3. TXD            3. RXD
4. GND            4. RTS
5. RXD            5. CTS
6. GND            6. DSR
7. IR             7. GND
8.NC
                  20.DIR
```

```
Camera            Camera

1. RS485-A+       1. DTR
2. RS485-B-       2. DSR
3. TXD            3. TXD
4. GND            4. GND
5. RXD            5. RXD
6. GND            6. GND
7. IR             7. NC
8.NC              8.NC
```

3. RS-232 output interface pin definition
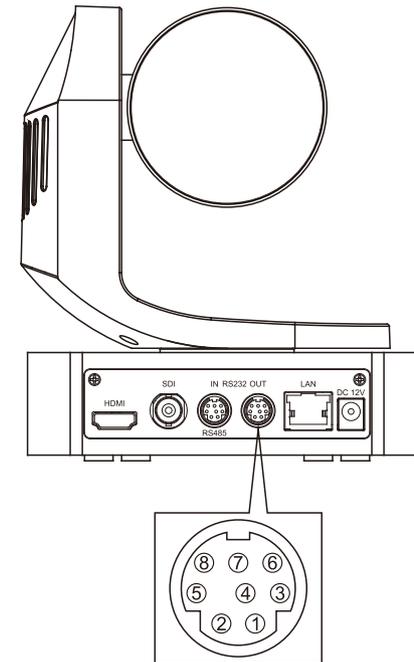
| Pin number	Pin definition	DB9 Pin definition
1	UNDEFINED	
2	UNDEFINED	
3	TXD	2
4	GND	5
5	RXD	3
6	GND	
7	UNDEFINED	
8	NC	

4. RS-232 output interface cable connection

```
| Camera        Camera
|
| 1.            1.
| 2.            2.
| 3. TXD        3. TXD
| 4. GND        4. GND
| 5. RXD        5. RXD
| 6. GND        6. GND
| 7.            7. NC
| 8. NC         8. NC
```

5. COM connection methods

Open OSD menu, enter <System> sub menu, configure COM setting such as protocol, baud rate and control port in related menu items.

Method 1:
Controlling one camera through RS-232 connection.

RS-232 IN
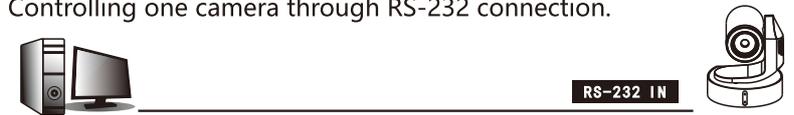
Method 2:
Controlling one camera through RS-485 connection.
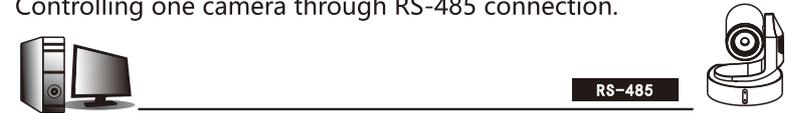
RS-485

Method 3:
Controlling multiple cameras through RS-485 connection in parallel.

RS-485并联   RS-485   RS-485

Method 4:
Controlling multiple cameras through RS-232 connection in daisy chain.

RS-232 IN   RS-232 IN   RS-232 IN
RS-232 OUT   RS-232 OUT
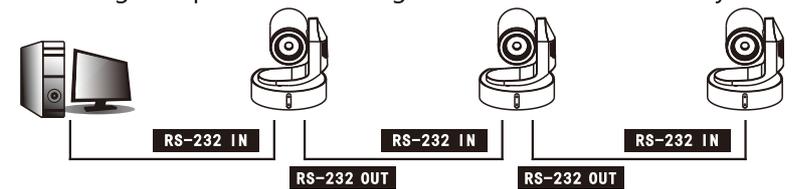
※ Notes ※
● In RS-232 daisy chain connection, cameras shall be connected one by one with increased address started from 1, maximum is 7, please configure correct camera address before installation.

IR Remote Controller – Key Layout
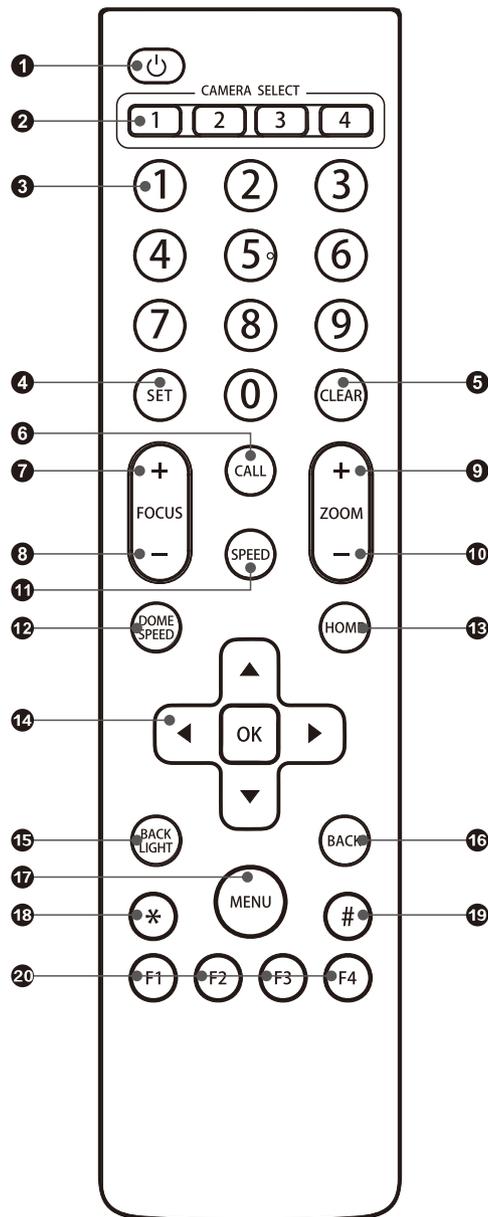
❶ [POWER]: power on/off

❷ [CAMERA SELECT]: select the camera address for controlling

❸ [0-9]: number key

❹ [SET]: set preset

❺ [CLEAR]: clear preset

❻ [CALL]: call preset

❼ [FOCUS +]: focus to far direction

❽ [FOCUS -]: focus to near direction

❾ [ZOOM +]: zoom to tele direction

❿ [ZOOM -]: zoom to wide direction

⓫ [SPEED]: switch zoom/focus speed between fast and slow mode

⓬ [DOME SPEED]: switch pan/tilt speed between fast and slow mode

⓭ [HOME]: back to home position

⓮ DIRECTION KEY: pan/tilt direction/menu operation

⓯ [BACK LIGHT]: backlight compensation on/off

⓰ [BACK]: back to previous menu

⓱ [MENU]: OSD menu on/off

⓲ [*]: switch to auto focus mode

⓳ [#]: switch to manual focus mode

⓴ [F1] [F2] [F3] [F4]: reserved

IR Remote Controller – Menu Operation

OSD menu can be displayed and operated using IR remote controller, as shown below.
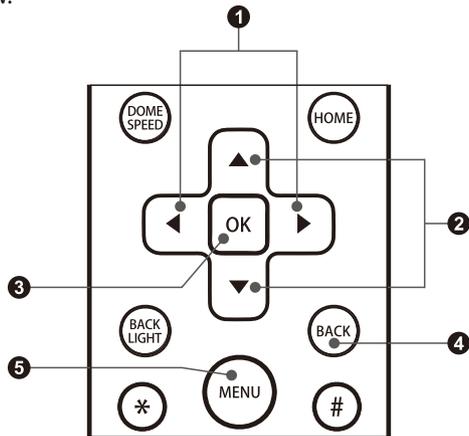
❶ Change menu item

❷ Select menu item

❸ Enter sub menu [OK]

❹ Back to previous menu [BACK]

❺ Menu on/off [MENU]

If menu is displayed, camera will not respond to operations other than menu navigation from IR remote controller or COM port, OSD menu will not be displayed in SD video output.

※ Notes ※

● Any change made in OSD menu will be saved after menu turn off normally.

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Menu language supports both English, for detailed information, refer to list below.

Main Menu	Sub Menu	Option	Description
VIDEO	VIDEO FORMAT	1080p60	Set video format
		1080p50	
		1080p30	
		1080p25	
		1080i60	
		1080i50	
		720p60	
		720p50	
	NOISE FILTER	0-15	1-15：3D/2D NR level 0：Off
	PICTURE FLIP	ON	Picture flip on/off
		OFF	
	VIDEO STYLE	REAL	Set video style
		CUSTOM	
		DEFAULT	
		STANDARD	
		SOFT	
		BRIGHT	
		COLORFUL	
		CLEAR	
		USER CUSTOM	
	ANTI FLICKER	OFF	Set anti flicker mode
		50Hz	
		60Hz	
		60+Hz	
	HUE	25-75	Set hue

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	ADVANCED SETTING	BRIGHTNESS	Set brightness (0-99)
		GAMMA	Set gamma (0-31)
		CONTRAST	Set contrast (0-100)
		SATURATION	Set saturation (72-172)
		OVERALL SHARPNESS	Set overall sharpness (0-15)
		DETAIL SHARPNESS	Set detail sharpness (0-15)
		VIDEO ENHANCEMENT	Set video enhancement (AUTO/0-16)
PAN TILT ZOOM	DIGITAL ZOOM	OFF/ 1.5X/2X/4X/8X/ 10X/12X	Set digital zoom
	PRESET FOCUS	AUTO	Set digital zoom
		MANUAL	After call preset, Auto focus again
	PANTILT RATE MODE	AUTO	Change Pan/tilt rate by zoom position
		FIXED	Fix on Pan/tilt rate
	PRESET VIDEO FREEZE	OFF	Not freeze video by call preset
		ON	Freeze video by call preset

SYSTEM	CONTROL BAUD RATE	2400/4800/9600/ 19200/38400	Set control baud rate
	CONTROL PROTOCOL	VISCA	Set control protocol
		PELCO-D	
	CONTROL ADDRESS	(1-7) OR (1-254)	Set control address (1-7)for VISCA (1-254)for PELCO-D
	MENU LANGUAGE	ENGLISH	Set menu language
		CHINESE	
	IP ADDRESS	DHCP	Set IP address mode
		STATIC	
EXPOSURE	MODE	AUTO	Set exposure mode
		IRIS PRIORITY	
		SHUTTER PRIORITY	
		EXPOSURE SET	
	IRIS	F1.6/F2/F2.4/F2.8/ F3.4/F4/F4.8/F5.6/ F6.8/F8/F9.6/F11/ F14	Valid when exposure mode is "IRIS PRIORITY", set iris
	SHUTTER	SLOW 1/10000-1/25 1/10000-1/30	Valid when exposure mode is "SHUTTER PRIORITY", set shutter
	EXPOSURE VALUE	0-40	Valid when exposure mode is "EXPOSURE SET", set exposure
	WDR	OFF	Set WAD mode
		ON	
	STRONG LIGHT CONTROL	DEFAULT	Set strong light control
		STANDARD	
		2-8	

	STARLIGHT MODE	AUTO	Set starlight mode
		OFF	
		STARLIGHT	
		SUPER STARLIGHT	
	GAIN MAX LIMIT	0DB-160DB	Set gain max limit
	BACKLIGHT	AUTO	Open/Close backlight mode
		ON	
WHITE BALANCE	MODE	AUTO	Set white balance mode
		INDOOR	
		OUTDOOR	
		ATW	
		MANUAL	
	WB PARAMETER	250-750	Set white balance value
	RESTORE DEFAULT PARAMETERS		
	RED GAIN	0-1000	Valid when WB mode is "manual", set red gain
	BLUE GAIN	0-1000	Valid when WB mode is "manual", set blue gain
RESTORE DEFAULT PARAMETERS			Restore all settings to factory default
ABOUT	CONTROL VERSION		Display control version
	SYSTEM VERSION		Display system version
	MODE		Display model type.
	SN		Display product SN
	STATIC IP		Display IP address

IR Remote Controller – Operation

1. Power on initialization

When camera is powered on, power indicator is on, camera head will rotate in horizontal and vertical direction automatically, and camera lens will be zoomed to tele and wide direction simultaneously. After pan/tilt/zoom self-checking completed, COM indicator will flash and keep lighting finally, camera will be positioned to HOME position, COM indicator keep lighting before the first command arrives from IR remote controller or COM ports, after then, each flashing means one command received.

If preset 1 is set, camera will be positioned to this preset automatically after initialization.

2. Pan/Tilt control

Press arrow buttons to change camera position, clicking arrow buttons will make a small change in camera position, to make a quick or big change in camera position, press and hold down those buttons.

3. Focus control

Auto-focus is factory default, but user can change to manual-focus easily by pressing [FOCUS+] or [FOCUS-] key, which will make focusing operation, if user wants to back to auto-focus, press [*] key, if user wants to back to manual-focus, press [#] key

4. Zoom control

Pressing [ZOOM-] or [ZOOM+] key will make zoom operation in wide or tele direction, zoom in (tele) will get a close-up scene, and zoom out (wide) will get a wider view.

5. Change camera speed

The camera's pan/tilt speed can be switched between fast and slow mode, when fast mode is on, press [DOME SPEED] button to switch to slow mode, and vice versa.

The camera's zoom/focus speed can be switched between fast and slow mode, when fast mode is on, press [SPEED] button to switch to slow mode, and vice versa.

6. Camera reset

Pressing [HOME] key will make camera back to HOME position.

7. Backlight compensation ON/OFF control

When one portion of an image is brilliantly bright while other portions are dark, video will become dark; user can improve video quality by turning on backlight compensation function. Press [BACKLIGHT] will make camera switch to Backlight compensation ON/OFF mode.

8. Preset control

Current camera position including pan/tilt/zoom can be stored in up to 241 presets; user can recall these presets in future usage.

Set preset: press digital combination (preset ID), then press [SET] key.

Call preset: press digital combination (preset ID), then press [CALL] key.

Clear: press digital combination (preset ID), then press [CLEAR] key.

※ Notes ※

● Definition of preset number is compatible with SONY camera, preset ID set by IR remote (such as 9) will be decreased by 1 (such as 8) and stored in camera memory, if user want to operate that preset through VISCA/PELCO command through COMport, internal preset ID (such as 8) shall be used.

9. Special presets

Some special presets are defined inside camera; calling of these presets will achieve some camera operation such as video format switching, and etc. user shall not save positions to these special presets.

Definition of special presets

As shown below.

Preset for COM command	Description	
0–34	Common Preset	
35	Clear All Presets	
36-38	Reserved	
39	1080p60	Take effect by restart
40	1080p50	
41	1080p30	
42	1080p25	
43	1080i60	
44	1080i50	
45	720p60	
46	720p50	
47-48	Reserved	
49–254	Common Preset	

DIP Switch

1. DIP switch

In camera's back panel, there are one DIP switch marked, this switch has 4 sets which can be configured to ON or OFF, as shown below.

ON   DIP
1 2 3 4
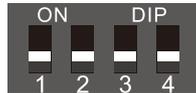
2. Switch configuration

Set Switch to configure camera video format

Video Format	Set			
Can Change Video Format by Menu	1	2	3	4
	OFF	OFF	OFF	OFF
720P50	ON	OFF	OFF	OFF
720P60	OFF	ON	OFF	OFF
1080I50	ON	ON	OFF	OFF
1080I60	OFF	OFF	ON	OFF
1080P25	ON	OFF	ON	OFF
1080P30	OFF	ON	ON	OFF
1080P50	ON	ON	ON	OFF
1080P60	OFF	OFF	OFF	ON
Reserved	Others			

Installation Guide

1. Attention

Before camera installation, please read safeguard in the beginning of this user manual carefully, and pay attention to the followings.
1) Camera installation shall be done by qualified technician or personnel.
2) Before installation, please check camera's DIP switch, make sure camera's address and other settings configured correctly.
3) Weight of camera will not be over 2.0kg, but for safety, all mechanical structure and connections holding camera should be able to bear weight 5 times the weight of camera.

2. Installation method

There are two methods to install camera, desktop installation and ceiling installation.

Desktop installation: installation surface shall be kept level; camera shall be fixed to installation surface with firm connection, so to avoid falling.
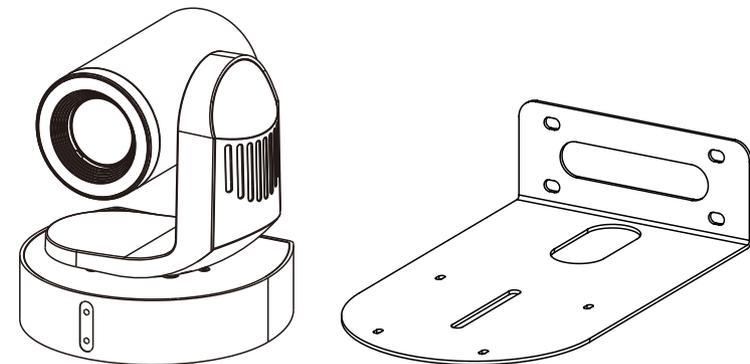
Ceiling installation: must choose strong ceiling or room roof to hold camera in this installation method.

1) Refer to dimension and position of four holes in camera's ceiling holder, four holes shall be made in right place of ceiling or roof, then use four M5X40 screws to connect ceiling holder and ceiling or roof together firmly; an alternative way is to install four M5 expansion bolts in ceiling or roof, then fix ceiling holder using four M5X40 screws.
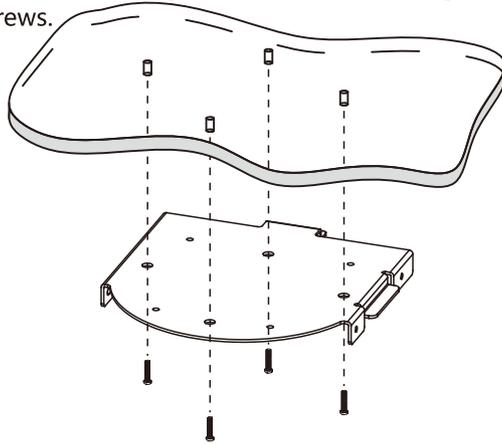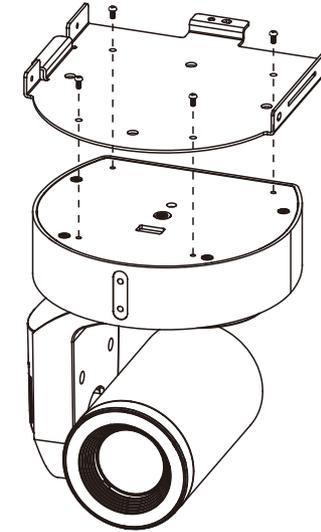
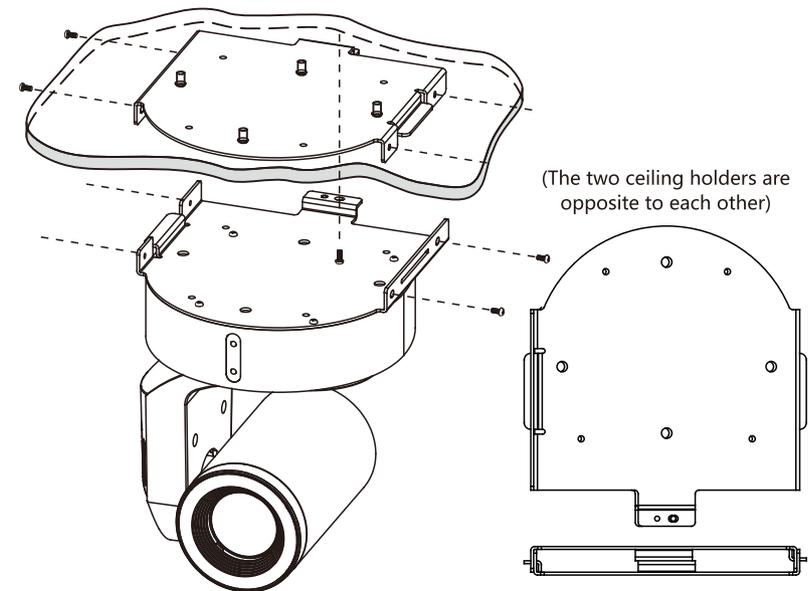2) Check camera's DIP switch, make sure camera's address and other settings configured correctly.

3) Take down four foot pads in from camera bottom.
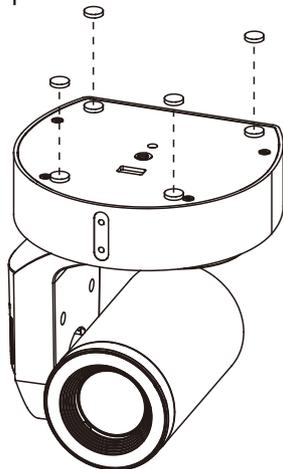
4) Fix another ceiling holder to camera bottom with four PM3X6 screws.

5) Lock the two ceiling holders, and fix them with five PM3X8 screws.

(The two ceiling holders are opposite to each other)

6) Connect camera cables including power, video and control.

Troubleshooting

1. Unable to complete self-checking during camera starting-up, with abnormal pan/tilt sound

Please check whether standard power adapter be used, (KTEC, input: 110-240v, 50/60Hz, 1A; output: 12v, 2A), if not, please check whether power output is compatible with output of standard power adapter.

2. No video display when camera is connected to displayer or codec

Please refer to following procedures:

1) Make sure camera starting-up completed successfully, can do pan/tilt/zoom operation normally.

2) Make sure camera configured with correct video format supported by camera interface in use, to change video format, please operate OSD menu or call specialreset using IR remote controller.

3) Make sure camera configured with correct video format supported by external device, if not sure, may try 1080p25 format which is usually supported by most devices, and then try other format.

4) Make sure video cable connected well, no poor contact happens.

5) Try connecting camera to HDTV or displayer directly, so to bypass complicated connections and locate real cause.

3. Serious color shifting when camera is connected to displayer or codec

Please refer to following procedures:

1) Make sure video cable connected well, no poor contact happens.

2) Make sure camera configured with correct video format supported by external device, if not sure, may try 1080p25 format which is usually supported by most devices, and then try other format.

3) Try connecting camera to HDTV or displayer directly, so to bypass complicated connections and locate real cause.

4. Changes of camera configurations lost after camera rebooting

If changes made through menu operation, menu must be turned off normally before camera rebooting, so to save related changes.

5. Camera turn to a special pan/tilt/zoom position other than HOME position after rebooting

After rebooting, camera will call preset 1 automatically, only when preset 1 isn't configured, camera will keep in HOME position.

6. Camera can only do pan/tilt operation within a limited range

Normal range for pan operation is -170 degree to 170 degree, normal range for tilt operation is -30 degree to 90 degree, if camera cannot reach such range, the most possibility is someone or devices such as video tracking system changed pan/tilt range using VISCA command.

Please contact us for further assistance.

7. Camera is not controllable through COM port

Please refer to following procedures:

1) Enter to <Main menu><System>, check whether COM parameters including COM port, baud rate and protocol are consistent with those of controller.
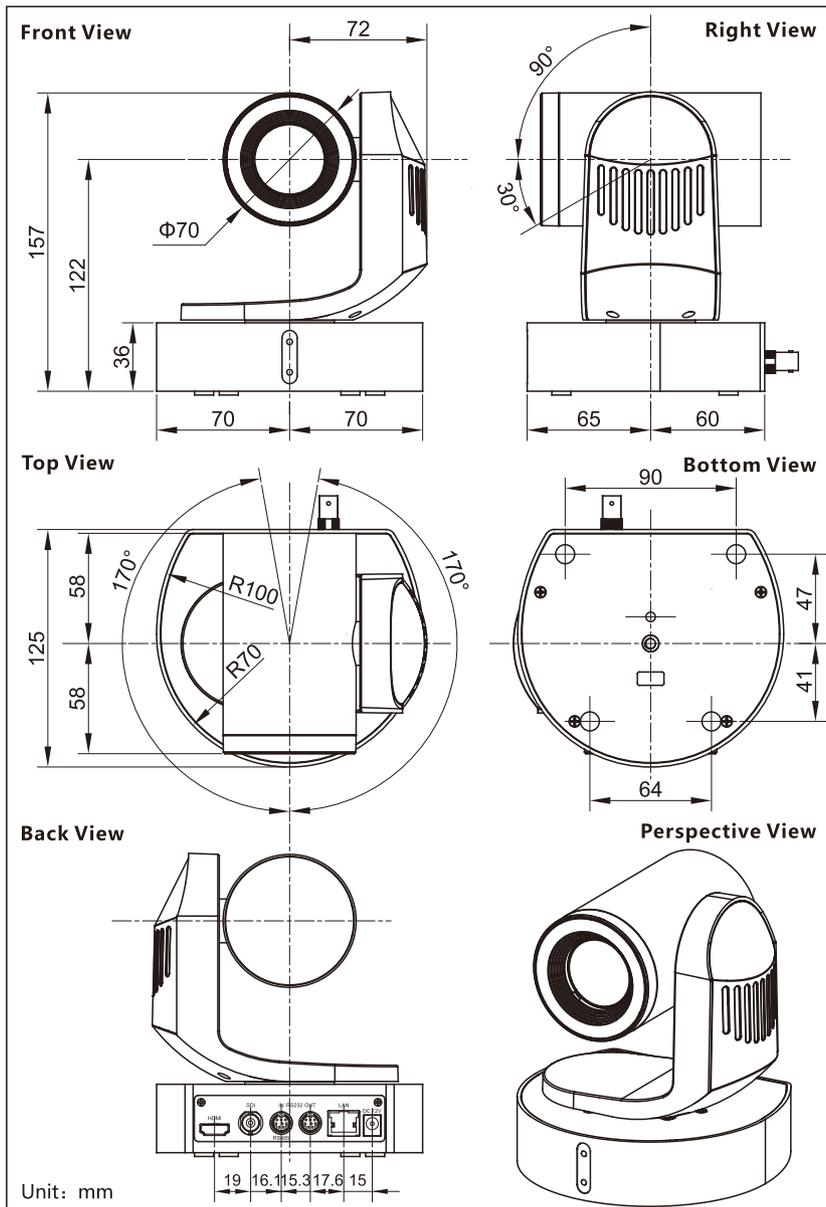
※ Notes ※
● If protocol is VISCA, camera address shall be within 1 to 7, if protocol is PELCO, camera address shall be within 1 to 255.

2) If using VISCA daisy chain connection for multiple cameras, please check whether cameras are connected one by one with increased address started from 1.

3) Check whether COM cables connected well, and no poor contact happen.

8. Preset set by IR remote controller is not consistent with preset set by COM command

Preset set by IR remote controller use ID defined from 1 to 128, which is mapped to a camera internal definition from 0 to 127; this internal definition is used in COM command, for example, preset 1 set by IR remote controller can be called by COM command using preset ID 0.

Product Dimension

Front View

72

Φ70

157

122

36

70 70

Right View

90°

30°

65 60

Top View

170°

58

R100

125

R70

58

170°

Bottom View

90

47

41

64

Back View

Perspective View

Unit：mm

19 16.1 15.3 17.6 15

Network Operation

1. Equipment installation and OS

1). OS:
Windows 2000/XP/vista/7/8/10
Network protocol: TCP/IP
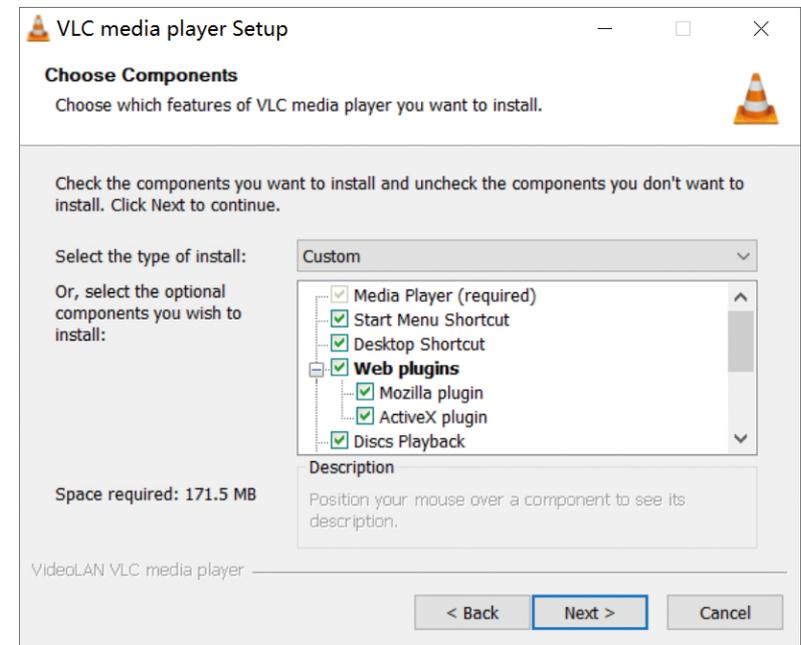Client PC: P4/128MRAM/40GHD. DirectX8. 0

2). installation
2.1) Connect your network camera to your network or cross-wire directly to the PC.
2.2) Connect DC 12V power.

※ Notes ※

● If you first uses the device, VLC Media Player software needs to be installed.

VLC Version: > V3. 03, must check Web plugins
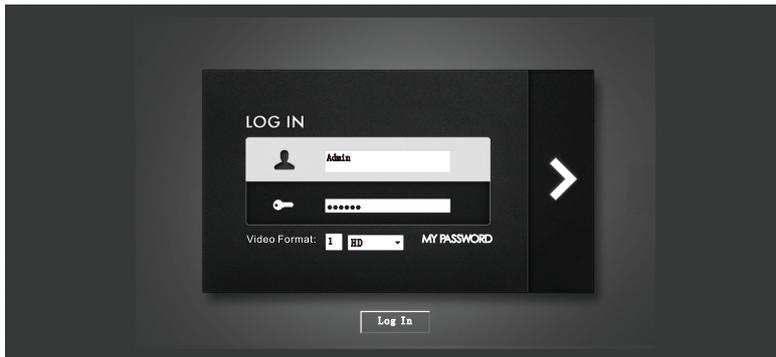
2. Access to cameras

1). Get Ip Address

Camera default ip address is 192. 168.1.88, Mask is 255.255.255.0
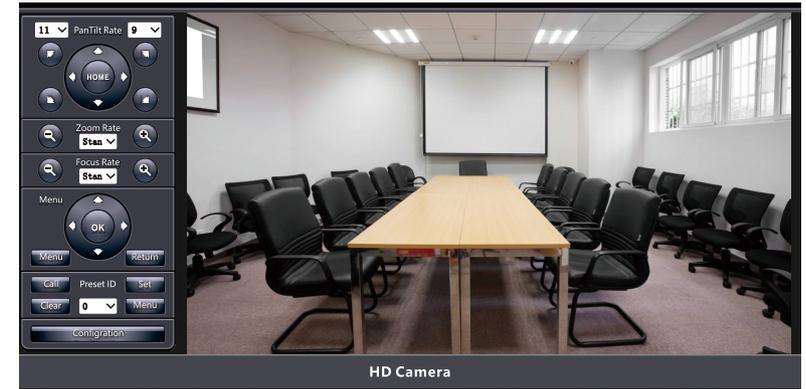You can get ip address infomation by menu.

2). Login camera

2.1) Input "http://192.168.1.88" in IE, and login by Username and password, default User name and Password is "Admin" and "888888".
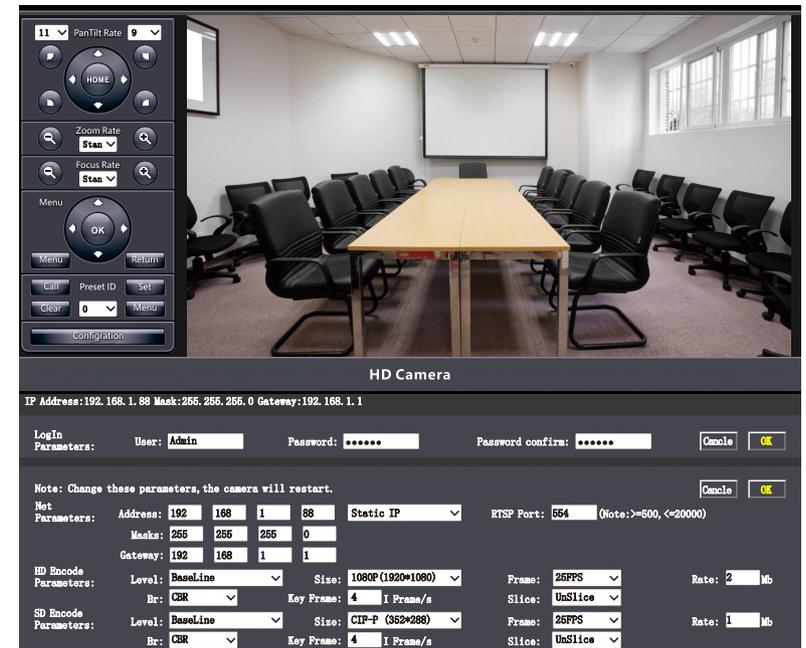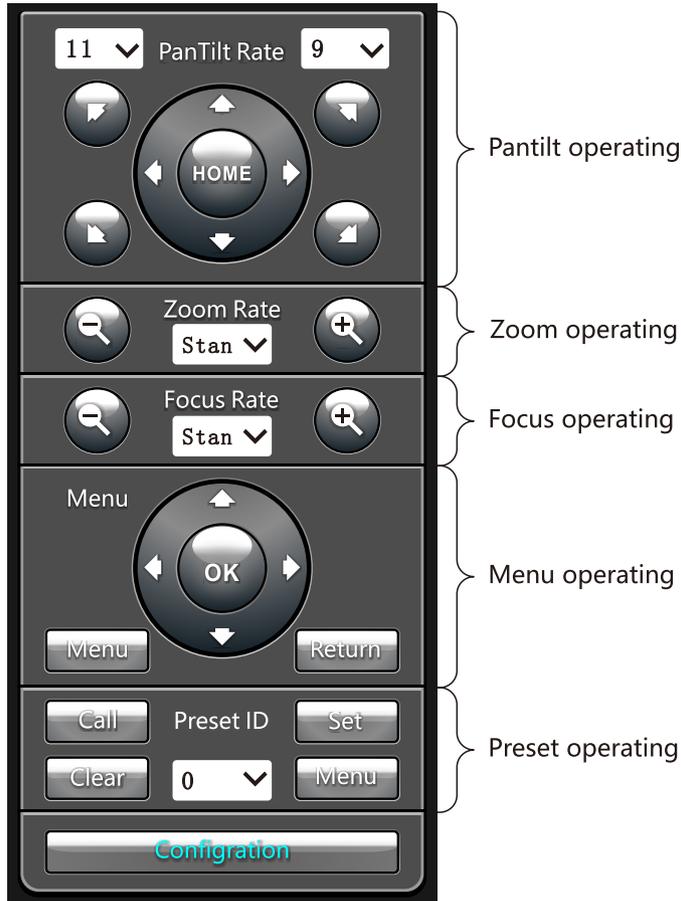
2.2) You can operate camera.

You can Zoom, Focus, Pantilt camara by click. some buttons by mouse.

And change the configurations.

3). Operating instruction

Pantilt operating

Zoom operating
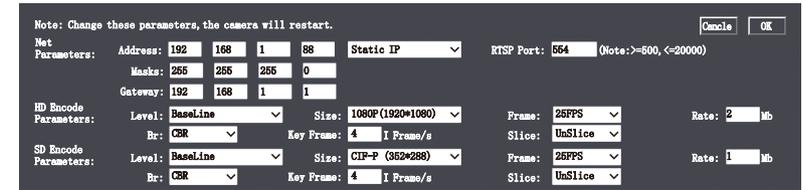
Focus operating

Menu operating

Preset operating

4). User Management

User name and password are composed of letters (case sensitive) and numbers, press "OK" key to take effect, press "Cancel" key to restore to the current camera related parameters.

5). Configuration

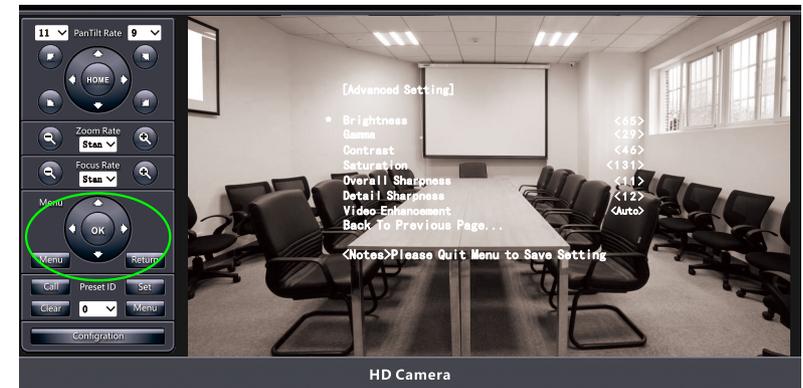

5.1) Config IP Address

5.2) Config RTEP Port
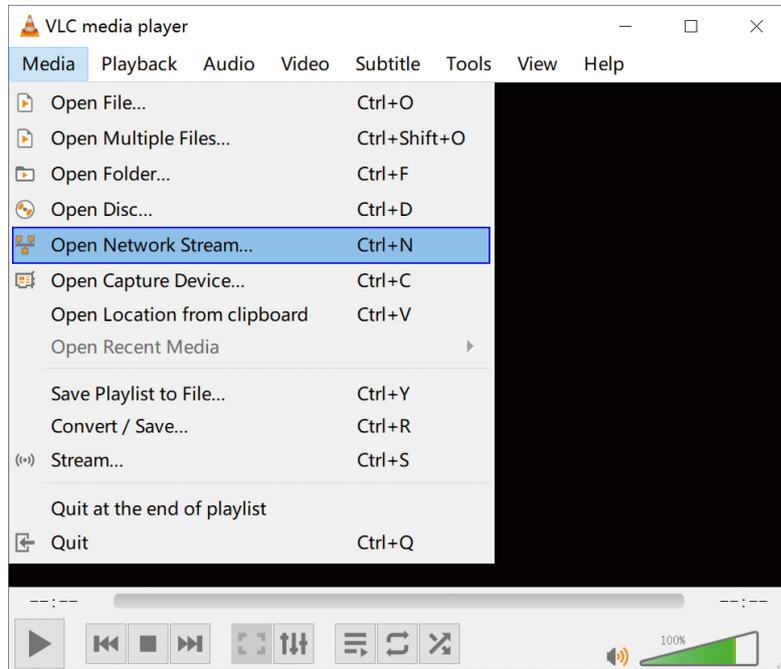
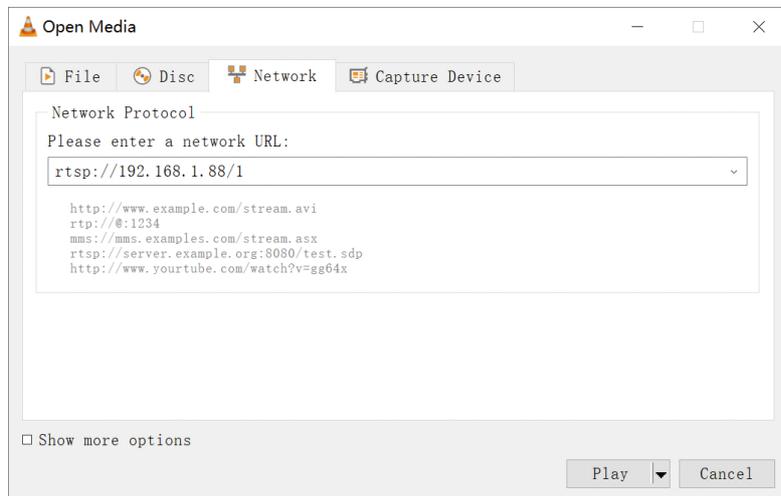5.3) Config Encode parameters

6). Config the video parameters by Menu

3. VLC Player Browse the video

1). Open the VLC player, click "Media" and then click "Open Network Stream", or press "Ctrl+N" shortcut key.

2). Input URL: rtsp: //ip: port/1 Master video Stream)；rtsp: //ip: port/2 (Second Video Stream)；default rtsp port is 554.

4. Control the camera by TCP/IP

The camera inside has a TCP Server (Listen port is 5678), After the Client Pc bui id the TCP I ink, can send the TCP Data to control the camera. The TCP data format is.

1). Action

	Command	Format	Expain
Zoom	Stop	81 01 04 07 00 FF	Stop
	Tele (Standard)	81 01 04 07 02 FF	Standard rate
	Wide (Standard)	81 01 04 07 03 FF	
	Tele (Variable)	81 01 04 07 2p FF	Variable rate(1~7)
	Wide (Variable)	81 01 04 07 3p FF	
	Direct	81 01 04 47 0p 0q 0r 0s FF	pqrs: Pos (0x0000~0x4000)
Digital Zoom	D-Zoom Limit	81 01 04 26 0p FF	P = 0(x1),1(x1.5),2(x2), 3(x4),4(x8),5(x10),6(x12)
	Direct(Variable)	81 01 04 46 0p 0q 0r 0s FF	pq: pos
Focus	Stop	81 01 04 08 00 FF	Stop
	Far (Standard)	81 01 04 08 02 FF	Standard rate
	Near (Standard)	81 01 04 08 03 FF	
	Far (Variable)	81 01 04 08 2p FF	Variable rate(1~7)
	Near (Variable)	81 01 04 08 3p FF	
	Direct	81 01 04 48 0p 0q 0r 0s FF	pqrs: Pos
	Auto Focus	81 01 04 38 02 FF	
	Manual Focus	81 01 04 38 03 FF	
	Auto/Manual	81 01 04 38 10 FF	
	NearLimit	81 01 04 28 0p 0q 0r 0s FF	
	OnePushTrigger	81 01 04 18 01 FF	
Zoom/ Focus	Direct	81 01 04 47 0p 0q 0r 0s 0t 0u 0v 0w FF	pqrs: Zoom Pos tuvw: Focus Pos
WB	Auto	81 01 04 35 00 FF	
	Indoor	81 01 04 35 01 FF	
	Outdoor	81 01 04 35 02 FF	
	One Push WB	81 01 04 35 03 FF	

WB	ATW	81 01 04 35 04 FF	
	Manual	81 01 04 35 05 FF	
	One Push Trigger	81 01 04 10 05 FF	
Exposure	Full Auto	81 01 04 39 00 FF	
	Manual	81 01 04 39 03 FF	
	Shutter	81 01 04 39 0A FF	
	Iris	81 01 04 39 0B FF	
	Bright	81 01 04 39 0D FF	
Menu	Menu	81 01 10 01 FF	Key Value
	OK	81 01 10 02 FF	
	Up	81 01 10 03 FF	
	Down	81 01 10 04 FF	
	Left	81 01 10 05 FF	
	Right	81 01 10 06 FF	
	Return	81 01 10 07 FF	
Preset	Reset	8x 01 04 3F 00 pq FF	pq: Preset Id: 0-34, 49-254
	Set	8x 01 04 3F 01 pq FF	
	Recall	8x 01 04 3F 02 pq FF	
Pantilt	Up	8x 01 06 01 VV WW 03 01 FF	1. VV: Pan rate (0x1~0x18) 2. WW: Tilt rate (0x1~0x14) 3. YYYY: Pan pos (-1700~1700), Center pos = 0 4. WWWW: Tilt pos (-300~900), Center pos = 0
	Down	8x 01 06 01 VV WW 03 02 FF	
	Left	8x 01 06 01 VV WW 01 03 FF	
	Right	8x 01 06 01 VV WW 02 03 FF	
	Upleft	8x 01 06 01 VV WW 01 01 FF	
	Upright	8x 01 06 01 VV WW 02 01 FF	
	Downleft	8x 01 06 01 VV WW 01 02 FF	
	Downright	8x 01 06 01 VV WW 02 02 FF	
	Stop	8x 01 06 01 VV WW 03 03 FF	
	AbsolutePosition	8x 01 06 02 VV WW 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF	
	RelativePosition	8x 01 06 03 VV WW 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF	
	Home	8x 01 06 04 FF	
	Reset	8x 01 06 05 FF	

etc...

2). Inquiry

	Format	Answer	Expain
Zoom pos	81 09 04 47 FF	90 50 0p 0q 0r 0s FF	pqrs: Pos (0x0000~0x4000)
Digital Zoom	81 09 04 26 FF	90 50 0p FF	P = 0(x1),1(x1.5), 2(x2),3(x4),4(x8), 5(x10),6(x12),
Digital Zoom Pos	81 09 04 46 FF	90 50 00 00 0p 0q FF	pq: Digital Zoom pos
Focus Mode	81 09 04 38 FF	90 50 02 FF	Auto Focus
		90 50 03 FF	Manual Focus
Focus Pos	81 09 04 48 FF	90 50 0p 0q 0r 0s FF	pqrs: pos
WB Mode	81 09 04 35 FF	90 50 00 FF	Auto
		90 50 01 FF	Indoor
		90 50 02 FF	Outdoor
		90 50 03 FF	One Push WB
		90 50 05 FF	Manual
Pantilt	8x 09 06 12 FF	y0 50 0w 0w 0w 0w 0z 0z 0z 0z FF	WWWW: Pan pos ZZZZ: Tilt pos

etc...

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