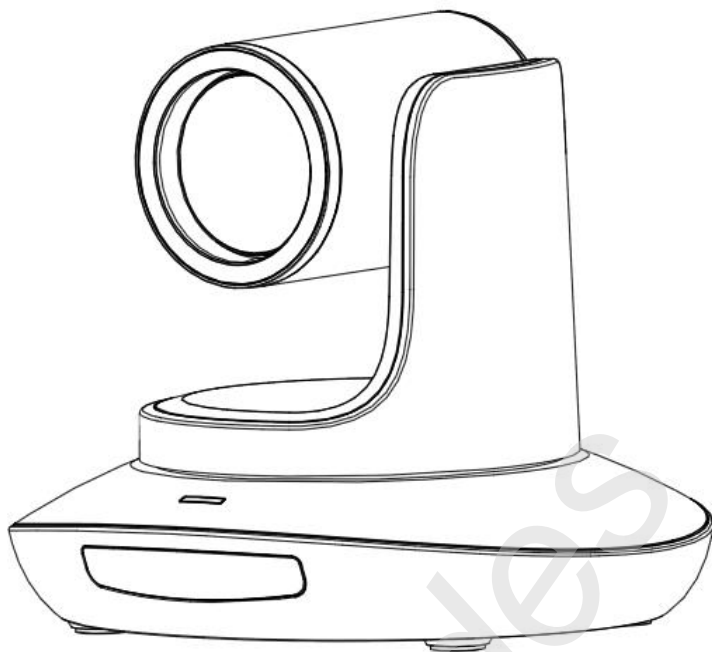


12x HD IP PTZ Video Camera

User Manual



Version V1.0

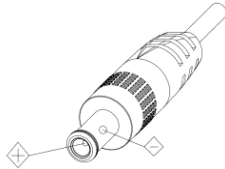
(English)

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SAFETY GUIDES

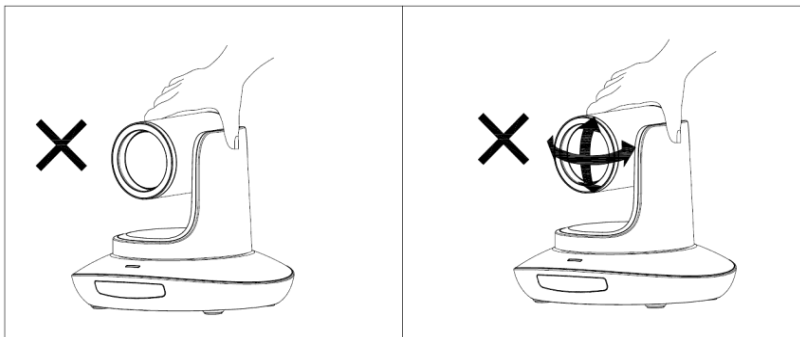
1. Before operation, please fully read and follow all instructions in the manual. For your safety, always keep this manual with the camera.
2. The camera power input range is 100-240VAC(50-60Hz), ensure the power supply input within this rate before powering on.
3. The camera power voltage is 12VDC, rated currency is 2A. We suggest you use it with the original power supply adapter supplied by the factory.
4. Please keep the power cable, video cable and control cable in a safe place. Protect all cables especially the connectors.
5. Operational environment: 0°C-50°C, humidity less than 90%. To avoid any danger, do not put anything inside the camera, and keep away from the corrosive liquid.
6. Avoid stress, vibration and damp during transportation, storage and installation.
7. Do not detect the camera housing and cover. For any service, please contact authorized technicians.
8. Video cable and control cable should be individually shielded, and cannot be substituted with other cables. Do not direct the camera lens towards strong light, such as the sun or the intensive light.
9. Use a dry and soft cloth to clean the camera housing. Applied with neutral cleaning agent when there is need to clean. To avoid damage on the camera lens, never use strong or abrasive cleaning agents on the camera housing.
10. Do not move the camera by holding the camera head. To avoid mechanical trouble, do not rotate the camera head by hand.
NEVER MOVE THE CAMERA MANUALLY WHEN IT IS WORKING.
11. Put the camera on fixed and smooth desk or platform, avoid leaned installation.
12. Power Supply Polarity (Drawing)



Note:

The video quality may be affected by the specific frequencies of electromagnetic field.

Never grasp the head of the camera, and never move the camera by hand when it is working, otherwise, mechanism maybe destroyed.



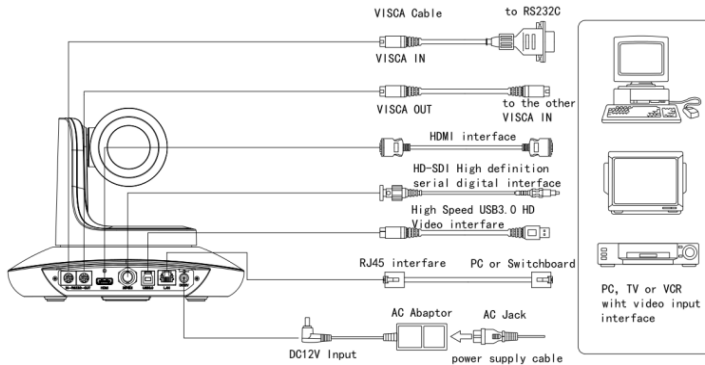
PACKING LIST

Check all bellow items when open the package:

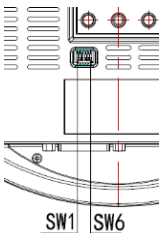
| | |
|-----------------------------|---|
| Camera | 1 |
| Power Adapter | 1 |
| Power Cable | 1 |
| RS232 Control Cable | 1 |
| USB3.0 Cable | 1 |
| Remote Controller | 1 |
| User Manual | 1 |
| Double-sided Adhesive | 1 |
| QC certification | 1 |

QUICK START

1. Check all cable connections before power on.



2. Dial Switch Setting (at the bottom of the camera):



| Dial Switch (ARM) | | | |
|---------------------|------|------|----------------|
| | SW-1 | SW-2 | Instruction |
| 1 | OFF | OFF | Updating mode |
| 2 | ON | OFF | Debugging mode |
| 3 | OFF | ON | Undefined |
| 4 | ON | ON | Working mode |

| Dial Switch | | | |
|-------------|------|------|-------------|
| | SW-3 | SW-4 | Instruction |
| 1 | OFF | OFF | reserve |
| 2 | ON | OFF | reserve |
| 3 | OFF | ON | reserve |
| 4 | ON | ON | reserve |

| Dial Switch (USB) | | | |
|---------------------|------|------|---------------|
| | SW-5 | SW-6 | Instruction |
| 1 | OFF | OFF | Working mode |
| 2 | ON | OFF | Updating mode |
| 3 | OFF | ON | Undefined |
| 4 | ON | ON | Undefined |

PRODUCT HIGHLIGHTS

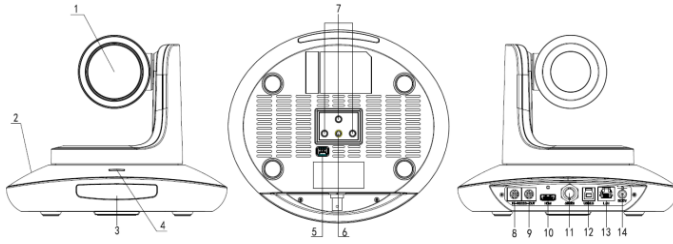
- Adopts most advanced ISP, 1/2.8 inch 5MP sensor, providing full HD video resolution and crystal clear image.
- High end 12x optical zoom, 2x digital zoom lens with 72.5 degree field of view.
- IP, HDMI, 3G-SDI, USB video outputs interface, fit for different application
- White Balance, Exposure, Focus, Iris can be adjusted automatically or manually.
- Support POE: one single CAT5/6 to get video, control, power supply and high efficient video encode.
- Special Focusing Algorithm: fast and precise focusing performance when zooming or moving,
- Smooth PTZ mechanical design, accurate pan tilt motor control;
- 128 presets supported;
- Standard Sony VISCA, VISCA over IP, PELCO-P, PELCO-D control protocol; IP VISCA over both TCP and UDP.
- Daisy chain supported, max 7 cameras connected in VISCA protocol.
- Image flip function, support upside-down installation;
- Supplied with functional IR remote controller, can set IP address via OSD menu;
- Fast video format switch: less than 3 seconds
- Supported field upgrade for ISP, ARM, FPGA and USB
- USB3.0 port compatible with USB2.0 output.
- Support RS232/RS485/UVC control
- Standard UVC1.5 protocol, seamlessly compatible with major video conferencing software and platform
- Support IR transfer function, code of the third party remote controller can be transferred to the host via VISCA IN port, in case client's development.
- OSD menu in English and Chinese supported. IP address, streaming resolution and size can be set in OSD menu.

Technical Spec

| | | |
|-----------------|--------------------------|---|
| Video Format | HDMI | 1920*1080P60/50/30/25 1920*1080i60/50 1280*720P60/50/30/25 |
| | SDI | 1920*1080P60/50/30/25 1920*1080i60/50 1280*720P60/50/30/25 |
| | USB | 1920*1080P60/50/30/25 (USB3.0) 1280*720P60/50/30 (USB3.0) 1280*720P25 (USB3.0&USB2.0) 1024*576P30 (USB3.0&USB2.0) 960*540P30 (USB2.0) 640*360P30 (USB2.0) 352*288P30 (USB2.0) |
| | RJ45 | 1920*1080@1~30 //1280*720@1~30 (Main Stream) 1280*720@1~30 / 1027*576@1~30 / 640*360@1~30 (Sub stream) |
| Video Interface | HDMI,3G-SDI,RJ45, USB3.0 | |
| Sensor | 1/2.8" 5MP CMOS sensor | |

| | |
|--------------------|--|
| Zoom | F3.92 ~ 47.32mm(12X),, View Angle:72.5°(Far)-6.43°(Near) |
| Rotation Angle | Pan: -170° ~ +170°; Tilt: -30° ~ +90° |
| Rotation Speed | Pan: 0°~120°/s ; Tilt: 0°~80°/s |
| Preset: | Remote controller: 10; RS232: 128; Accuracy: 0.1° |
| Control Port | RS232、RS485(optional)、RJ45 (VISCA over IP)、USB3.0(UVC1.5) |
| Network Speed | 1000M |
| Video encode | H.264/H.265(default: H.264) |
| Bit Rate Control | Variable Bit Rate, Constant Bit Rate |
| Video Bit Rate | 0Kbps~15360Kbps |
| IP Protocol | TCP/IP, HTTP, RTSP, DHCP , Onvif |
| POE | Supported |
| Daisy Chain | Support RS232 serial daisy chain |
| Minimum Lux | 0.01lux |
| White Balance | Auto/Indoor/Outdoor/Manual/Auto/Sodium Lamp Auto/Sodium Lamp |
| Exposure | Auto/Manual/Bright/Shutter/Iris |
| Focus | Auto / Manual |
| Iris | Auto / Manual |
| Electric Shutter | Auto / Manual |
| Gamma | Supported |
| WDR | Supported |
| BLC | Supported |
| 2D Noise Reduction | Supported |
| 3D Noise Reduction | Supported |
| Anti Flicker | OFF/50Hz/60Hz |
| Pan Tilt Flip | Supported |
| Input Voltage | DC12V/POE |
| Dimension | 220mm×190mm×173mm |
| Net Weight | 1.4KG (3.1LBS) |

CAMERA INTERFACE

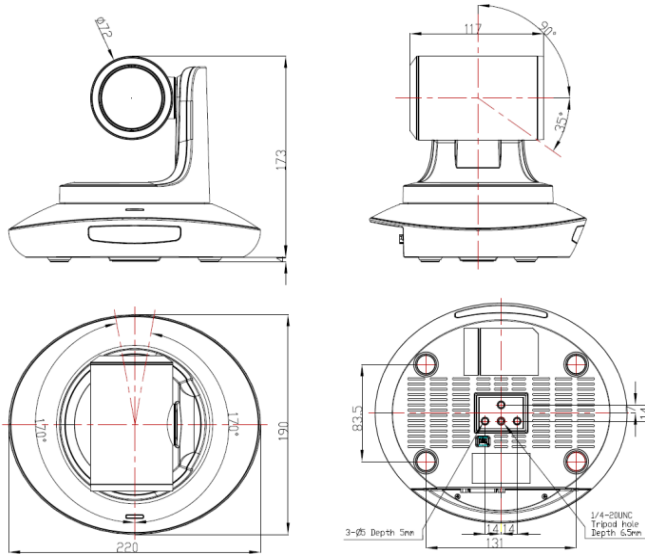


- 1. Camera Lens
- 2. Camera Base
- 3. IR Receiver Panel
- 4. Power Indicator Light
- 5. Dial Switch

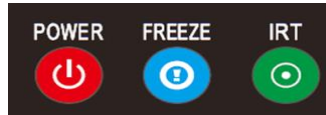
- 6. Tripod Screw Hole
- 7. Installation Hole
- 8. RS232 control port (input)
- 9. RS232 control port(output)

- 10. HDMI port
- 11. 3G-SDI port
- 12. USB port
- 13. RJ45 port
- 14. DC12V plug

CAMERA DIMENSION(MM)



IR REMOTE CONTROLLER



POWER

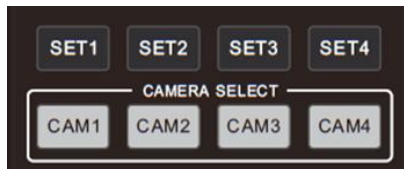
Under normal working mode, short press POWER key, to enter standby mode; Press it again, the camera will do self-configuration, then go back to HOME position. It will go to preset position if power on model has been set before.

FREEZE (Not Supported in USB)

Short press FREEZE key to freeze/ unfreeze the image.

IRT (IR Transfer/IR Pass)

Open / close the IR pass function. Once press the IRT key, the camera will receive and Pass the IR remote control signal to the codec/terminal (via VISCA IN port).

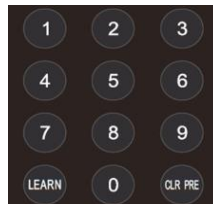


SET 1~SET4 ADDRESS SETTING

Long press for 3seconds until the key light ON, to set camera address.

CAM1~CAM4 (CAMERA SELECTING)

Short press to select the relative camera.



NUMBER KEY (1-9)

Set preset: long press (3 seconds) the number key to set preset.

Run preset: Short press the number key to run preset.

CLR PRE (CLEAR PRESET)

CLR PRE+ number key: to clear the relative preset.

Long press to clear all preset.



FOCUS KEY (ON THE LEFT)

Manual focus, only valid under manual focus model.

ZOOM KEY(ON THE RIGHT SIDE)

Set the zoom rate

NAVIGATE KEY: UP/DOWN/LEFT/RIGHT

Under working mode, use navigate key to set the pan tilt, and select menu when enter OSD.

OK /HOME KEY

Under working mode, short press OK to make the camera go back to HOME position; and confirm the selection when enter OSD.



AF: Auto Focus

MF: Manual Focus

RESET: Press 3 seconds to reset camera

MENU: Enter OSD menu



LEARN+LIMIT L key: Set the pan tilt left limit position.

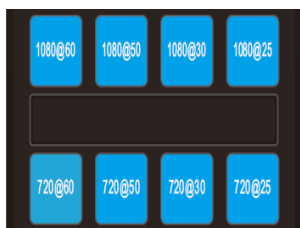
LEARN+LIMIT R key: Set the pan tilt right limit position.

LEARN+LMT CLR key: Clear the limit position.



BLC OFF/ BLC ON : Not Available

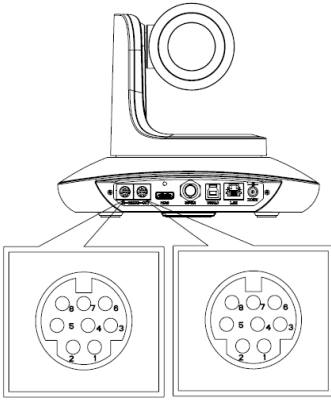
BRIGHT-/BRIGHT+: Set image brightness, only valid under bright priority exposure mode.



Video Format Keys:

Long press 3 seconds to select different video format output.

VISCA IN (RS232 PORT)



| No. | V_IN | V_OUT |
|-----|--------|-------|
| 1 | DTR | DTR |
| 2 | DSR | DSR |
| 3 | TXD | TXD |
| 4 | GND | GND |
| 5 | RXD | RXD |
| 6 | A | |
| 7 | IR OUT | |
| 8 | B | |

| VISCA IN | RS485 |
|----------|--------|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | A(+) |
| 7 | IR OUT |
| 8 | B(-) |

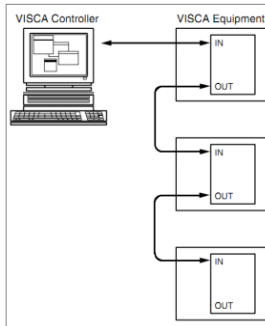
VISCA IN & Mini DIN Connection

| Camera VISCA IN | | Mini DIN | |
|-----------------|--------|----------|-----|
| 1 | DTR | 1 | DSR |
| 2 | DSR | 2 | DTR |
| 3 | TXD | 5 | RXD |
| 4 | GND | 4 | GND |
| 5 | RXD | 3 | TXD |
| 6 | A(+) | 6 | NC |
| 7 | IR OUT | 7 | NC |
| 8 | B(-) | 8 | NC |

VISCA IN & DB9 Connection

| Camera VISCA IN | | Windows DB-9 | |
|-----------------|--------|--------------|-----|
| 1 | DTR | 6 | DSR |
| 2 | DSR | 4 | DTR |
| 3 | TXD | 2 | RXD |
| 4 | GND | 5 | GND |
| 5 | RXD | 3 | TXD |
| 6 | A(+) | | |
| 7 | IR OUT | | |
| 8 | B(-) | | |

VISCA Network Construction:



SERIAL PORT CONFIGURATION

| Parameter | Value | Parameter | Value |
|-----------|-----------------------|-----------|-------|
| Baud rate | 2400/4800/9600/115200 | Stop Bit | 1bit |
| Start Bit | 1 bit | Check Bit | None |
| Date Bit | 8 bit | | |

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 Camera Control Command

| Command type | function | command | |
|---------------|-------------------|-------------------------------|--|
| 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 (0(wide)~0x4000(tele)) t: spd 0~7 pqrs: Zoom Position (0(wide)~0x4000(tele)) |
| | 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 | |
| | Direct with speed | 8x 0A 04 47 0t 0p 0q 0r 0s FF | |
| CAM_DZoom | ON | 8x 01 04 06 02 FF | |
| | OFF | 8x 01 04 06 03 FF | |
| | Combine Mode | 81 01 04 36 00 FF | Combine with optical zoom control |
| | Separate Mode | 81 01 04 36 01 FF | Separate with optical zoom control |
| | Stop | 81 01 04 06 00 FF | Enable In separate mode |
| | Tele (Variable) | 81 01 04 06 2p FF | Enable In separate mode |
| | Wide (Variable) | 81 01 04 06 3p FF | Enable In separate mode |
| | Direct | 81 01 04 46 0p 0q 0r 0s FF | Enable In separate mode |

| Command type | function | command | |
|---------------|------------------|---|--|
| CAM_Focus | Stop | 8x 01 04 08 00 FF | |
| | Far(Standard) | 8x 01 04 08 02 FF | |
| | Near(Standard) | 8x 01 04 08 03 FF | |
| | Far (Variable) | 81 01 04 08 2p FF | p=0 (Low) to 7 (High) |
| | Near (Variable) | 81 01 04 08 3p FF | p=0 (Low) to 7 (High) |
| | Direct | 8x 01 04 48 0p 0q 0r 0s FF | pqrs: Focus Position |
| | Auto Focus | 81 01 04 38 02 FF | |
| | Manual Focus | 81 01 04 38 03 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 (0(wide)~ 0x4000(tele)) tuvw: Focus Position |
| CAM_WB | Auto | 8x 01 04 35 00 FF | |
| | Indoor | 8x 01 04 35 01 FF | |
| | Outdoor | 8x 01 04 35 02 FF | |
| | OnePush | 8x 01 04 35 03 FF | |
| | ATW | 8x 01 04 35 04 FF | |
| | Manual | 8x 01 04 35 05 FF | |
| | Sodium lamp | 8x 01 04 35 08 FF | |
| | fluorescent | 8x 01 04 35 09 FF | |
| | OnePush Trigger | 8x 01 04 10 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 (0~0xFF) |
| 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 | |
| | Direct | 8x 01 04 44 00 00 0p 0q FF | pq: B Gain (0-0xFF) |
| CAM_AE | Full Auto | 81 01 04 39 00 FF | Automatic Exposure mode |
| | Manual | 81 01 04 39 03 FF | Manual Control mode |
| | Shutter Priority | 81 01 04 39 0A FF | Shutter Priority Automatic Exposure mode |
| | Iris Priority | 81 01 04 39 0B FF | Iris Priority Automatic Exposure mode |

| Command type | function | command | |
|--------------------|----------|----------------------------|---|
| | Bright | 81 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 (0~0x15) |
| CAM_Iris | Reset | 8x 01 04 0B 00 FF | Iris Setting(0~0xD) |
| | 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 (0~ 0x11) |
| CAM_Gain | Reset | 8x 01 04 0C 00 FF | Gain Setting (0~0x0F) |
| | 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 (0~0x0E) |
| 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 (0~0x1B) |
| CAM_OverallBright | Direct | 8x 01 04 A4 00 00 0p 0q FF | pq: Bright I Positon (0~0x0F) different with AE BRIGHT |
| CAM_WDR | On | 8x 01 04 3D 02 FF | Exposure Compensation ON/OFF |
| | Off | 8x 01 04 3D 03 FF | |
| | Direct | 8x 01 04 D3 pq FF | pq: ExpComp Position (0~0x6) |
| CAM_BackLight(BLC) | On | 8x 01 04 33 02 FF | Backlight On |
| | Off | 8x 01 04 33 03 FF | Backlight Off |
| CAM_Sharpness | 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 (0~0x0F) |
| CAM_Memory(preset) | Reset | 8x 01 04 3F 00 0p FF | p: Preset 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 | |

| Command type | function | command | |
|---------------------------|-------------|---|--|
| CAM_RS485Ctl | On | 8x 01 06 A5 02 FF | |
| | Off | 8x 01 06 A5 03 FF | |
| CAM_Saturation | Saturation | 8x 01 04 A1 00 00 0p 0q FF | pp :saturation level 0x00~0xff |
| CAM_Contrast | Contrast | 8x 01 04 A2 00 00 0p 0q FF | pp :Contrast level 0x00~0xff |
| CAM_SpeedByZoom | On | 8x 01 06 A0 02 FF | |
| | Off | 8x 01 06 A0 03 FF | |
| CAM_PTSPeed | PT Speed | 8x 01 04 C1 00 00 0p 0q FF | pp :PT speed 0x05~0x18 |
| CAM_ZoomSpeed | Zoom Speed | 8x 01 04 D1 00 00 0p 0q FF | pp :Zoom speed 0x01~0x07 |
| CAM_ZoomDisplay | On | 8x 01 06 C2 02 FF | |
| | Off | 8x 01 06 C2 03 FF | |
| CAM_IRaddress | IR address | 8x 01 06 D8 0p FF | p:IR address 1~4 |
| CAM_Gamma | Gamma set | 81 01 04 5B 0p FF | P:Gamma NO. (0~6) |
| CAM_MountMode | UP | 8x 01 04 A4 02 FF | Mount Up |
| | Down | 8x 01 04 A4 03 FF | Mount Down |
| CAM_ColorGain | Direct | 8x 01 04 49 00 00 00 0p FF | (0~0x0E) |
| CAM_2D Noise Reduction | Direct | 8x 01 04 53 0p FF | 0 – OFF 1 – ON |
| CAM_3D Noise Reduction | Direct | 8x 01 04 54 0p FF | 0 – OFF 1 – AUTO 2-5: level |
| FLICK | 50HZ | 81 01 04 23 01 FF | |
| | 60HZ | 81 01 04 23 02 FF | |
| | OFF | 81 01 04 23 00 FF | |
| VideoSystem Set | | 8x 01 06 35 00 pp FF | pp: Video format 1080P60 0x2E 1080P50 0x2F 1080I60 0x01 1080I50 0x04 1080P30 0x06 1080P25 0x08 720P60 0x09 720P50 0x0C 720P30 0x0E 720P25 0x11 |
| CAM_IDWrite | | 8x 01 04 22 0p 0q 0r 0s FF | pqrs: Camera ID (=0000 to FFFF) |
| IP address control | IP set | 8x 01 04 AB 0p 0q 0r 0s 0m 0n 0x 0y FF | Set ip to :pq.rs.mn.xy |
| | Mask set | 8x 01 04 AC 0p 0q 0r 0s 0m 0n 0x 0y FF | Set mask to :pq.rs.mn.xy |
| | Gateway set | 8x 01 04 AD 0p 0q 0r 0s 0m 0n 0x | Set gateway to : pq.rs.mn.xy |

| Command type | function | command | |
|------------------|------------------|---|--|
| | | 0y FF | |
| SYS_Menu | Menu On | 8x 01 06 06 02 FF | Turn on the menu |
| | Menu Off | 8x 01 06 06 03 FF | Turn off the menu |
| | Menu Back | 8x 01 06 06 10 FF | Menu step back |
| | Menu Ok | 8x 01 7E 01 02 00 01 FF | Menu ok |
| 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 | |
| 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 | |

Part 2 Camera Control Command

| Command type | command | return | 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_AEModeInq | 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 50 pp 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_DHCPInq | 8x 09 04 AE FF | y0 50 pp FF | |
| CAM_IPInq | 8x 09 04 AB FF | y0 50 0p 0p 0q 0q 0r 0r 0s 0s FF | |
| CAM_MASKInq | 8x 09 04 AC FF | y0 50 0p 0p 0q 0q 0r 0r 0s 0s FF | |
| CAM_GATEWAYInq | 8x 09 04 AD FF | y0 50 0p 0p 0q 0q 0r 0r 0s 0s FF | |
| CAM_FlareModelInq | 8x 09 04 B6 FF | y0 50 pp FF | |
| CAM_FlareBrightModelInq | 8x 09 04 B7 FF | y0 50 pp FF | |
| CAM_FlareRed | 8x 09 04 B8 FF | y0 50 pp FF | |
| CAM_FlareGreen | 8x 09 04 B9 FF | y0 50 pp FF | |
| CAM_FlareBlue | 8x 09 04 BA FF | y0 50 pp FF | |
| CAM_IDInq | | | |
| CAM_VersionInq | 8x 09 00 02 FF | y0 50 ab cd mn pq rs tu vw FF | |
| VideoSystemInq(Telycam) | 8x 09 06 23 FF | y0 50 pp FF | pp: Video format |
| VideoSystemInq(Sony) | 8x 09 04 24 72 FF | y0 50 0p 0p FF | pp: Video format |
| IR_Transfer | 8x 09 06 1A FF | y0 50 02 FF | On |
| | | y0 50 03 FF | Off |
| 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: PanMaxSpeed zz: Tilt Max Speed |
| Pan-tiltPosInq | 8x 09 06 12 FF | y0 50 0w 0w 0w 0w 0z 0z 0z 0z FF | wwww: PanPosition zzzz: Tilt Position |

| | | | |
|-------------------------|-------------------|----------------------------------|--|
| MainstreamResolutionInq | 8x 09 04 C2 00 FF | y0 50 0p 0q 0r 0s 0m 0n 0x 0y FF | pqrs : Column(x size) mnxy: Line (y size) only support:1920*1080,3840*2160 |
| MainstreamRateInq | 8x 09 04 C2 01 FF | y0 50 0p 0q 0r 0s 0m 0n 0x 0y FF | pqrsmnxy: bitrate (0~15360) |
| SubstreamResolutionInq | 8x 09 04 C3 00 FF | y0 50 0p 0q 0r 0s 0m 0n 0x 0y FF | pqrs : Column(x size) mnxy: Line (y size) only support:1280*720, 1024*576, 640*360 |
| SubstreamRateInq | 8x 09 04 C3 01 FF | y0 50 0p 0q 0r 0s 0m 0n 0x 0y FF | pqrsmnxy: bitrate (0~15360) |

Note: [x] means the camera address ; [y] = [x + 8] .

VISCA PAN TILT ABSOLUTE POSITION VALUE

| Pan Angle | VISCA Value | Tilt Angle | VISCA Value |
|-----------|-------------|------------|-------------|
| -170 | 0xF670 | -30 | 0xFE50 |
| -135 | 0xF868 | 0 | 0x0000 |
| -90 | 0xFAF0 | 30 | 0x01B0 |
| -45 | 0xFD78 | 60 | 0x0360 |
| 0 | 0x0000 | 90 | 0x510 |
| 45 | 0x0288 | | |
| 90 | 0x0510 | | |
| 135 | 0x0798 | | |
| 170 | 0x0990 | | |

VISCA PAN TILT SPEED VALUE

| Pan(Degree/Second) | | Pan(Degree/Second) | |
|--------------------|-----|--------------------|-----|
| 0 | 0.3 | 0 | 0.3 |
| 1 | 1 | 1 | 1 |
| 2 | 1.5 | 2 | 1.5 |
| 3 | 2.2 | 3 | 2.2 |
| 4 | 2.4 | 4 | 3.6 |
| 5 | 2.6 | 5 | 4.7 |
| 6 | 2.8 | 6 | 6 |
| 7 | 3.0 | 7 | 8 |
| 8 | 3.2 | 8 | 10 |
| 9 | 3.4 | 9 | 12 |
| 10 | 3.8 | 10 | 15 |
| 11 | 4.5 | 11 | 18 |
| 12 | 6 | 12 | 23 |
| 13 | 9 | 13 | 30 |
| 14 | 15 | 14 | 39 |
| 15 | 19 | 15 | 48 |
| 16 | 25 | 16 | 59 |
| 17 | 32 | 17 | 69 |
| 18 | 38 | 18 | 80 |
| 19 | 45 | | |
| 20 | 58 | | |
| 21 | 75 | | |
| 22 | 88 | | |
| 23 | 105 | | |
| 24 | 120 | | |

PELCO-D Protocol Command List

| 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 |
| Stop | 0xFF | Address | 0x00 | 0x00 | Pan Speed | Tilt Speed | 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 |

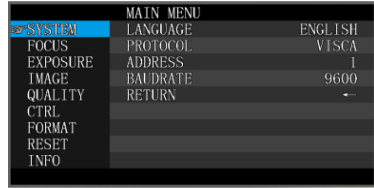
PELCO-P Protocol Command List

| 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 |
| Stop | 0Xa0 | Address | 0x00 | 0x00 | Pan Speed | Tilt Speed | 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 |

OSD MENU

1. Under working mode, press the MENU key on the IR remote

controller, to enter the OSD menu as below:



2, After enter the main menu, use the navigate UP/DOWN key to select the main menu. Once been selected, the main menu will change to blue background, and the right side will show all sub menu options.

3, Press the navigate RIGHT key to enter sub menu; use UP/DONW key to select the sub menu; use LEFT/RIGHT key to select parameter.

4, Press the MENU key again to return to previous menu. Press the MENU key continuously to exit the OSD menu.

5. OSD Menu Setting List

| | | | |
|--------|-----------|--------------------------------------|-------------------|
| SYSTEM | LANGUAGE | Optional Item: Chinese/English | Default : English |
| | PROTOCOL | Optional item : VSCA/PELCO-P/PELCO-D | Default : VSCA |
| | ADDRESS | VSCA:1~7 PELCO-P/D:1~255 | Default : 1 |
| | BAUD RATE | Optional item: 2400/4800/9600/115200 | Default : 9600 |
| | RETURN | Return to previous menu | |

| | | | |
|-------|-------------|---|----------------|
| FOCUS | FOCUS MODE | AUTO/MANUAL/PUSH | Default : AUTO |
| | FOCUS LIMIT | 1.5~10M Reference distance: 1.5/ 2/ 3/ 6/ 10M | Default : 1.5M |
| | DZOOM | Turn on/off digital zoom (2x digital zoom) | Default : OFF |
| | RATIO DIS | ON/OFF | Default : OFF |
| | RETURN | RETURN to previous menu | |

| | | | |
|----------|-------------------------|---|----------------|
| EXPOSURE | EXPOSURE MODE | AUTO/MANUAL/BRIGHT/SHUTTER/IRIS | Default : AUTO |
| | SHUTTER | Shutter speed:1/8~1/10000, only valid under manual mode | Default : AUTO |
| | IRIS | Iris setting:0~13, only valid under manual mode | Default : AUTO |
| | GAIN | Gain setting: 0~15, only valid under manual mode | Default : AUTO |
| | BRIGHT | Bright setting:0~27, only valid under bright priority mode. | Default : 8 |
| | FLICK | Anti-Flicker setting:50/60HZ/OFF, to reduce the video flicker | Default : 50HZ |
| | BACK LIGHT | ON/OFF | Default : OFF |
| | GAMMA | Gamma curve selection | Default : 0 |
| RETURN | Return to previous menu | | |

| | | | |
|-------|---------|--|----------------|
| IMAGE | WB MODE | Optional: AUTO,INDOOR,OUTDOOR,MANUAL,OUTAUTO,SODIUM LAMP AUTO ,SODIUM LAMP | Default : ATW |
| | R GAIN | Red gain level: 0~255, only valid under manual white balance mode. | Default : AUTO |
| | B GAIN | Blue gain level:0~255 , only valid under manual white balance mode | Default : AUTO |
| | DEFOG | OFF, 1~15 | Default : OFF |
| | RETURN | Return to previous menu | |

| | | | |
|---------|------------|---|----------------|
| QUALITY | 2D NR | 2D noise reduction: the bigger value, the less noise on image, the lower resolution | Default : OFF |
| | 3D NR | 3D noise reduction:OFF/AUTO/0~4, the bigger value, the less motion noise on image, high value will cause image smear. | Default : AUTO |
| | SHARPNESS | Sharpness setting: 0~15, the higher value, the higher sharpness of the edge of the image | Default : 3 |
| | CONSTRAST | Set contrast level | Default : 8 |
| | SATURATION | Set saturation. | Default : 7 |
| | BRIGHT | Whole image bright | Default : 8 |
| | D_WDR | Set wide dynamic range: OFF, 1-6 | Default : OFF |
| | RETURN | Return to previous menu | |

| | | |
|---------|------------|---------------|
| CONTROL | MIRROR | Default: OFF |
| | FLIP | Default : OFF |
| | D/N MODE | Default : Day |
| | GAIN LIMIT | Default : 128 |
| | RETURN | |

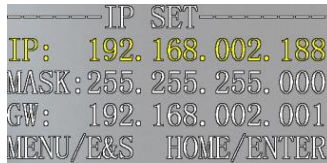
| | | | |
|--------|---------|--------|---|
| FORMAT | 1080P60 | 720P60 | Once selected, press OK key to confirm, if it is the selected video format, there is no change. |
| | 1080P50 | 720P50 | |
| | 1080I60 | 720P30 | |
| | 1080I50 | 720P25 | |
| | 1080P30 | Return | |

| | | |
|-------|-----------|-------------------------------------|
| RESET | CAM RESET | Reset camera parameter to default |
| | PTZ RESET | Reset pan/tilt parameter to default |
| | ALL RESET | Reset all parameter to default |
| | RETURN | Return to the previous menu |

| | | |
|------|--------------|--|
| INFO | CONTROL VER | Camera control firmware version |
| | CONTROL DATE | Camera control firmware releasing date |
| | FORMAT | Current video output format |
| | BAUD RATE | Current RS232 baud rate |
| | IP ADDR | Camera IP address |
| | NET MASK | Current subnet mask |
| | RETURN | Return to the previous menu |

Set IP Address in Menu

1. Press “menu” button for 3 seconds, enter IP setting menu.



2. Using “up” “down” navigation key to select parameter needed to set. IP, Mask, Gateway ect can be set.
3. Short press “Home” key to setting mode, current setting parameter starts flickering
4. Short press number key to set needed parmater. After finishing setting, press “Home” key again.
5. If need to exit to menu, press “menu” key. Note: Only press “Home” key after finishing setting can save current paramter.

UVC CONTROL

1. Only run the client software after the USB3.0 camera has completed self-configuration (the IR indicator in blue color and will not flash); otherwise may cause black video issue.
2. Make sure the USB3.0 camera is recognized by the PC Device Manager.
- 3 . Make sure the interval of video format switching more than 3 seconds, otherwise black video maybe caused.
- 4 . Make sure the interval of control command sending from the server (via USB) to the camera no less than 250ms.

5 . Support standard UVC interface.

| | |
|--------------------------------------|---------------------------------------|
| PU_BRIGHTNESS_CONTROL | 81 01 04 4d 00 00 0p 0q FF |
| PU_CONTRAST_CONTROL | 81 01 04 A2 00 00 0p 0q FF |
| PU_SATURATION_CONTROL | 81 01 04 A1 00 00 0p 0q FF |
| PU_SHARPNESS_CONTROL | 8x 01 04 42 00 00 0p 0q FF |
| PU_GAMMA_CONTROL | 8x 01 04 5B 0p FF |
| PU_WHITE_BALANCE_TEMPERATURE_CONTROL | 8x 01 04 35 0x FF |
| PU_BACKLIGHT_COMPENSATION_CONTROL | 81 01 04 33 0203 FF |
| PU_POWER_LINE_FREQUENCY_CONTROL | 8x 01 04 AA 00/01/02 FF |
| CT_ZOOM_ABSOLUTE_CONTROL | 8x 01 04 47 0p 0q 0r 0s FF |
| CT_PANTILT_ABSOLUTE_CONTROL | 8x 01 06 02 VV WW 0Y 0Y 0Y 0Z 0Z 0Z F |
| CT_PANTILT_RELATIVE_CONTROL | 8x 01 06 01 pp qq rr ss FF |
| CT_ZOOM_RELATIVE_CONTROL | 8x 01 04 07 pp FF |

WEB SETTING

1. Download and install Flash Player

When visit IP camera via Internet Explore browser the first time, need to install Flash Player, we suggest user download it from flash official website to get latest version:

<https://www.flash.cn/english>

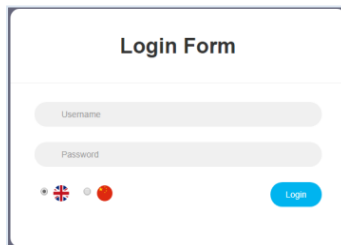
after installation, we will be able to see bellow via PC's Programs and Features Control Panel:



2. Login

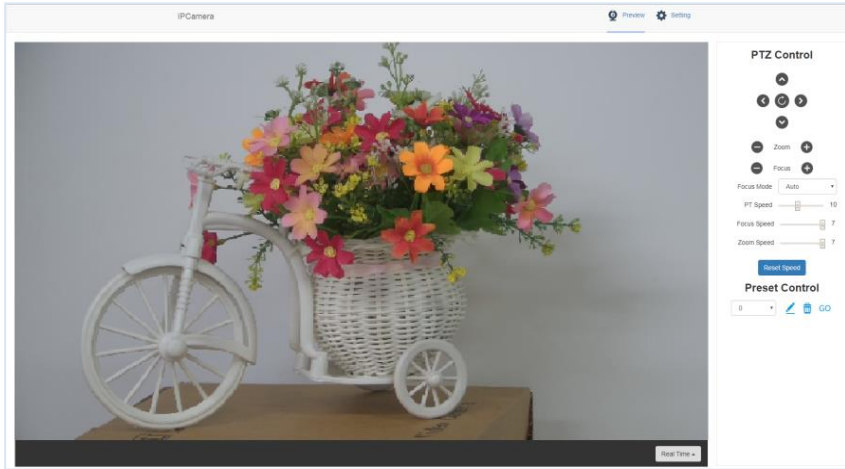
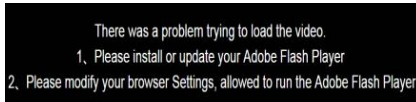
Run browser, input IP address(**defaulted IP address is 192.168.1.188**), to enter login interface, can select Language (Chinese or English), input admin and password to login as following:

(Default admin: **admin** Default password: **admin**)



3. Real-time Preview:

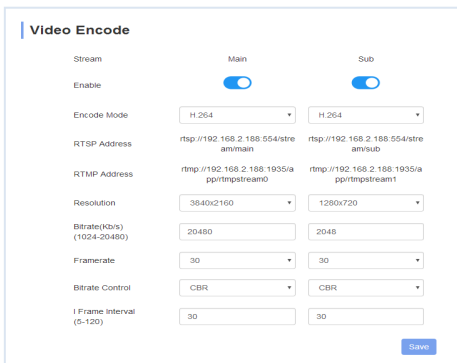
If you are log in web interface first time, there maybe show up a mistake notice as bellow, the reason is the explorer prevent the web interface to run Flash Player, what we need to do is to enter explorer setting, to set it allow to use Flash Player.



Preview interface as above image, on the right side, there are options to control camera pan, tilt, zoom, focus, presets, focus speed, zoom speed can be set. On the top of the image, main stream and sub stream preview can be selected, image width&height rate can be selected, and full size view can be selected.

4. Parameter Setting

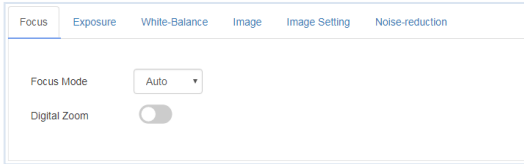
Click "Setting" to enter into parameter setting interafeace as following:



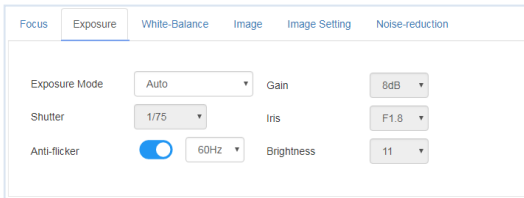
“**Video Encode**”: can set image encode mode, main stream and sub stream resolution/bit rate/frame rate, bit rate control way, and I frame interval etc as above image

“**Image Parameter**” can set focus, exposure, white balance, image, image quality, noise-reduction, as following picture

Focus including focus mode, default focal distance, digital zoom etc



Exposure includes exposure mode, shutter speed, gain, iris, brightness, and anti-flicker.



White Balance includes white balance mode, red gain, blue gain.

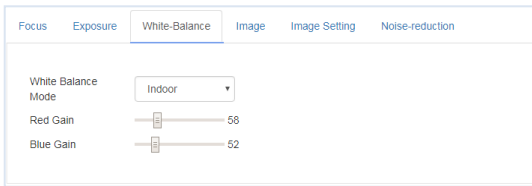


Image includes mirror, flip, backlight compensation, Gamma, WDR(wide dynamic range).

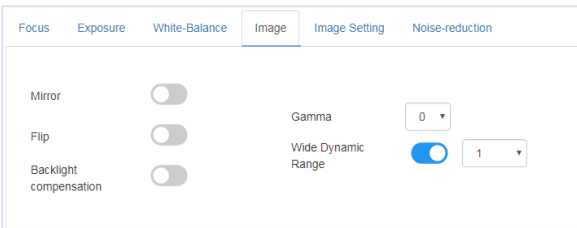
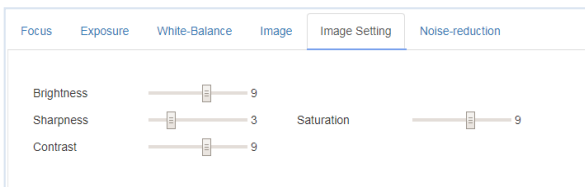
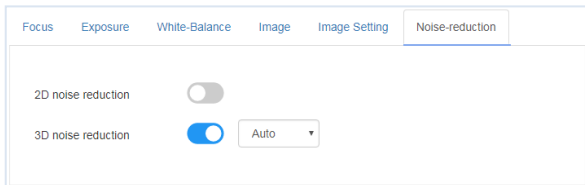


Image Setting includes brightness, sharpness, contrast, saturation



Noise reduction includes 2D/3D reduction. There is on/off option for 2D, and off/auto/1~4 six options.



“Ethernet” includes DHCP mode, IP address, subnet mask, default gateway, http port, web port, main stream port, sub stream port.

Default parameter as following:

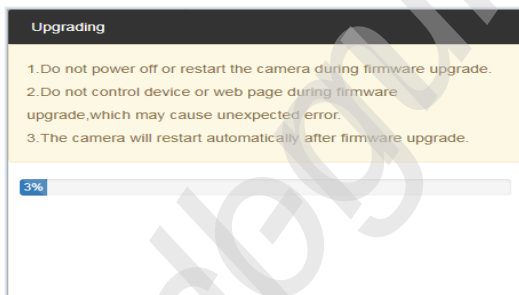
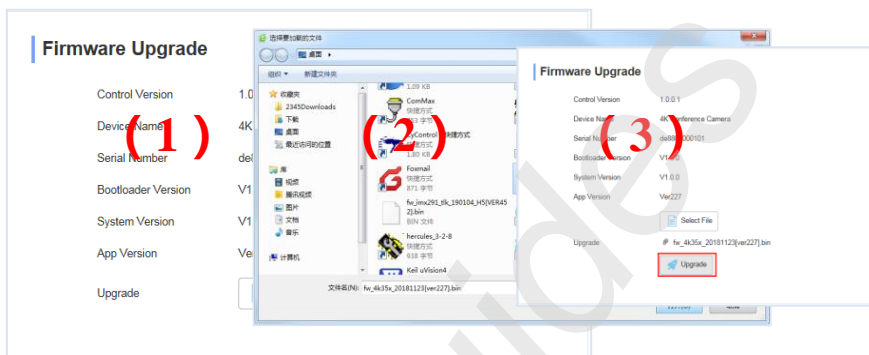
| | | | |
|-----------------|---------------|-----------|------|
| DHCP | OFF | HTTP port | 80 |
| IP address | 192.168.1.188 | RTSP port | 554 |
| Subnet mask | 255.255.255.0 | RTMP port | 1935 |
| Default gateway | 192.168.1.1 | | |

“Firmware upgrade”: it is for camera program upgrade, currently only for ISP part update. How to update:

As following picture, click “clicking to upload file” icon, open dialog box, select to open the file, and click “upgrade” to start.

DO NOT power off or do other operation when upgrading, reboot the camera after 5 min when upgrade finished.

Then login web end to select “reset all” to reset the camera completely.

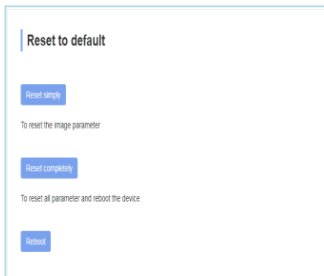


Reset to default : reset the camera to default setting

Reset simply: reset camera image parameter

Reset Completelyall: reset camera Ethernet and image parameter, language and protocol will not be reset.

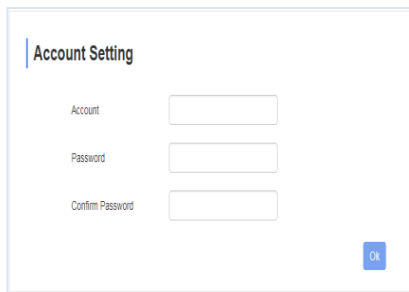
Reboot: Reboot ISP part of camera



Account Setting: is used for setting camera account and password

Input the account firstly, then input same password twice, click set to finish

Please remember account and password, otherwise you may be not able to login.



Using VLC to view RTSP/RTMP Video

Default RTSP main streaming address: rtsp://192.168.1.188/stream/main

Default RTSP sub streaming address: rtsp://192.168.1.188/stream/sub

Default RTMP main streaming address:

rtmp://192.168.1.188:1935/app/rtmpstream0

Default RTMP sub streaming

address:rtmp://192.168.1.188:1935/app/rtmpstream1

1, Run VLC Media Player.

2, Media->network stream, to enter into "open media" interface.

3, Input RTSP address in URL as following:

4, Click play to view the real time image.



Note: If there is much image lag, select "more option" to enter into following setting, change buffer time smaller (VLC default buffer time is 1000ms).



VISCA over IP

VISCA over IP means VISCA protocol transmit via IP, to reduce RS232/RS485 cable layout (the controller must support IP communication function)

Communication port spec:

- Control port: RJ45 Gigabit LAN
- IP protocol: IPv4
- Transmit protocol: UDP
- IP address: set via web end or OSDmenu
- Port address: 52381
- Confirm send/transmission control: depend on applied program
- Applied range: in the same segment, not suitable for bridge network.
- Turn on camera: In the menu, set VISCA option to OVER IP

How to use VISCA over IP

VISCA Command

It means commands from controller to peripheral equipment, when peripheral equipment receives commands, then return ACK. When commands executed, will return complete message.

For different commands, camera will return different message.

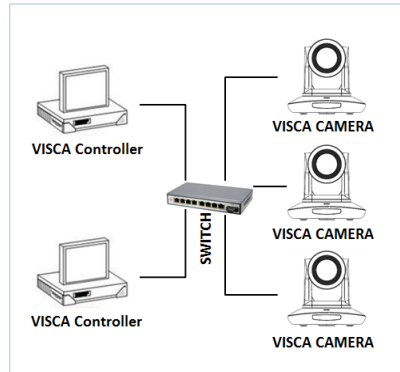
VISCA Inquiry

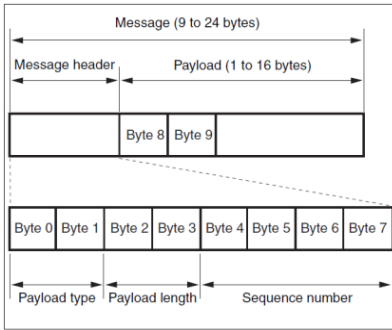
It means inquiry from controller to peripheral equipment when peripheral equipment receives this kind of commands, it will return required message.

VISCA Reply

It means ACK, complete message, reply or error reply, it is sent from peripheral equipment to controller.

Command format: the following is message head and valid message format.





Note: LAN output way is big-endian, LSB is in the front.

Payload type:

Data definition as following:

| Name | Value (Byte 0) | Value (Byte 0) | Value (Byte 0) |
|------------------------------|----------------|----------------|--|
| VISCA command | 0x01 | 0x00 | Stores the VISCA command. |
| VISCA inquiry | 0x01 | 0x10 | Stores the VISCA inquiry. |
| VISCA reply | 0x01 | 0x11 | Stores the reply for the VISCA command and VISCA inquiry, or VISCA device setting command. |
| VISCA device setting command | 0x01 | 0x20 | Stores the VISCA device setting command. |
| Control command | 0x02 | 0x00 | Stores the control command. |
| Control reply | 0x02 | 0x01 | Stores the reply for the control command. |

Payload length

Valid data length in Payload (1~16), is command length.

For example, when valid data length is 16 byte

Byte 2 : 0x00

Byte 3 : 0x10

Controller will save sequence number of each command, when one command sent, the sequence number of the command will add 1, when the sequence number becomes the max value, it will change to 0 for next time. The peripheral equipment will save sequence number of each command, and return the sequence number to the controller.

Payload

According to Payload type, the following data will be saved.

- VISCA command
Save VISCA command packet
- VISCA inquiry
Save VISCA message packet
- VISCA reply

Save VISCA return packet

- VISCA device setting command

Save VISCA equipment setting command packet.

- Control command

The following data is saved in control command payload

| Name | Value | Description |
|-------|--------|--|
| RESET | 0x01 | Resets the sequence number to 0. The value that was set as the sequence number is ignored. |
| ERROR | 0x0Fyy | yy=01: Abnormality in the sequence number. |
| | | yy=02: Abnormality in the message (message type) |

- **Controlled reply**

The following data is saved in return command payload of control command.

| Message | Value | Description |
|---------|-------|------------------|
| ACK | 0x01 | Reply for RESET. |

Delivery confirmation

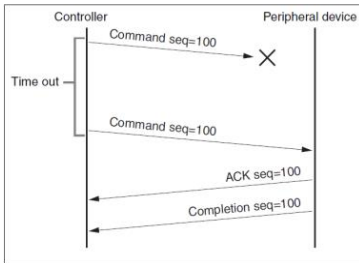
VISCA over IP uses UDP as transmission communication protocol, UDP communication message transmission is not stable, it is necessary to confirm delivery and resent in application.

Generally, when controller sends a command to peripheral equipment, controller will wait for the return message then send the next command, we can detect and confirm if the peripheral equipment receive the commands from return message's lag time. If controller shows it is overtime, it is regarded as error transmission.

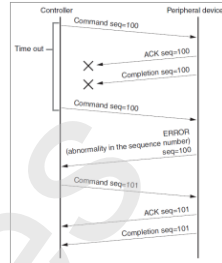
If controller shows it is overtime, resend the commands to check peripheral's status, resend command sequence number is same as last command, the following chart list the received message and status after resending the commands.

| Lost message | Received message for retransmission | Status after retransmission | Correspondence after retransmission |
|---|---|---|--|
| Command | ACK message | Command is performed by retransmission. | Continue processing. |
| ACK message | ERROR (Abnormality in the sequence number.) | Command has been performed. If only the ACK message is lost, the completion message returns. | If the result by the completion message is needed, retransmit by updating the sequence number. |
| Completion message for the command | ERROR (Abnormality in the sequence number.) | Command has been performed. | If the result by the completion message is needed, retransmit by updating the sequence number. |
| Inquiry | Reply message | Inquiry is performed by retransmission. | Continue processing. |
| Reply message for the inquiry | ERROR (Abnormality in the sequence number.) | Inquiry has been performed. | If the result by the reply message is needed, retransmit by updating the sequence number. |
| Error message | Error message | Command is not performed. If the error cause eliminates, normal reply is returns (ACK, reply message). | Eliminate the error cause. If normal reply returns, continue processing. |
| Inquiry of the VISCA device setting command | Reply message of the VISCA device setting command | Inquiry has been performed by retransmission. | Continue processing. |
| Reply message of the VISCA device setting command | ERROR (Abnormality in the sequence number.) | Inquiry has been performed. | If the result by the reply message is needed, retransmit by updating the sequence number. |

Sequence chart as following



Sequence chart when command lost



Sequence chart when returned message lost

Note: Do not set IP address, subnet mask, gateway parameter in VISCA over IP command, otherwise, it will cause network breaks off.

Due to change these parameter, network will be in off status.

