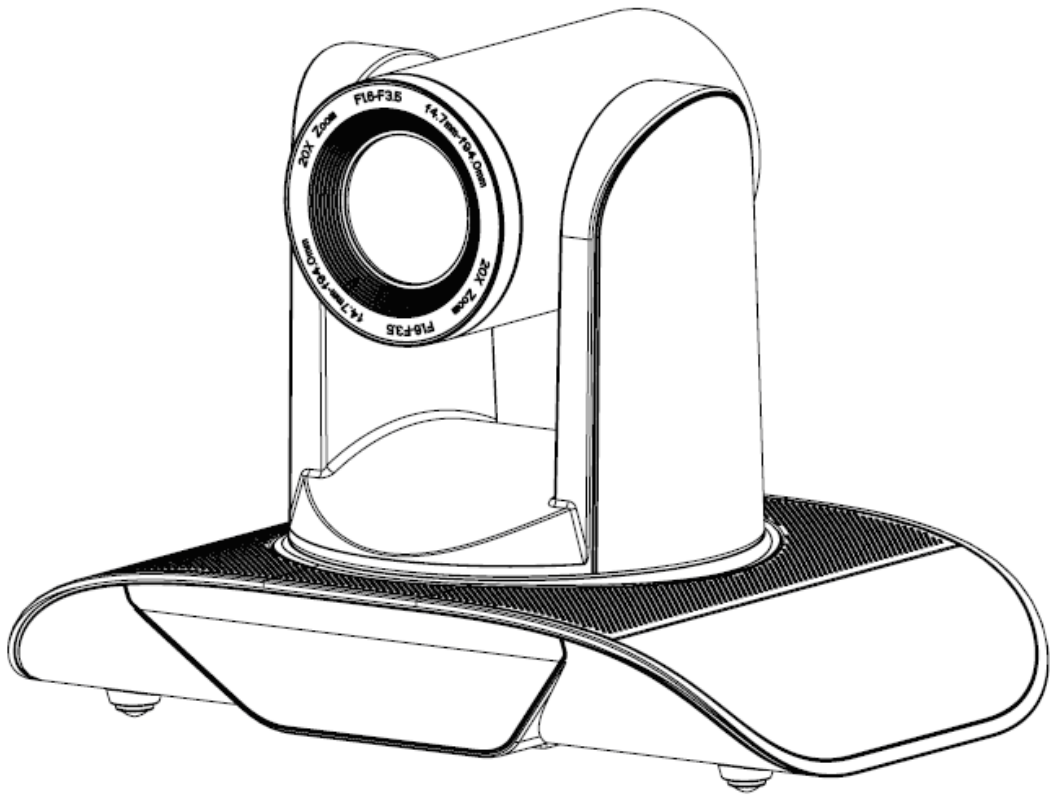


HD Color Video Camera

User Manual



Preface:

Thanks for using our HD color video conference camera.

The manual introduces the function, installation and operation of the HD camera. Prior to installation and usage, please read the manual thoroughly

Warning

This product can be only used in specified range in order to avoid any damage or danger.

Don't expose the camera to rain or moisture place.

Don't remove the cover to reduce the risk of electric shock. Refer servicing to qualified personnel;

Never operate the camera under unqualified temperature, humidity and power supply.

Only use the replacement parts recommended by us.

Please use the soft cloth to clean the dome. Use neuter cleanser if bad smeared. No use the strong or corrosive cleanser avoiding scuffing.

Be careful of moving, never press the drive parts heavily avoiding camera trouble.

Notes

Electromagnetic fields at the specific frequency may affect the image quality.

【 Contents 】

NOTES.....	3
SUPPLIED ACCESSORIES.....	3
FAST INSTALLATION	4
CAMERA HIGHLIGHTS	6
CAMERA SPECIFICATIONS :.....	6
CAMERA INTERFACE EXPLANATION	7
DIMENSION.....	8
REMOTE CONTROLLER:.....	9
RS-232C INTERFACE:	13
MENU SETTING	21

Notes

Electric Safety

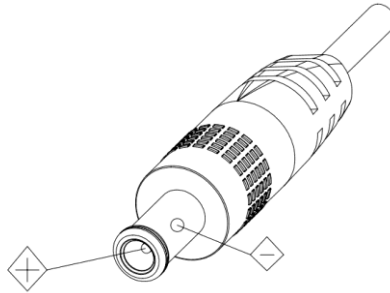
Installation and operation must accord with electric safety standard

Caution to transport

Avoid stress, vibration and soakage in transport, storage and installation.

Polarity of power supply

The power supply of the product is $\pm 12V$, the max electrical current is 2A .Polarity of the power supply drawing.



Careful of installation

Never move the camera by seizing the camera head. Don't rotate camera head by hand; otherwise, mechanical trouble will occur.

This series item must put on the smooth desk or platform, and it can not be installed slantways;

If the camera is installed on TV or computer, the base can be fixed by four double-sided adhesive trays.

Don't apply in corrosive liquid, gas or solid environment to avoid the cover which is made up of organic material.

To make sure no obstacle in rotation range.

Never power on before installation is completed.

Don't disassemble discretionarily.

We are not responsible for any unauthorized modification or dismantling.

Attention

Electromagnetic filed under certain rate may affect camera image!

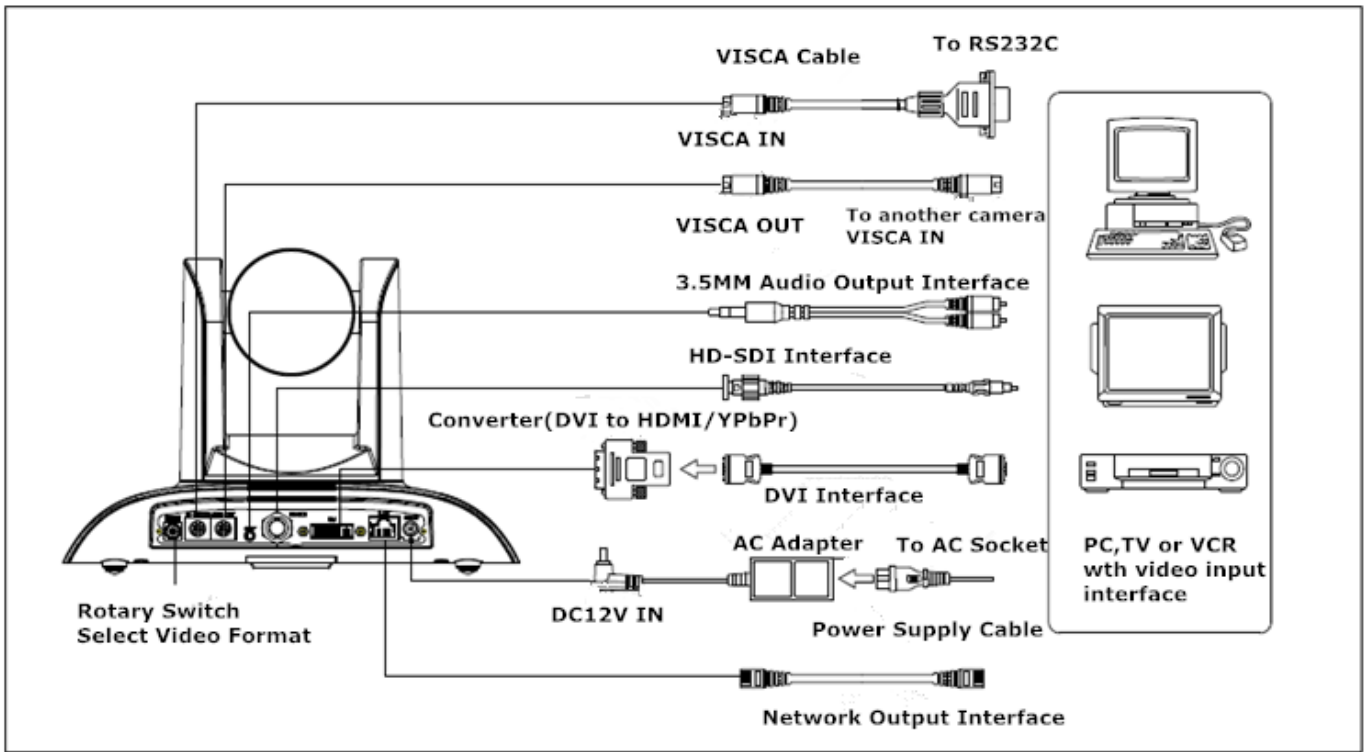
Supplied Accessories

When you unpack, check that all the supplied accessories are included:

- Camera1
- Power adaptor1
- Power cable.....1
- RS232 cable.....1
- Remote controller.....1
- User manual1
- Double-side glue shim4

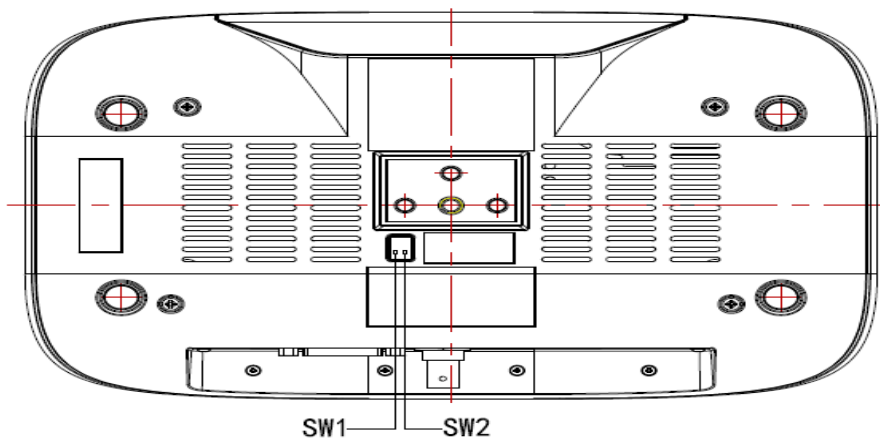
Fast Installation

1. Please check the connection before turn on.



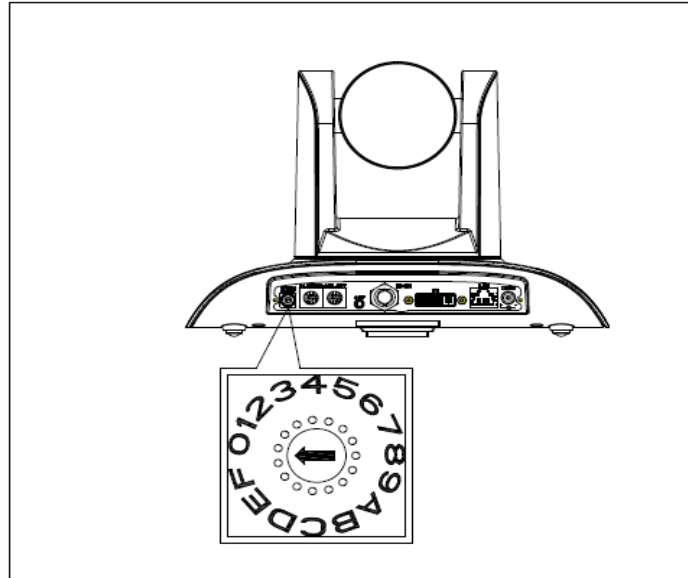
2. Bottom Dial Switch Setting

Bottom Dial Switch to be set as both ON, means camera is working under normal mode.



	SW2-2	SW2-1	Explanation
1	OFF	OFF	Undefined
2	ON	OFF	Updating mode
3	OFF	ON	Debugging mode
4	ON	ON	Working mode

3. The Rotary Switch Setting



The choice for 16 rotary switch video formats:

Dial-up			
0	1080P60		
1	1080P50		
2	1080I60		
3	1080I50		
4	720P60		
5	720P50		
6	1080P30		
7	1080P25		
8	-----		
9	-----		
A	-----		
B	-----		
C	-----		
D	-----		
E	-----		
F	Display the video format set on the menu		

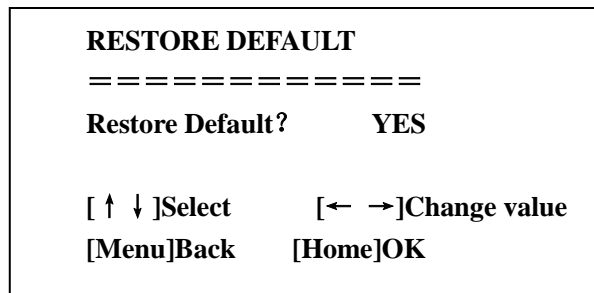
Note: need to restart the camera after switching video format.

4. When the power supply switch is “ **【on】** ”, the indicator light is open (Green Color)

5, Camera initializes after powering on: horizontally turn left to the limit position, vertically turn to the bottom; finally both horizontally and vertically turn to the middle position. The motor stops running, (the indicator light turns into red) and initialization is completed.

(Note: If the power-on mode is opened and saved preset position 0 or 1, then the pan/tilt will be set to 0 or 1 preset position)

6.Factory Default : entry OSD menu by pressing the menu key of remote controller, **【HOME】** -> **【RESET】** -> **【ALL RESET】** , moving the left/right key to select **【Yes】** , then confirm by **【HOME】** key



Note: If the previous remote controller address is not address 1, it is address 2, 3, 4.

After the resumption of all the parameters or system parameters, the remote machine address recovers to address 1. Then you need to change the remote controller address back to address 1. Namely by remote controller to select [1] key, and then press the [HOME] key before you can control it.

Camera Highlights

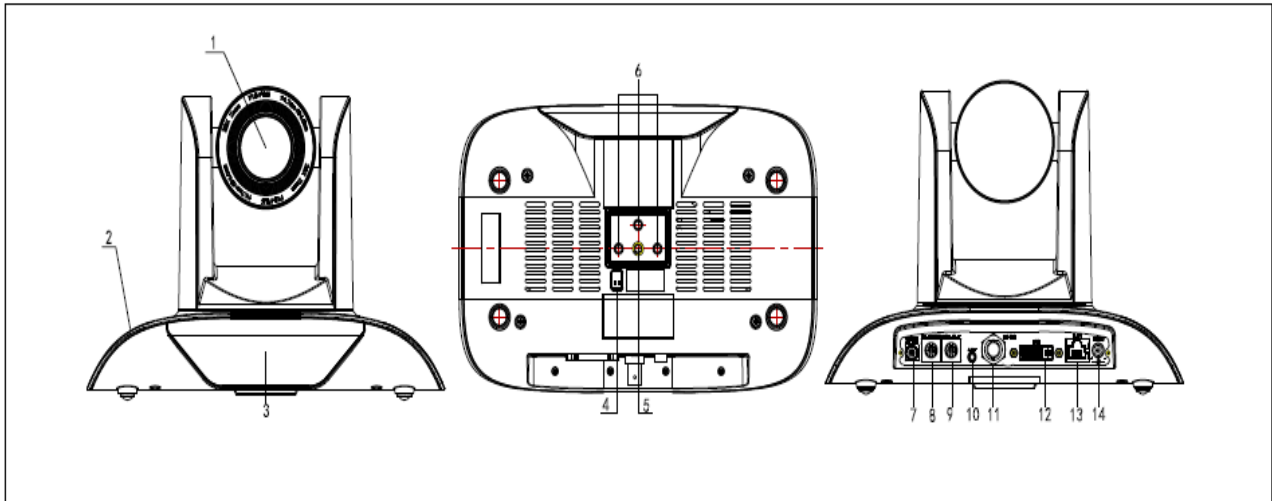
- 1.Equipped with attractive appearance and 12X HD wide angle lens, delivering vivid images.
- 2.Support DVI interface (including YPbPr, VGA and HDMI signal), HD-SDI interface and Network interface.
- 3.IR remote controller signal transparent transmission function: camera can receive both its own remote controller signal and other signal from terminal equipment, by transmitting the signal through VISCA IN to terminal equipment IR receiver.

Camera Specifications

- 1.Video format : 1080P60/50,1080P30/25,1080I60/50,720P60/50
2. Output Interface: DVI interface (including YPbPr, VGA and HDMI signal), HD-SDI interface and Network interface
- 3.Image Sensor : 1/2.8 inch, Two Megapixel (1920*1080) HD CMOS Sensor
- 4.Lens : f4.7~94.0mm(20X), F1.6 – 3.5, Angle of view : 70° (near)-6.3° (far)
5. Rotation: ±170°for pan rotation, and -30°~+90°for tilt rotation, support upside down installation.
6. The Control speed: 0.1°-150°/sec for pan rotation, 0.1°-80°/sec for tilt rotation.
7. Preset position NO. : 10 preset positions (can reach to 128 by serial command), precision error less than 0.2°.
8. Support auto/ manual white balance, auto/manual exposure (aperture, shutter), auto/manual focus
9. Support image WDR: performance ≥50dB,
- 10.Control Signal interface : 8 pin mini DIN,RS232, VISCA/Pelco-D/Pelco-P
11. Power interface: HEC3800 power jack, Power supply adapter: DC12V/2.5A,
12. Max Consumption: 12W

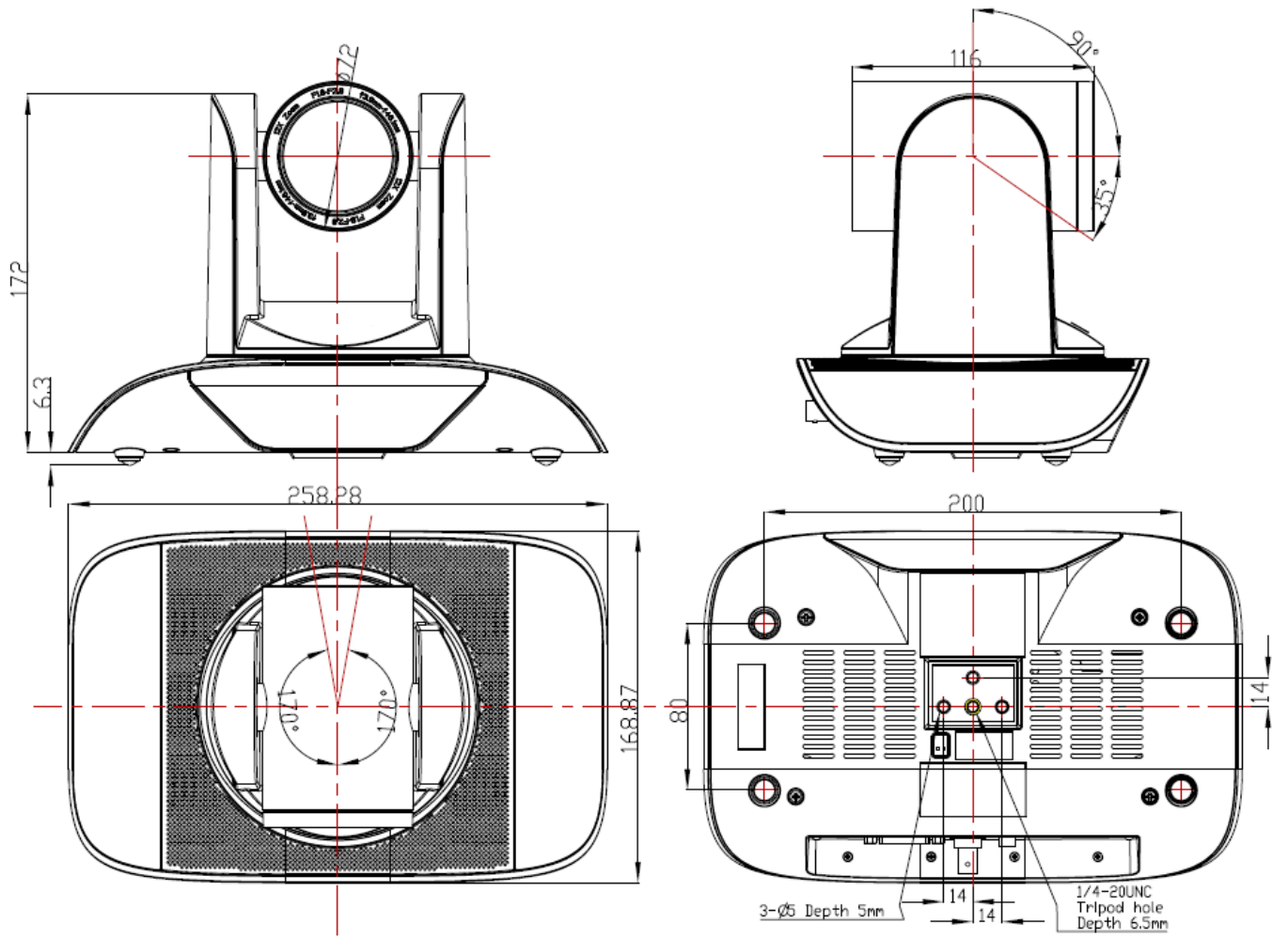
- 13. Working temperature: -5°C to +45°C
- 14. Storage temperature: -20°C to +60°C
- 15. Weight: 2.0kg

Camera Interface Explanation

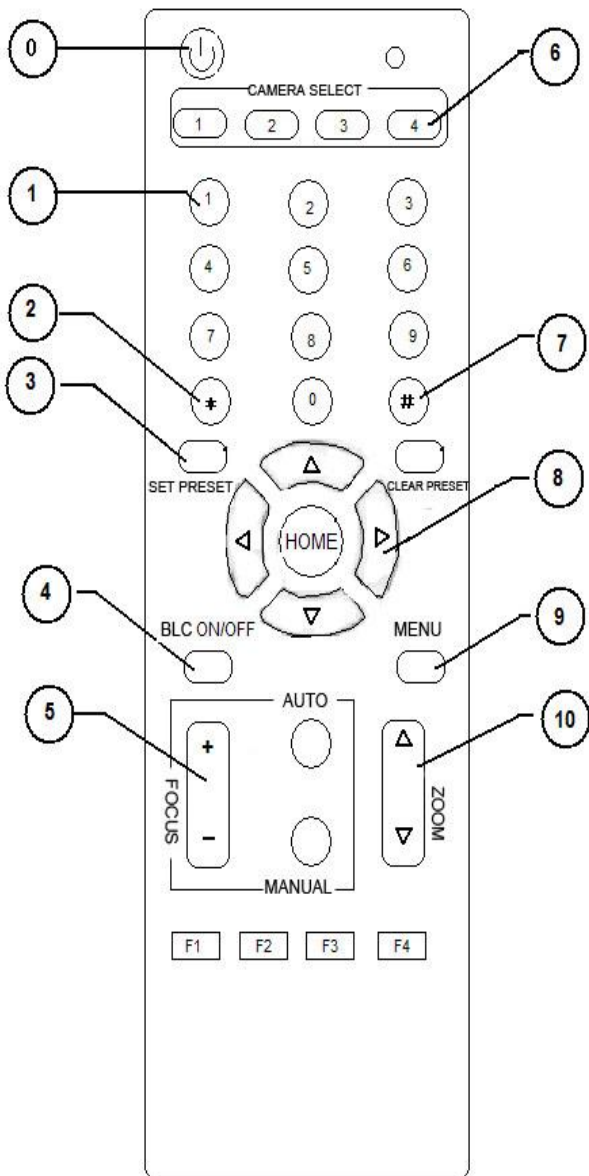


- 1、 Camera lens
- 2、 Camera base
- 3、 Remote Controller Receiver light
- 4、 Bottom dial Switch
- 5、 Tripod screw hole
- 6、 Installation Orientation Hole
- 7、 Rotary Switch : Video format optional
- 8、 RS232 control interface (input)
- 9、 RS232 control interface (output)
- 10、 Audio interface
- 11、 HD-SDI interface
- 12、 DVI-I interface (including YPbPr, VGA and HDMI signal)
- 13、 10/100M Network interface
- 13、 DC12V Input Power Supply Socket

Dimension:



Remote Controller Explanation



0、 Standby key

After pressing the standby key, the camera will step into standby mode. Press again, the camera will self-check again and back to HOME position. (Note: If power-on mode is turned on, it will automatically point to the specified preset position.

1、 Number key

Setting or locating presets

2、 * key

Key combination use

3、 Set preset key:

Set preset:

Set preset key + 0-9 number key:

Clear preset key:

Clear preset key + 0-9 number key

or: # + # + # : Clear all the presets

4、 BLC control key

Backlight ON / OFF: The camera does not support

5、 Focus control key

Focus+ : Focus length far from near

Focus- : Focus length near from far

Auto focus: The camera focus mode is auto

Manual focus: The camera focus mode is manual

6、 Camera address selection

Select the camera which wants to be controlled

7、 # key

8、 pan/tilt control key

Press ▲ key : Up

Press ▼ key : Down

Press ◀ key : Left

Press ▶ key: Right

“HOME” key: Return to the middle position

9、 Menu setting

Open or close the OSD menu

10、Zoom Control key

zoom+ : Lens near

zoom- : Lens far

11. Camera IR remote control address selection

【*】+【#】+【F1】 : Camera Address No.1

【*】+【#】+【F2】 : Camera Address No. 2

【*】+【#】+【F3】 : Camera Address No. 3

【*】+【#】+【F4】 : Camera Address No. 4

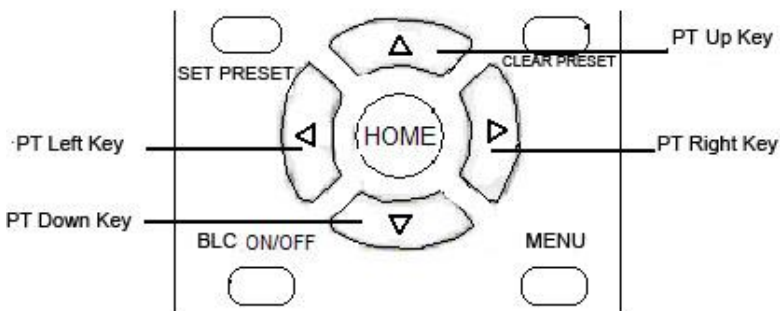
Usage of IR Remote Controller

Finishing initialization, it can receive and execute the IR commands. Users can control the pan/tilt/zoom, setting and running preset positions via the IR remote controller.

Key Instruction:

- 1、 In this instruction, “press the key” means a click rather than a long-press, and a special note will be given if a long-press for more than one second is required.
- 2、 When a key-combination is required, do it in sequence. For example, “ 【*】+【#】+【F1】 ” means press“【*】”first and then press“【#】” and last press“【F1】”.

1. Pan/Tilt Control



Up: press ▲

Down: press ▼

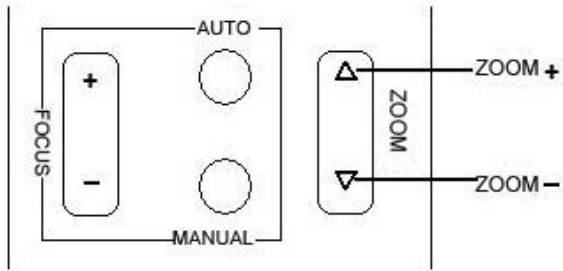
Left: press ◀

Right: press ▶

Back to middle position: press“【HOME】”

Press and hold the up/down/left/right key, the pan/tilt will keep running, from slow to fast, until it runs to the endpoint; the pan/tilt running stops as soon as the key is released.

2、Zoom Control

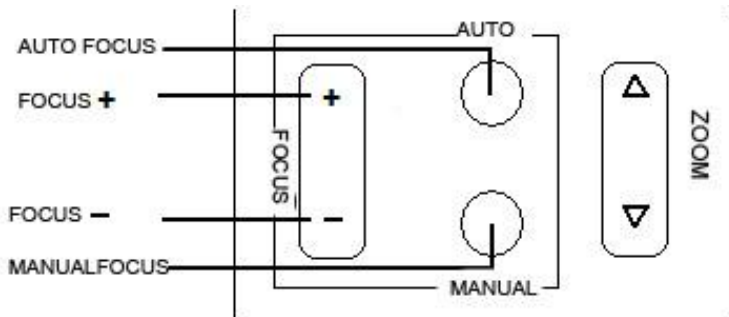


ZOOM OUT: press “ZOOM ▼” key

ZOOM IN: press “ZOOM ▲” key

Press and hold the key, the camera will keep zooming in or zooming out and stops as soon as the key is released.

3. Focus Control



Focus (far): Press “【focus+】” key

Focus (near): Press “【focus-】” key

Auto Focus: Press “【auto】”

Manual Focus: Press “【manual】”

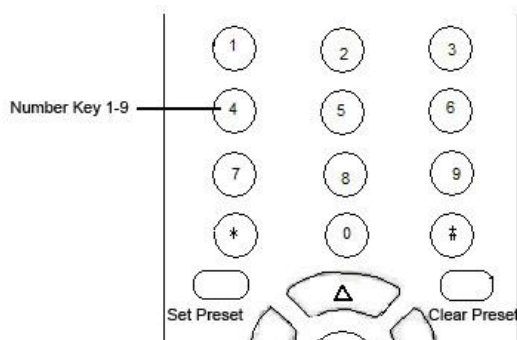
Press and hold the key, the action of focus continues and stops as soon as the key is released.

4. BLC Setting



BLC ON / OFF: not support

5. Presets setting



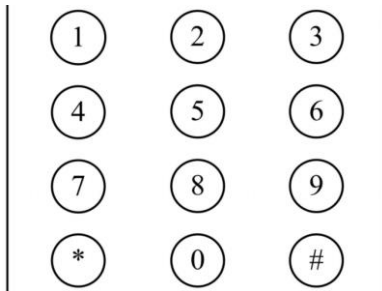
1. Preset setting : to set a preset position, the users should press the “【SET PRESET】” key first and then

press the number key 0-9 to set a relative preset, 10 preset positions in total are available.

2、Preset clearing : to clear a preset position, the user can press the “【CLEAR PRESET】” key first and then press the number key 0-9 to clear the relative preset;

Note : press the“【#】” key three times continually to cancel all the presets.

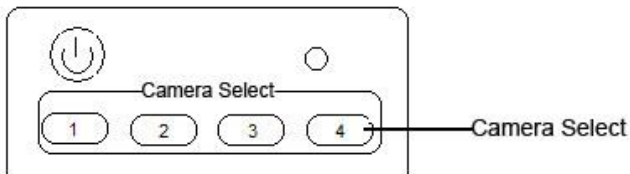
6、Preset Running



Press a number key 0-9 directly to run a relative preset.

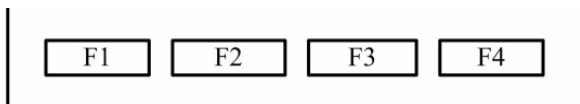
Note: Action in vain if a relative preset position is not existed.

7、Camera Selection



Select the camera address to control.

8、Camera Remote Controller Address Setting



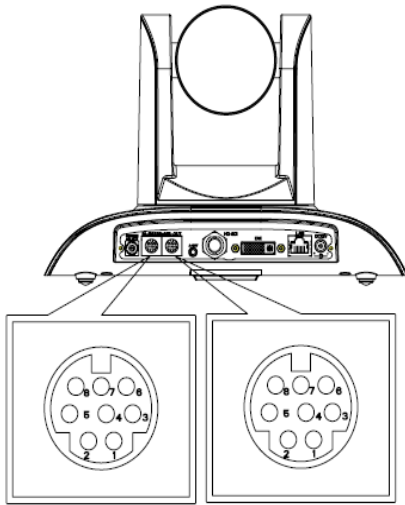
【*】+【#】+【F1】 : Camera Address No.1

【*】+【#】+【F2】 : Camera Address No. 2

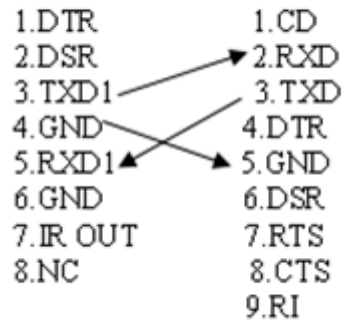
【*】+【#】+【F3】 : Camera Address No. 3

【*】+【#】+【F4】 : Camera Address No. 4

RS-232C Interface (Pin Specs)

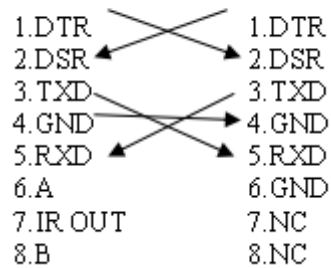


Camera Windows DB-9

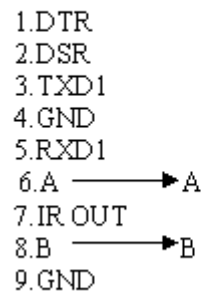


No.	Function
1	DTR
2	DSR
3	TXD1
4	GND
5	RXD1
6	A
7	IR OUT
8	B

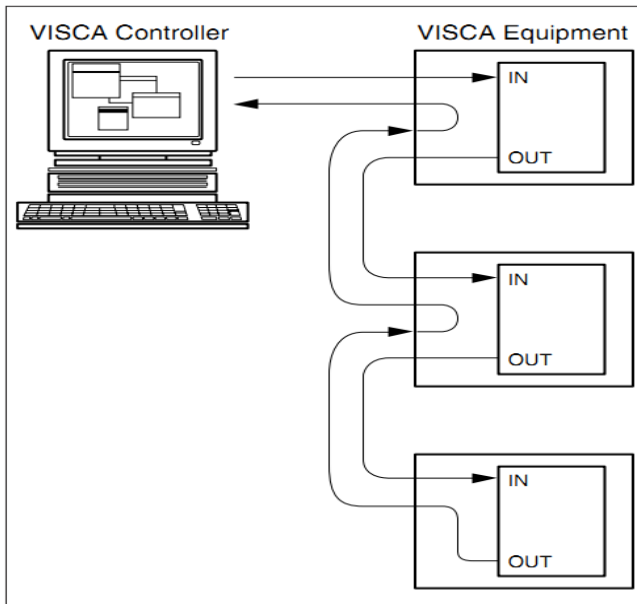
Camera Mini DIN



Camera RS485



VISCA OUT Function



COM control

In the normal working condition, the camera can be controlled via the RS-232C/RS485 command (VISCA IN) .

The parameter of the RS232C COM is as follows :

Baud Rate : 2400/4800/9600/115200 Bit/S

Start bit: 1bit ;

Data bit: 8bit ;

Stop bit : 1bit;

Code: None

Powering on, the camera runs to the down left, then back to the middle with the farthest zoom rate in the auto focus and the auto exposure mode. Finishing the initialization, the camera moves to the preset no.0 or no.1 (1 or 2) if it's saved. Now, the camera can be controlled by the serial command.

VISCA Protocol

Part1 . Camera Return Command

Ack/Completion Message		
	Command Packet	Note
ACK	z0 41 FF	Returned when the command is accepted.
Completion	z0 51 FF	Returned when the command has been executed.

z=camera address +8

Error Messages		
	Command Packet	Note
Syntax Error	z0 60 02 FF	Returned when the command format is different or when a command with illegal command parameters is accepted
Command Not Executable	z0 61 41 FF	Returned when a command cannot be executed due to current conditions. For example, when commands controlling the focus manually are received during auto focus.

Part 2 Controlling Command

Command	Function	Command Packet	Note
AddressSet	Broadcast	88 30 01 FF	Address setting
IF_Clear	Broadcast	88 01 00 01 FF	I/F Clear
CommandCancel		8x 21 FF	
CAM_Power	On	8x 01 04 00 02 FF	Power ON/OFF
	Off	8x 01 04 00 03 FF	
CAM_Zoom	Stop	8x 01 04 07 00 FF	p = 0(low) - 7(high) pqrs: Zoom Position
	Tele(Standard)	8x 01 04 07 02 FF	
	Wide(Standard)	8x 01 04 07 03 FF	
	Tele(Variable)	8x 01 04 07 2p FF	
	Wide(Variable)	8x 01 04 07 3p FF	
	Direct	8x 01 04 47 0p 0q 0r 0s FF	
CAM_Focus	Stop	8x 01 04 08 00 FF	pqrs: Focus Position
	Far(Standard)	8x 01 04 08 02 FF	
	Near(Standard)	8x 01 04 08 03 FF	
	Direct	8x 01 04 48 0p 0q 0r 0s FF	
	One Push AF	8x 01 04 18 01 FF	
CAM_ZoomFocus	Direct	8x 01 04 47 0p 0q 0r 0s 0t 0u 0v 0w FF	pqrs: Zoom Position tuvw: Focus Position
CAM_WB	Auto	8x 01 04 35 00 FF	Normal Auto
	Indoor	8x 01 04 35 01 FF	
	Outdoor	8x 01 04 35 02 FF	
	OnePush	8x 01 04 35 03 FF	
	Manual	8x 01 04 35 05 FF	
CAM_RGain	Reset	8x 01 04 03 00 FF	Manual Control of R Gain
	Up	8x 01 04 03 02 FF	
	Down	8x 01 04 03 03 FF	
	Direct	8x 01 04 43 00 00 0p 0q FF	pq: R Gain
CAM_Bgain	Reset	8x 01 04 04 00 FF	Manual Control of B Gain
	Up	8x 01 04 04 02 FF	
	Down	8x 01 04 04 03 FF	

Command	Function	Command Packet	Note
	Direct	8x 01 04 44 00 00 0p 0q FF	pq: B Gain
CAM_AE	Full Auto	8x 01 04 39 00 FF	Automatic Exposure mode
	Manual	8x 01 04 39 03 FF	Manual Control mode
	Shutter priority	8x 01 04 39 0A FF	Shutter Priority Automatic Exposure mode
	Iris priority	8x 01 04 39 0B FF	Iris Priority Automatic Exposure mode
	Bright	8x 01 04 39 0D FF	Bright mode(Manual control)
CAM_Shutter	Reset	8x 01 04 0A 00 FF	Shutter Setting
	Up	8x 01 04 0A 02 FF	
	Down	8x 01 04 0A 03 FF	
	Direct	8x 01 04 4A 00 00 0p 0q FF	pq: Shutter Position
CAM_Iris	Reset	8x 01 04 0B 00 FF	Iris Setting
	Up	8x 01 04 0B 02 FF	
	Down	8x 01 04 0B 03 FF	
	Direct	8x 01 04 4B 00 00 0p 0q FF	pq: Iris Position
CAM_Gain	Reset	8x 01 04 0C 00 FF	Gain Setting
	Up	8x 01 04 0C 02 FF	
	Down	8x 01 04 0C 03 FF	
	Direct	8x 01 04 0C 00 00 0p 0q FF	pq: Gain Positon
CAM_Bright	Reset	8x 01 04 0D 00 FF	Bright Setting
	Up	8x 01 04 0D 02 FF	
	Down	8x 01 04 0D 03 FF	
	Direct	8x 01 04 4D 00 00 0p 0q FF	pq: Bright I Positon
CAM_ExpComp	On	8x 01 04 3E 02 FF	Exposure Compensation ON/OFF
	Off	8x 01 04 3E 03 FF	
	Reset	8x 01 04 0E 00 FF	Exposure Compensation Amount Setting
	Up	8x 01 04 0E 02 FF	
	Down	8x 01 04 0E 03 FF	
	Direct	8x 01 04 4E 00 00 0p 0q FF	pq: ExpComp Position
CAM_Aperture	Reset	8x 01 04 02 00 FF	Aperture Control
	Up	8x 01 04 02 02 FF	
	Down	8x 01 04 02 03 FF	
	Direct	8x 01 04 42 00 00 0p 0q FF	pq: Aperture Gain
CAM_Memory	Reset	8x 01 04 3F 00 0p FF	p: Memory Number(=0 to 127) Corresponds to 0 to 9 on the Remote Commander
	Set	8x 01 04 3F 01 0p FF	
	Recall	8x 01 04 3F 02 0p FF	
CAM_LR_Reverse	On	8x 01 04 61 02 FF	Image Flip Horizontal ON/OFF
	Off	8x 01 04 61 03 FF	
CAM_PictureFlip	On	8x 01 04 66 02 FF	Image Flip Vertical ON/OFF
	Off	8x 01 04 66 03 FF	
VideoSystem Set		8x 01 06 35 00 0p FF	P: 0~7 Video format 0:1080P60 1:1080P50 2:1080i60 3:1080i50 4:720P60 5:720P50 6:1080P30 7:1080P25
CAM_IDWrite		8x 01 04 22 0p 0q 0r 0s FF	pqrs: Camera ID (=0000 to FFFF)
SYS_Menu	OFF	8x 01 06 06 03 FF	Turn off the menu
IR_Receive	On	8x 01 06 08 02 FF	IR(remote commander)receive ON/OFF
	Off	8x 01 06 08 03 FF	
	On/Off	8x 01 06 08 10 FF	
IR_ReceiveRetur	On	8x 01 7D 01 03 00 00 FF	IR(remote commander)receive message

Command	Function	Command Packet	Note
n	Off	8x 01 7D 01 13 00 00 FF	via the VISCA communication ON/OFF
Pan_tiltDrive	Up	8x 01 06 01 VV WW 03 01 FF	VV: Pan speed 0x01 (low speed) to 0x18 (high speed) WW: Tilt speed 0x01 (low speed) to 0x14 (high speed) YYYY: Pan Position(TBD) ZZZZ: Tilt Position(TBD)
	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	
Pan-tiltLimitSet	Set	8x 01 06 07 00 0W 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF	W:1 UpRight 0:DownLeft YYYY: Pan Limit Position(TBD) ZZZZ: Tilt Limit Position(TBD)
	Clear	8x 01 06 07 01 0W 07 0F 0F 0F 07 0F 0F 0F FF	

Part3 Checking Command

Command	Command Packet	Return Packet	Note
CAM_PowerInq	8x 09 04 00 FF	y0 50 02 FF	On
		y0 50 03 FF	Off(Standby)
CAM_ZoomPosInq	8x 09 04 47 FF	y0 50 0p 0q 0r 0s FF	pqrs: Zoom Position
CAM_FocusModelInq	8x 09 04 38 FF	y0 50 02 FF	Auto Focus
		y0 50 03 FF	Manual Focus
CAM_FocusPosInq	8x 09 04 48 FF	y0 50 0p 0q 0r 0s FF	pqrs: Focus Position
CAM_WBModelInq	8x 09 04 35 FF	y0 50 00 FF	Auto
		y0 50 01 FF	Indoor mode
		y0 50 02 FF	Outdoor mode
		y0 50 03 FF	OnePush mode
		y0 50 04 FF	ATW
		y0 50 05 FF	Manual
CAM_RGainInq	8x 09 04 43 FF	y0 50 00 00 0p 0q FF	pq: R Gain
CAM_BGainInq	8x 09 04 44 FF	y0 50 00 00 0p 0q FF	pq: B Gain
CAM_AEModelInq	8x 09 04 39 FF	y0 50 00 FF	Full Auto
		y0 50 03 FF	Manual
		y0 50 0A FF	Shutter priority
		y0 50 0B FF	Iris priority
		y0 50 0D FF	Bright
CAM_ShutterPosInq	8x 09 04 4A FF	y0 50 00 00 0p 0q FF	pq: Shutter Position
CAM_IrisPosInq	8x 09 04 4B FF	y0 50 00 00 0p 0q FF	pq: Iris Position
CAM_GainPosInq	8x 09 04 4C FF	y0 50 00 00 0p 0q FF	pq: Gain Position
CAM_BrightPosInq	8x 09 04 4D FF	y0 50 00 00 0p 0q FF	pq: Bright Position
CAM_ExpCompModelInq	8x 09 04 3E FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_ExpCompPosInq	8x 09 04 4E FF	y0 50 00 00 0p 0q FF	pq: ExpComp Position
CAM_ApertureInq	8x 09 04 42 FF	y0 50 00 00 0p 0q FF	pq: Aperture Gain
CAM_MemoryInq	8x 09 04 3F FF	y0 50pp FF	pp: Memory number last operated.
SYS_MenuModelInq	8x 09 06 06 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_LR_ReverseInq	8x 09 04 61 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_PictureFlipInq	8x 09 04 66 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_IDInq	8x 09 04 22 FF	y0 50 0p 0q 0r 0s FF	pqrs: Camera ID
CAM_VersionInq	8x 09 00 02 FF	y0 50 ab cd mn pq rs tu vw FF	
VideoSystemInq	8x 09 06 23 FF	y0 50 0p FF	P: 0~7 Video format
			0:1080P60
			1:1080P50
			2:1080i60
			3:1080i50
			4:720P60
			5:720P50
6:1080P30			
7:1080P25			
IR_Receive	8x 09 06 08 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
IR_ReceiveReturn		y0 07 7D 01 04 00 FF	Power ON/OFF
		y0 07 7D 01 04 07 FF	Zoom tele/wide
		y0 07 7D 01 04 38 FF	AF On/Off
		y0 07 7D 01 04 33 FF	CAM_Backlight
		y0 07 7D 01 04 3F FF	CAM_Memory
		y0 07 7D 01 06 01 FF	Pan_tiltDrive
Pan-tiltMaxSpeedInq	8x 09 06 11 FF	y0 50 ww zz FF	ww: Pan Max Speed zz: Tilt Max Speed
Pan-tiltPosInq	8x 09 06 12 FF	y0 50 0w 0w 0w 0w 0z 0z 0z 0z FF	www: Pan Position zzzz: Tilt Position

Note : 【x】 means the camera address you want to control , 【y】 = 【x + 8】 .

Pelco-D Protocol

Function	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7
Up	0xFF	Address	0x00	0x08	Pan Speed	Tilt Speed	SUM
Down	0xFF	Address	0x00	0x10	Pan Speed	Tilt Speed	SUM
Left	0xFF	Address	0x00	0x04	Pan Speed	Tilt Speed	SUM
Right	0xFF	Address	0x00	0x02	Pan Speed	Tilt Speed	SUM
Upleft	0xFF	Address	0x00	0x0C	Pan Speed	Tilt Speed	SUM
Upright	0xFF	Address	0x00	0x0A	Pan Speed	Tilt Speed	SUM
DownLeft	0xFF	Address	0x00	0x14	Pan Speed	Tilt Speed	SUM
DownRight	0xFF	Address	0x00	0x12	Pan Speed	Tilt Speed	SUM
Zoom In	0xFF	Address	0x00	0x20	0x00	0x00	SUM
Zoom Out	0xFF	Address	0x00	0x40	0x00	0x00	SUM
Focus Far	0xFF	Address	0x00	0x80	0x00	0x00	SUM
Focus Near	0xFF	Address	0x01	0x00	0x00	0x00	SUM
Set Preset	0xFF	Address	0x00	0x03	0x00	Preset ID	SUM
Clear Preset	0xFF	Address	0x00	0x05	0x00	Preset ID	SUM
Call Preset	0xFF	Address	0x00	0x07	0x00	Preset ID	SUM
Query Pan Position	0xFF	Address	0x00	0x51	0x00	0x00	SUM
Query Pan Position Response	0xFF	Address	0x00	0x59	Value High Byte	Value Low Byte	SUM
Query Tilt Position	0xFF	Address	0x00	0x53	0x00	0x00	SUM
Query Tilt Position Response	0xFF	Address	0x00	0x5B	Value High Byte	Value Low Byte	SUM
Query Zoom Position	0xFF	Address	0x00	0x55	0x00	0x00	SUM
Query Zoom Position Response	0xFF	Address	0x00	0x5D	Value High Byte	Value Low Byte	SUM

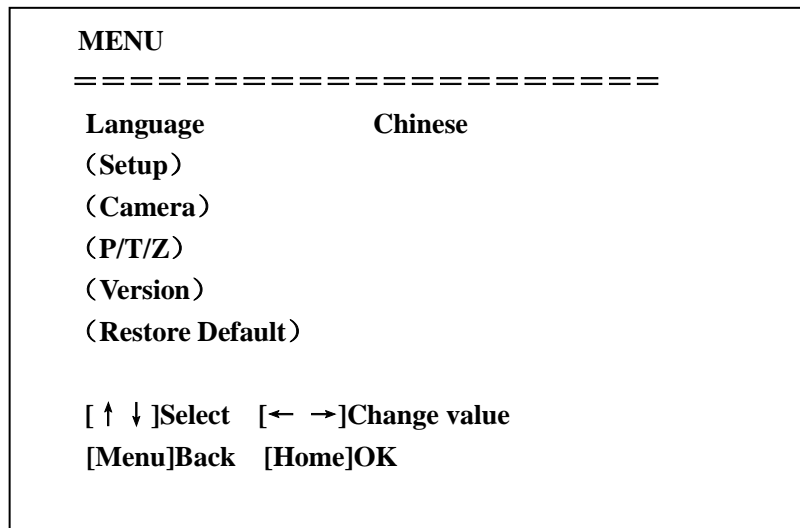
Pelco-P Protocol

Function	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7	Byte8
Up	0xA0	Address	0x00	0x08	Pan Speed	Tilt Speed	0xAF	XOR
Down	0xA0	Address	0x00	0x10	Pan Speed	Tilt Speed	0xAF	XOR
Left	0xA0	Address	0x00	0x04	Pan Speed	Tilt Speed	0xAF	XOR
Right	0xA0	Address	0x00	0x02	Pan Speed	Tilt Speed	0xAF	XOR
Upleft	0xA0	Address	0x00	0x0C	Pan Speed	Tilt Speed	0xAF	XOR
Upright	0xA0	Address	0x00	0x0A	Pan Speed	Tilt Speed	0xAF	XOR
DownLeft	0xA0	Address	0x00	0x14	Pan Speed	Tilt Speed	0xAF	XOR
DownRight	0xA0	Address	0x00	0x12	Pan Speed	Tilt Speed	0xAF	XOR
Zoom In	0xA0	Address	0x00	0x20	0x00	0x00	0xAF	XOR
Zoom Out	0xA0	Address	0x00	0x40	0x00	0x00	0xAF	XOR
Focus Far	0xA0	Address	0x00	0x80	0x00	0x00	0xAF	XOR
Focus Near	0xA0	Address	0x01	0x00	0x00	0x00	0xAF	XOR
Set Preset	0xA0	Address	0x00	0x03	0x00	Preset ID	0xAF	XOR
Clear Preset	0xA0	Address	0x00	0x05	0x00	Preset ID	0xAF	XOR
Call Preset	0xA0	Address	0x00	0x07	0x00	Preset ID	0xAF	XOR
Query Pan Position	0xA0	Address	0x00	0x51	0x00	0x00	0xAF	XOR
Query Pan Position Response	0xA0	Address	0x00	0x59	Value High Byte	Value Low Byte	0xAF	XOR
Query Tilt Position	0xA0	Address	0x00	0x53	0x00	0x00	0xAF	XOR
Query Tilt Position Response	0xA0	Address	0x00	0x5B	Value High Byte	Value Low Byte	0xAF	XOR
Query Zoom Position	0xA0	Address	0x00	0x55	0x00	0x00	0xAF	XOR
Query Zoom Position Response	0xA0	Address	0x00	0x5D	Value High Byte	Value Low Byte	0xAF	XOR

Menu Setting

1. Main Menu

In normal working mode, press **【MENU】** key to display the menu, using scroll arrow to point at or highlight the selected items.



LANGUAGE: Language setting, Chinese / English

SYSTEM OPTION: system setting

CAMERA OPTION: camera setting

PT OPTION: pan tilt setting

V. FORMAT: video format setting

VERSON: camera version setting

RESET: reset setting

[↑↓] Select: for selecting menu

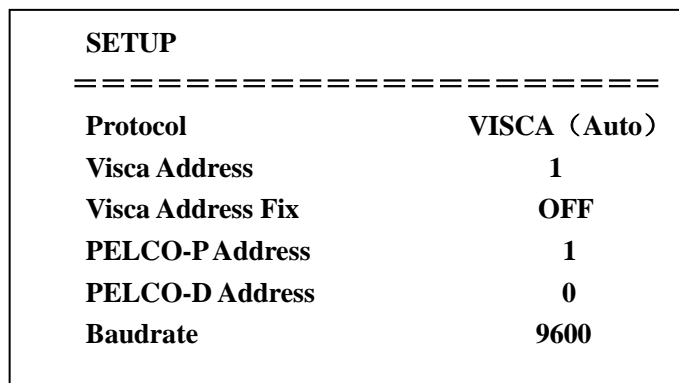
[← →] Change value: for modify parameters

[MENU] Back: Press [MENU] to return

[Home] OK: press [Home] to confirm

2. SYSTEM OPTION

Move the pointer to the (SYSTEM SET) in the Main Menu, click the **【HOME】** and enter the (SYSTEM SET) as follow,



PROTOCOL: available protocols: VISCA/Pelco-P/Pelco-D/Auto

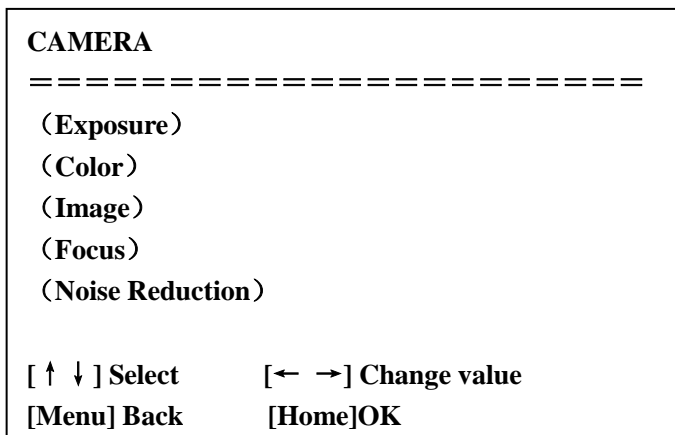
Visca ADDR: VISCA=1~7 Pelco-P=1~16 (1~16) /Pelco-D = 0~15 (0~15)

Visca Address Fix: On/Off

B. RATE: 2400/4800/9600/115200

3.CAMERA OPTION

Move the pointer to the (CAMERA SET) in the Main Menu, click the **【HOME】** and enter the (CAMERA SET) as follow,



EXPOSURE: exposure setting

COLOR: color setting

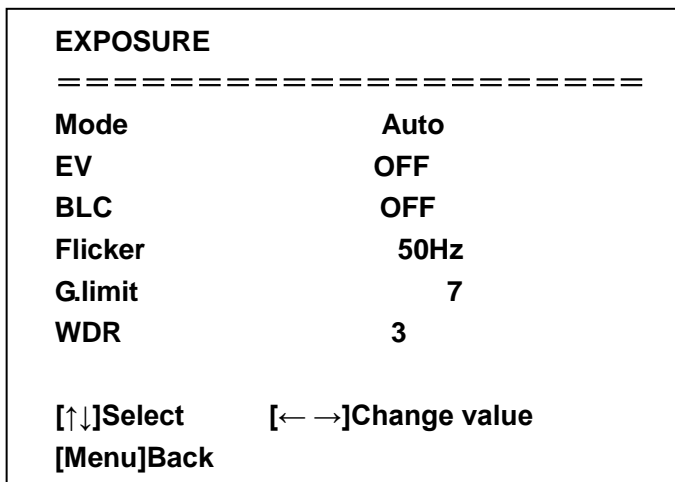
Image: enter into image setting

Focus: enter into focus setting

Noise Reduction: enter into noise reduction

3.1 EXPOSURE SETTING

Move the pointer to the (EXPOSURE) in the Main Menu, click the **【HOME】** and enter the (EXPOSURE SET) as follow,



MODE :Available Settings: Auto, Manual, Shutter, Iris and Bright.

Shutter: Available Settings: 1/60, 1/90, 1/100, 1/125, 1/180, 1/250, 1/350, 1/500, 1/725, 1/1000, 1/1500, 1/2000,1/3000,1/4000,1/6000,1/1000 (only available in Manual and Shutter mode)

IRIS: Available settings: OFF,F11.0,F9.6,F8.0,F6.8,F5.6,F4.8,F4.0,F3.4,F2.8,F2.4,F2.0,F1.8 (only available in Manual and Iris mode)

BRIGHT: Available settings:0~23

EV :Available settings: On/Off (only available in auto mode)

BLC: back light compensation, ON/OFF for options(only available in auto mode)

Flicker: OFF/50Hz/60Hz for options (only available in Auto/Iris/Bright modes)

G.limit:For Settings: 0~15 (only available in Auto/Iris/Bright mode)

WDR:For Settings: On/Off, 1~8

3.2 COLOR SETTING

Move the pointer to the (COLOR SET) in the Main Menu, click the **【HOME】** and enter the (COLOR SET) as follow,

COLOR	
=====	
WB Mode	Auto
Saturation	100%
Hue	7
AWB Sensitivity	High
Color Matrix	1
Color style	Default
[↑ ↓]Select [← →]Change value	
[Menu]Back	

WB MODE: White balance mode setting:Auto,Indoor,Outdoor,Manual

R.GAIN:Red gain setting: 0~255 (only available in Manual mode)

B.GAIN:Blue gain setting: 0~255 (only available in Manual mode)

SATURATION:Available Settings:60%、70%、80%、90%、100%、110%、120%、130%

Hue: 0~14 available for setting

AWB Sensitivity: Available settings: high/middle/low

Color Matrix: 1~3 available for settings

Color Style: Available settings: **Default, style1~4.**

3.3 IMAGE

Move the pointer to the (IMAGE) in the Camera option Menu, click the **【HOME】** and enter the (IMAGE) as follow,

IMAGE	
=====	
Brightness	6
Contrast	8
Sharpness	1
Flip-H	OFF
Flip-V	OFF
B&W-Mode	Color
Gamma	Default
DZoom	OFF
[↑ ↓]Select [← →]Change value	
[Menu]Back	

Brightness: options: 0~14

Contrast: options: 0~14

Sharpness: options: 0~16

Flip-H: options: On/Off

Flip-V: options: On/Off

B&W mode: options: color, black/white

Gamma: options: default、0.36、0.47、0.59、0.7

DZoom: options: **On/Off**

3.4 FOCUS

Move the pointer to the (FOCUS) in the CAMERA Menu, click the **【HOME】** and enter the (FOCUS) as follow,

FOCUS	
=====	
Focus	Auto
AF-Zone	Center
AF-Sensitivity	Low
[↑ ↓]Select [← →]Change value	
[Menu]Back	

Focus mode: options: auto, manual

AF-Zone: options: up、middle、down

AF-Sensitivity: options: high、middle、low

3.5 NOISE REDUCTION

Move the pointer to the (NOISE REDUCTION) in the CAMERA Menu, click the **【HOME】** and enter the (NOISE REDUCTION) as follow,

NOISE REDUCTION	
=====	
NR-2D	Auto
NR-3D	3
Dynamic Hot Pixel	OFF
[↑ ↓]Select [← →]Change value	
[Menu]Back	

2D NOISE REDUCTION: Options: auto、close、1~7

3D NOISE REDUCTION: options: close、1~8

Dynamic Hot Pixel: OPTIONS: close、1~5

4. P/T/Z

Move the pointer to the (P/T/Z) in the Main Menu, click the **【HOME】** and enter the (P/T/Z) as follow,

P/T/Z	
=====	
Speed by zoom	ON
Zoom speed	8
Image Freezing	OFF
Acc Curve	Fast
[↑ ↓]Select [← →]Change value	
[Menu]Back	

Speed by Zoom: Only effective for remote controller, On (when zoom in, the PT speed for controller to Pan tilt device will become slow) 、 Off

Zoom speed: set the zoom speed for controller to camera, 1~8

Image Freezing: options: **On/Off**

Accelerating curve : options: fast/slow

5. VERSION

Move the pointer to the (VERSION) in the Main Menu, click the **【HOME】** and enter the (VERSION) as follow,

VERSION		
=====		
MCU Version	2.0.0.1	2015-8-16
Camera Version	2.0.0.1	2015-8-16
AF Version	2.0.0.0	2015-8-30
Lens	20X	
Model		
[Menu]Back		

MCU Version: display MCU version information

Camera Version: display camera version information

AF Version: Display the focus version information

Lens: display the lens zoom

Model: Display the camera model information

6. RESTORE DEFAULT

Move the pointer to the (RESTORE DEFAULT) in the Main Menu, click the **【HOME】** and enter the (RESTORE DEFAULT) as follow,

RESTORE DEFAULT	
=====	
Restore Default?	YES
[↑ ↓]Select	[← →]Change value
[Menu]Back	[Home]OK

Restore default: options: yes/no

Web Client

Input the IP address 192. 168. 5. 163 of the device in the address filed of browser and click Enter button to enter into Web Client login page as below picture.



Note: Web visit are supported by Browsers: IE、 Chrome、 Firefox、 Safari. But Web plug in only supported by the IE browser.

1. Download/Install of the Plug in

2. Currently Web plug in only supported by the IE browser.

The login page will show “Please download and install the play plug in” when visit the IP video conference camera on IE browser for the first time. Click this note, download and install the plug in according to the information suggestions.

Input the user name and password after plug in installed, click to login (the default user name and password are both “admin” and user can change them after logging in) and enter into Web client management interface as below

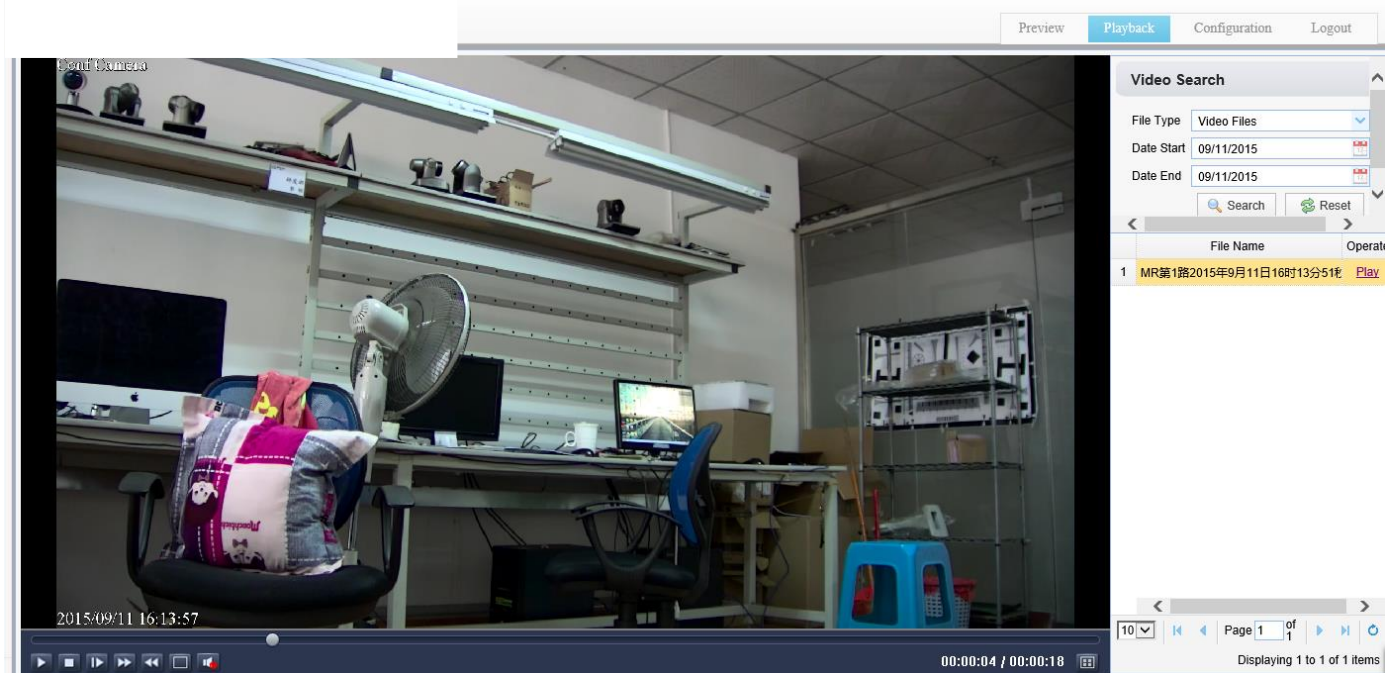
2. Preview



After login in the management interface it will show the default video preview interface as above picture. User can control the pan tilt, zoom, focus, record, snapshot, audio, enlarge, full screen and preset set, run and delete operations etc.

3. Playback

Click the **Playback** to enter into the video playback interface and set the file type and time. Click "**Search**" button and click the Play or Display in the list to play or display the record video or pictures like below picture.

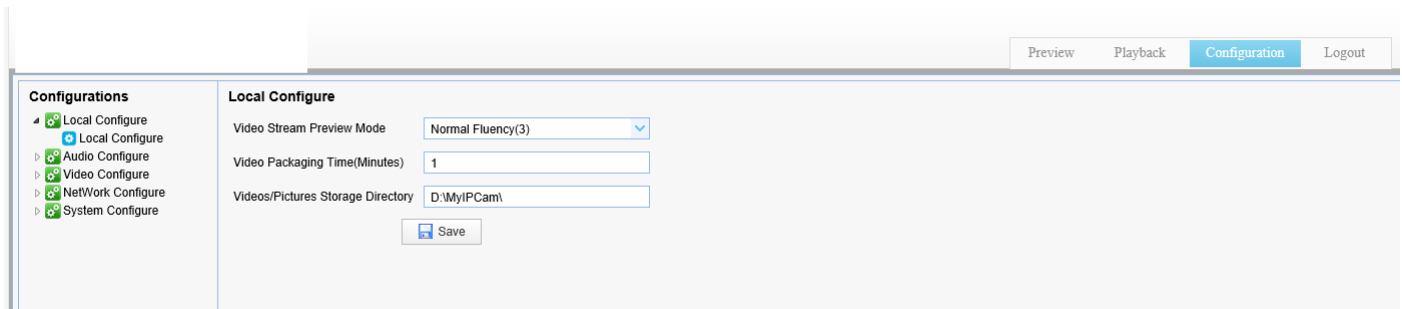


Playback Control

User can control the video for Pause, Stop, Play, Fast Play, Slow Play, Full Screen and Sound during the process of playback.

4. Configuration

Click **Configuration** to enter into the device parameters setting page as below picture.。



Major options: Local configure, Audio configure, Video configure, Network configure, Pan Tilt configure, Platform access configure and System configure. The detailed description refer to below sheet.

Menu	Explanation
Local configure	Including video preview mode, record video packing time, record video storage route settings etc.
Audio configure	Including audio compressing format, sampling frequency, sampling precision, compressing code rate settings etc.
Video configure	Including video encoding, video parameters, character-overlapping, character size, video output setting etc.
Network configure	Including basic parameters, Ethernet, DNS, wireless network setting etc.
Pan Tilt configure	Including basic parameters, system parameters setting etc.
Platform access configure	Including ONVIF docking switch
System configure	Including equipment property, system time, user management, version update, Reset, Reboot device settings etc.

4.1 Local configure

Video Preview Mode: user can choose real-time priority or fluency priority: The delay will be small when under real time priority mode and fluency will be good when under fluency priority mode. Setting based on the user need (Default value: real time normal (2), real time best (1), fluency normal (3), fluency good (4) and fluency best (5))

Recording video packing time(minute): Set recording video packing time (default is 10, range from 1~120 minutes)

Recording/Snapshot file storage route: Set local recording video/snapshot file storage route.

Click the **Save** button to make settings effective.

4.2 Audio Configuration

Switch: Choose to enable the audio or not.

Compressing format: Set audio compressing format and the device will reboot automatically after change (default MP3, **PCM (PCM, AAC) optional**)

Sampling frequency: Set sampling frequency and the device will reboot automatically after change (default 44K, **16K, 32K (16K, 32K, 48K optional)**)

Sampling precision: Set sampling precision (default 16bits)

Compressing code rate: Set audio compressing code rate (default 64bits)

Click "Save" button and the settings become effective when noting "Saved successfully"

4.3 Video Configuration

4.3.1 Video encoding

Code stream: It will call different code stream when setting different video output format.

Compressing format: Set video compressing format and the device will reboot automatically (Main/Second code stream default H.264 (Default H.264, H.265 optional))

Video size: set resolution, then device will restart automatically (Main stream default 1920*1080,1280*720 optional, Secondary stream default 640 * 320, 320 * 180,1280 * 720 optional) 。

Stream Rate control: Set rate control mode, then device will restart automatically (Primary / secondary stream default variable bit rate, fixed rate is for option) 。

Image quality: Set image quality (default for Primary stream is better image, secondary stream default is bad image. Best, better, good, bad, worse, worst for optional) 。

Rate (Kb / s): Set the video bit rate (main stream default 4096Kb / s, 64-12288Kb / s optional; secondary stream default 1024Kb / s, 64-2048Kb / s optional)。

Frame rate (F / S): Set the video frame rate (primary / secondary stream default 25F / S, 5-30F / S optional)。

Keyframe interval: Set the key frame interval (primary / secondary stream default 75F, 1-200F optional)。

Click on the "Save" button to display the "Save successful" message, then set is to take effect.

4.3.2 Flow Post

Switch: To turn on or off the main / secondary stream。

Protocol: primary / secondary stream are both use rtmp protocol。

Host Port: server port number (default 1935,0-65535 optional)

Host Address: server ip addresses (default 192.168.5.11)

Flow Name: choose a different stream name (live / av0, live / av1 optional)。

User: Set the user name。

Password: Set the password。

4.3.3 Video Parameters

Focus:

Focus Mode: set the focus mode (the default auto/manual)。

Focus range: set the focus range (the default middle, the upper and lower optional)。

Focus Sensitivity: Set the focus sensitivity (default is low, high, medium optional)。

Exposure:

Exposure Mode: Set the exposure mode (the default automatic, manual, shutter priority, aperture priority, Brightness priority optional)

Exposure compensation: Exposure compensation setting is active when it is auto status (default is off)。

Exposure compensation value: Set the exposure compensation value, valid when it is set for auto(default 0, -7 to 7 optional)。

BLC: Set back light compensation, valid when it is auto status (default is off)。

Anti-flicker: Set up anti-flicker mode, valid when status of automatic, aperture or brightness priority (default 50Hz, closed, 60Hz optional)。

Gain limit: set the gain limits, auto, active when it is status of aperture or brightness priority(default 7,0-15 optional)。

Dynamic range: set the dynamic range (default 3,0-8 optional)。

Shutter speed: active when it is status of manual or shutter-priority (default 1 / 90, 1 / 90, 1 / 100, 1 / 1/120 / 180, 1 / 250, 1 / 350, 1 / 500, 1 / 725 1 / 1000, 1 / 1500, 1 / 2000, 1 / 3000, 1 / 1/4000 / 6000, 1 / 10000 optional)。

Aperture value: Set the aperture value, active when it is status of manual or aperture-priority(default F1.8, closed, F9.6, F8.0, F6.8, F5.6, F4.8, F4.0, F3.4, F2 .8, F2.4, F2.0, F1.8 optional)。

Brightness: Set the brightness value, active when it is atatus of brightness priority (default 7,0-23 optional)。

Color:

White balance modes: Set the white balance mode (the default automatic, manual, indoor, outdoor optional)。

Red Gain: Set the red gain, effective when it is manual (default 226,0-255 optional)。

Blue Gain: Sets the Blue gain, effective when it is manual (default 188,0-255 optional)。

Red trim: Fine-tune red gain, valid when it is auto status (default 10,0-20 optional)。

Blue trim: trim blue gain, valid when it is auto status (default 10,0-20 optional)。

Saturation: Set the saturation (default 100%, 60%, 70%, 80%, 90%, 100%, 110%, 120%, 130%, 140%, 150%, 160%, 170%, 180%, 190%, 200% optional)。

Color: Set the chroma (default 7,0-14 optional)。

Filters: Set filter (default 0,1,2,3 optional)。

Auto white balance Sensitivity: Sensitivity Auto white balance settings (default is low, high, medium optional)。

Image:

Brightness: Set the brightness (default 6,0-14 optional)。

Contrast: set the contrast (default 8,0-14 optional)。

Sharpness: Sets the sharpness value (default 1,0-15 optional)。
Black and white mode: Set black and white mode (default off)。
Gamma: Gamma value setting (default, 0.45,0.5,0.56,0.63 optional)。
Flip Horizontal: Set Flip Horizontal。
Flip Vertical: Set vertical flip。

Noise Reduction:

2D Noise Reduction: 2D noise reduction level is set (the default Auto, 0-5 optional, automatic, 0 to disable)。

3D Noise Reduction: Set 3D noise reduction level (3,0-8 optional default, 0 is off)。

Dynamic dead pixel correction: Set Dynamic dead pixel correction (default 0,0-5 optional, 0 to disable)。

Note: the value change of the video parameters will be valid automatically, no need to save

4.3.4 character-overlapping

Display date and time: Set whether to display the time and date (default display)。

Show Title: Set whether to display the title (default display)。

Title Content: Set title content (default empty)。

Time font color: Set the time and date font color (default yellow, black, white, red, blue optional)。

Title font color: set the title font color (default white, black, yellow, red, blue optional)。

Moving characters: Set the date and time display position and title, click on the "up, down, left, right" buttons to move the corresponding character position。

Click on the "Save" button and display the "Save successful" message, then valid。

4.3.5 Character Size

Character size: Set the character size, the device will restart automatically after changed (main stream default is 24 , secondary stream default is 16,24,16 for option)

Click on the "Save" button to display the "Save successful" message, then valid。

4.3.6 Video output

Output Format: Set the video output format (default 1080P60,1080P50,1080P30,1080P25,1080I60,1080I50,720P60,720P50 optional)。

Click on the "Save" button to display the "Save successful" message, then valid。

4.4 Network Configuration

4.4.1 Basic parameters

Data port: set the data port, the device will restart automatically after changed(default 3000,0-65535 optional)。

Web Port: Set Web port, the device will restart automatically after changed (default is 80,0-65535 is optional)。

Onvif Port: Set Onvif port, the device will restart automatically after changed(default 2000,0-65535 optional)。

Soap Port: Set Soap port (default 1936,0-65535 optional)。

Rtmp Port: Set Rtmp port (default 1935,0-65535 optional)。

Rtsp Port: Set Rtsp port, the device will restart automatically after changed (default 554,0-65535 optional)。

Visca Port: Set Visca port, the device will restart automatically after changed (default 3001,0-65535 optional)。

Click on the "Save" button to display the "Save successful" message, then valid。

4.4.2 Ethernet parameters

DHCP: Set whether to open to obtain IP automatically. The machine will restart automatically after change(off by default)

IP Address: Set the IP address, the device will restart automatically after changes (default 192.168.5.163)。

Subnet Mask: Set the subnet mask (default 255.255.5.0)。

Default Gateway: Set the default gateway (default 0.0.0.0)。

Physical Address: Set the physical address (the parameter is read-only but can not be modified)。

Click on the "Save" button to display the "Save successfully" message, then the set is to take effect (Note: To prevent IP conflicts When modify)。

4.4.3 DNS parameters

Preferred DNS server: set the preferred DNS server. (Default 0.0.0.0)。

Alternate DNS server: Alternate DNS server settings. (Default 0.0.0.0)。

Click on the "Save" button to display the "Save successfully" message, then the set is to take effect.

4.5 Pan/tilt configuration

4.5.1 Basic parameters

Power-on mode: Set the power mode. If the power on mode is on and saved to 0 or 1 (1 or 2) number Preset, the

pan/tilt will be set to 0 or 1 (1 or 2) number Preset (off by default, preset 1, preset 2)。

Installation: Set the device installation (default is up, down for optional)。

Depth of field: Set depth of field, (default on, off optional). When it is on, camera zooming in, speed slowing down.

Remote control speed: Set the remote control rotational speed (default 10,1-12 optional)。

Zoom Speed: Set the remote control camera zoom speed (default 8,1-8 optional)。

Serial minimum speed: Set the minimum starting speed of serial command (default 1,1-16 optional)。

Cruising speed: Set cruising speed of camera rotation (default 8,1-16 optional)。

Image Freeze: Set whether to open the image freeze function(off by default)。

Click on the "Save" button to display the "Save successfully" message, then the set is to take effect

4.5.2 System parameters

Serial Protocol: Set the serial port protocol (default automatically, PLC-D, PLC-P, VISCA optional)。

VISCA Address: Set VISCA address (default 1,1-8 optional)。

PLC-D Address: Set Pelco-D addresses (default 1,1-255 (0-255) optional)。

PLC-P Address: Set Pelco-P addresses (default 1,0-255 (1-255) optional)。

Serial networking mode: set the serial networking mode (default series connection, parallel for optional)。

Lock Address: Set the lock address (default 0,0-255 optional) (default OFF, ON for optional)。

Baud Rate: Set the baud rate (default 9600,2400,4800,115200 optional)。

Click on the "Save" button to display the "Save successfully" message, then the set is to take effect.

4.6 Internet access configuration

4.6.1 ONVIF docking parameters

Switch: Open or close ONVIF docking。

4.7 System Configuration

4.7.1 System Properties

Device Name: Set the device name (the default Conf Camera)。

Device ID: Set the device ID (default 1, Read-Only)。

System Language: Set the system language (default Simplified Chinese, English optional)。

Click on the "Save" button to display the "Save successfully" message, then the set is to take effect.。

4.7.2 System Time

Date Format: Set the date format (YYYY-MM-DD default That year - month - day, MM-DD-YYYY namely Month - Day - Year, DD-MM-YYYY date - month - year Optional)。

Date separator: set the date separator (default '/',':','-' Optional)。

Time Zone: Set the time zone (default East eight districts, other time zones optional)。

Time Type: Set the time types (default 24 hours, optional 12 hours)。

Time setting: Set time mode (to choose the computer time synchronization,NTP server time synchronization, or set manually)。

Computer Time: Set the computer synchronization valid。

Update interval: Set the NTP server automatic updated time interval。 Valid after setting NTP server synchronization (default one day, 2-10 days Optional)。

NTP server address or domain name: Set NTP server address or domain name (default time.nits.gov). Valid after setting NTP server synchronization.

NTP Server Port: Sets the NTP server port (default 123)。 Valid after setting NTP server synchronization.

Set the time manually, Effective when set manually.

Click on the "Save" button to display the "Save successfully" message, then the set is to take effect.

4.7.3 User Management

Select users: Set the user type (the default administrator, Common User 1, Common User 2 optional)

User name: set the user name by user type (default admin)。

Password: Set a password (default admin)。

Password confirmation: Confirm the input passwords are the same or not。

Click on the "Save" button to display the "Save successfully" message, then the set is to take effect. (Note: The user name and password must be a 1-64 character string consisting of alphabets,numbers, underscore or (.) pls note the case-sensitivity) 。

4.6.4 Version upgrade

Click "Browse ..." installation, to select the upgrade file in the pop-up window。

Click on the "Upgrade" button, the upgrade dialog will appear. the device will reboot automatically after update successfully. (Note: make sure the power and network is keeping connected during the process.or the upgrade will fail)


4.6.5 Restore factory setting

Click on "Restore Factory Defaults" button, the device will restart automatically and restore factory setting .

4.6.6 Reboot

Click on the "Reboot" button, then the device will restart automatically

5. Logout

Click the logout dialog , then the current user will be log off, showed as bellow:

