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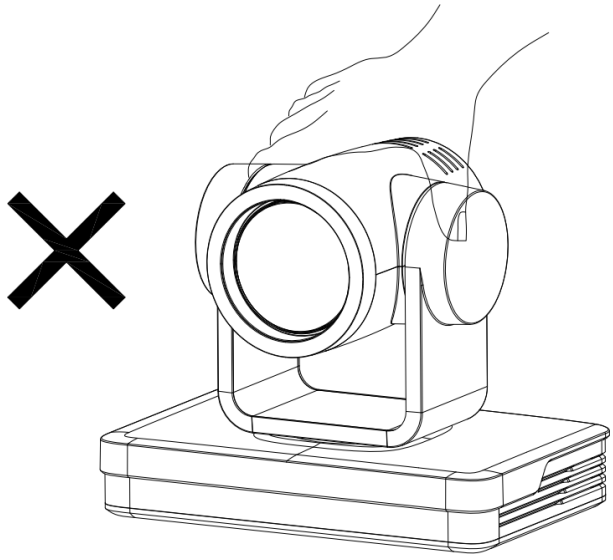
ALFATRON ELECTRONICS GmbH GERMANY

ALF-12X-SDIC
ALF-20X-SDIC
ALF-30X-SDIC

Full HD PTZ Camera User Manual

• Attention

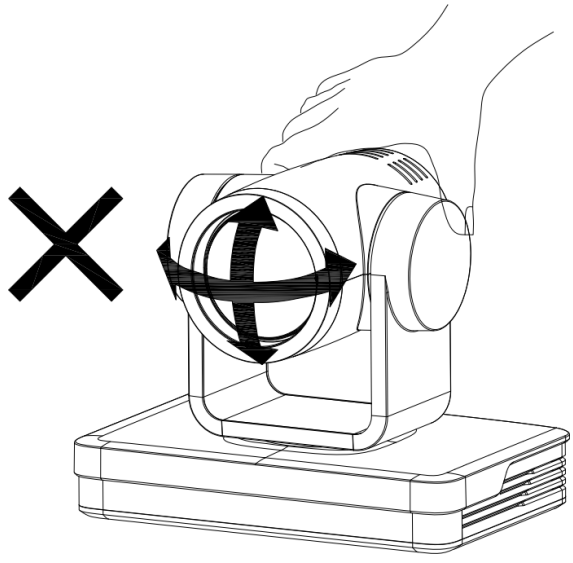
Improper operations may damage the product structure and result in mechanical failure. Please note the following tips:



⚠ Do not move the camera by grabbing the head.

Move the camera by holding the bottom with one or both hands.

⚠ Please do not rotate the lens and holder manually regardless if the camera is powered on or off; this may damage the camera structure and cause the camera self-check to fail and be unable to start the camera



CE FC EAC CAN ICES-3 (B)/NMB-3(B)

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

---Reorient or relocate the receiving antenna.

---Increase the separation between the equipment and receiver.

---Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

---Consult the dealer or an experienced radio/TV technician for help.

WARNING: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Do not dispose of this product with the normal household waste at the end of its life cycle. Return it to a collection point for the recycling of electrical and electronic devices. This is indicated by the symbol on the product, user manual or packaging

The materials are reusable according to their markings. By reusing, recycling or other forms of utilization of old devices you make an important contribution to the protection of our environment.

Please contact your local authorities for details about collection points.

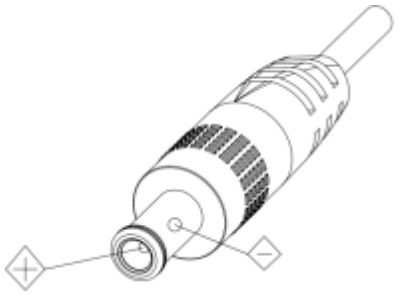
This manual introduces functions, installations, and operations for this PTZ camera in detail. Please read this manual carefully before installation and use.

1. Cautions

1.1 Avoid damage to the product caused by heavy pressure, strong vibration, or immersion during transportation, storage, and installation.
1.2 Housing of this product is made of organic materials. Do not expose it to any liquid, gas, or solids that may corrode the shell.
1.3 Do not expose the product to liquid or moisture.
1.4 To prevent the risk of electric shock, do not open the housing. Installation and maintenance should only be carried out by qualified technicians.
1.5 Do not use the product beyond the specified temperature, humidity, or power supply specifications.
1.6 Wipe it with a soft, dry cloth when cleaning the camera lens. Wipe it gently with a mild detergent if needed. Do not use strong or corrosive detergents to avoid scratching the lens and affecting the image.
1.7 This product contains no parts which can be maintained by users themselves. Any damage caused by dismantling the product by the user without permission voids the warranty.

2. Electrical Safety

Installation and use of this product must strictly comply with local electrical safety standards.
The power supply of the product is ±12V, the max electrical current is 2A.



3. Installation

3.1 Do not rotate the camera head forcefully, it may cause mechanical failure.
3.2 This product should be placed on a stable desktop or another horizontal surface. Do not install the product obliquely, otherwise, it may display an inclined image.
3.3 Ensure there are no obstacles within the rotation range of the holder.
3.4 Do not power on before completing the installation.

4. Magnetic Interference

Electromagnetic fields at specific frequencies may affect the video image. This product is Class A. It may cause radio interference in the household application. The appropriate measure is required.

Content

1. Camera Installation

1.1 Camera Introduction

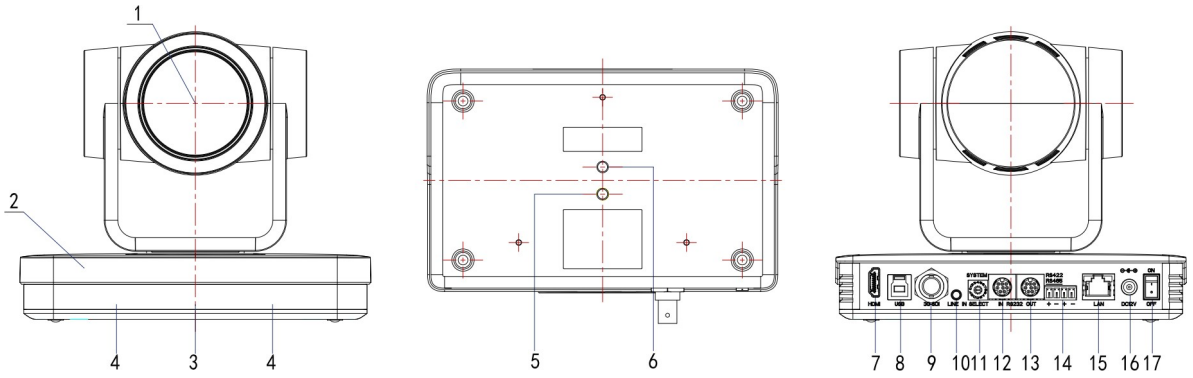


Figure 1.1 Interface of the SDIC models (All models)

1. Camera Lens
2. Camera Base
3. Remote Control Receiving Indicator
4. Infrared Receiver
5. Tripod Screw Hole
6. Screw Hole for Tripod
7. HDMI Output
8. USB3.0 Output
9. SDI Output

10. Audio Input Interface (Line-in)
11. Rotary DIP Switch
12. RS232 Control Interface (input)
13. RS232 Control Interface (output)
14. RS422 Interface (Compatible with RS485)
15. Network Interface (LAN)
16. DC12V Input Power Supply Socket
17. Power Switch

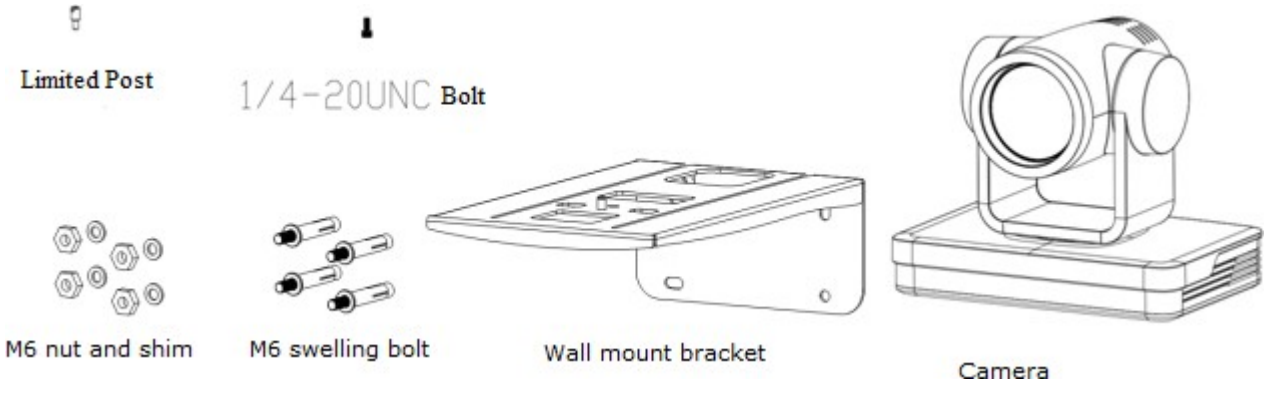
1.2 General Operation at Boot up

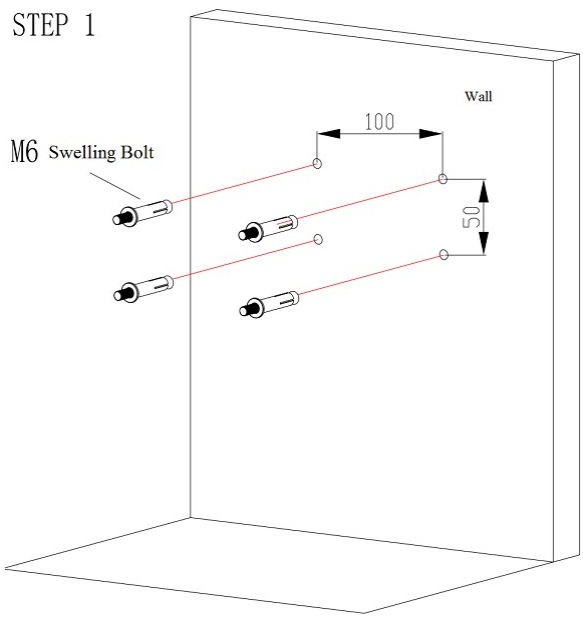
1) After powering on and self-checking, the camera will automatically return to the preset 0 position if it's pre-set.
2) The default address for the IR remote control is 1#.
If the unit is restored to factory defaults, the remote control default address will restore to 1#.

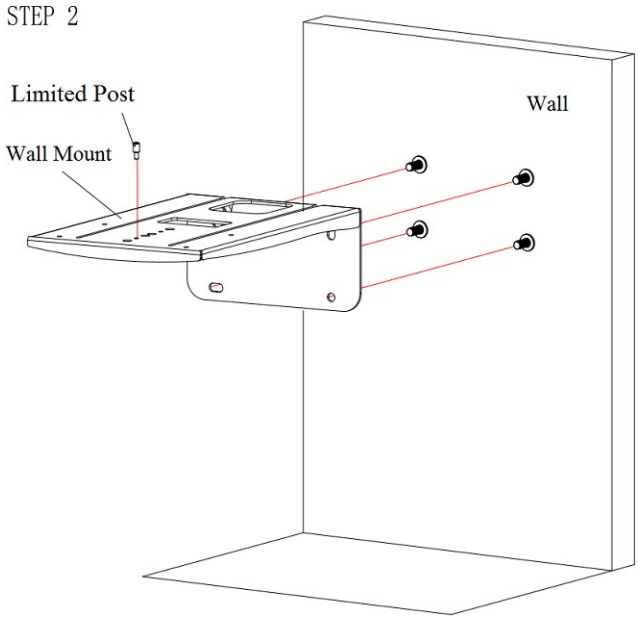
1.3 Mounting Brackets

Notes:
Ceiling or wall mounting brackets can only be mounted on template and concrete wall.
For safety reasons, plasterboard is not recommended.

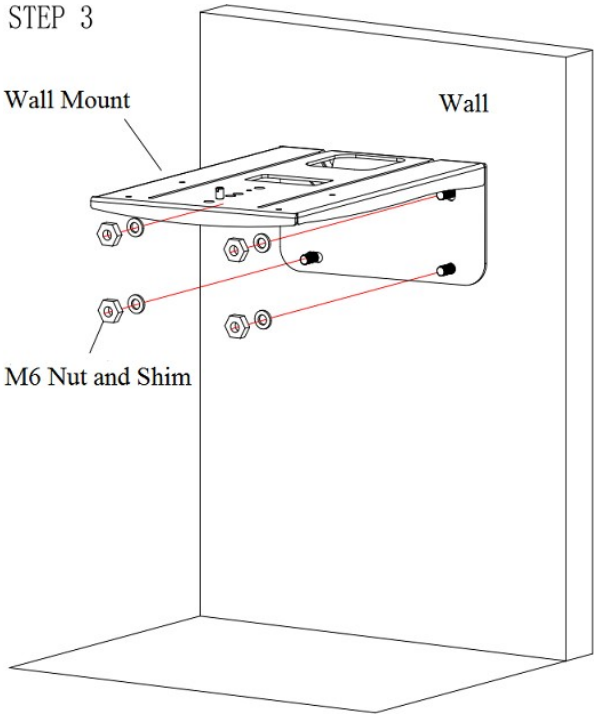
1) **Wall Mounting:**



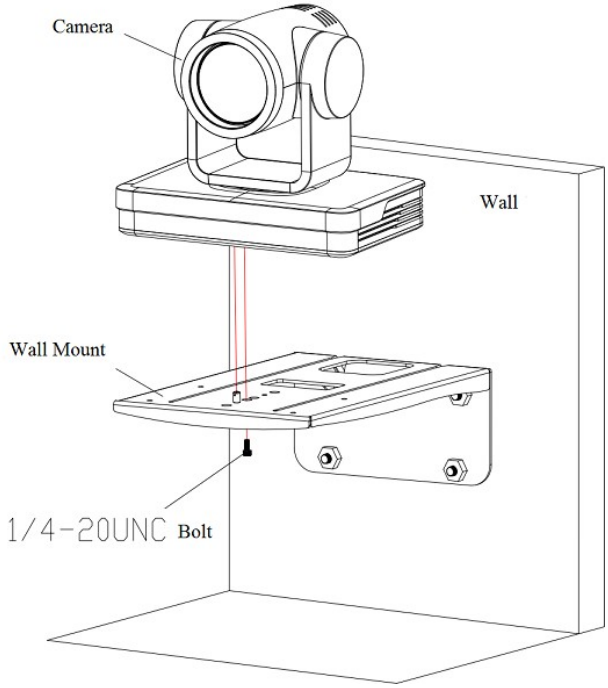




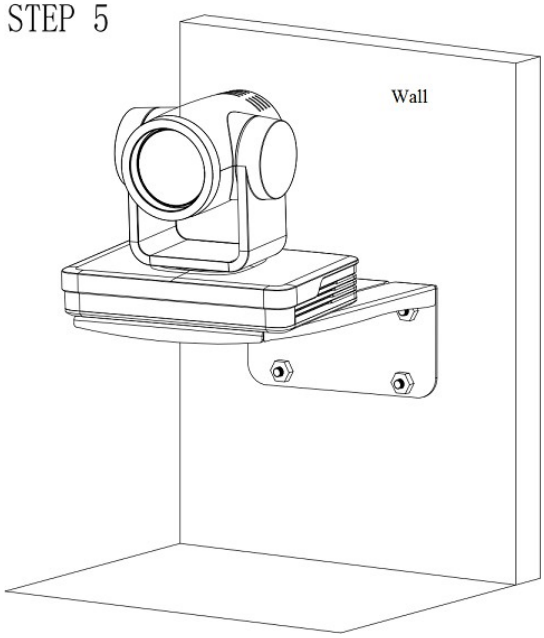
STEP 3



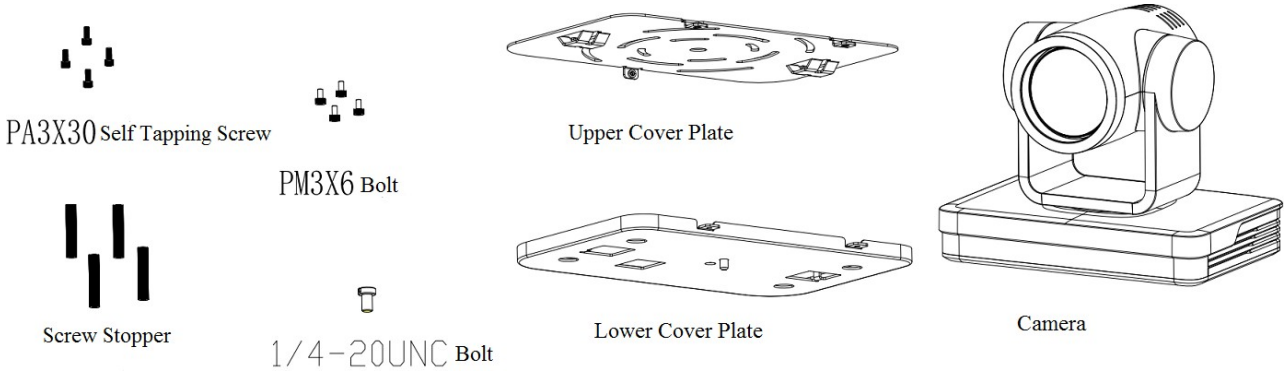
STEP 4

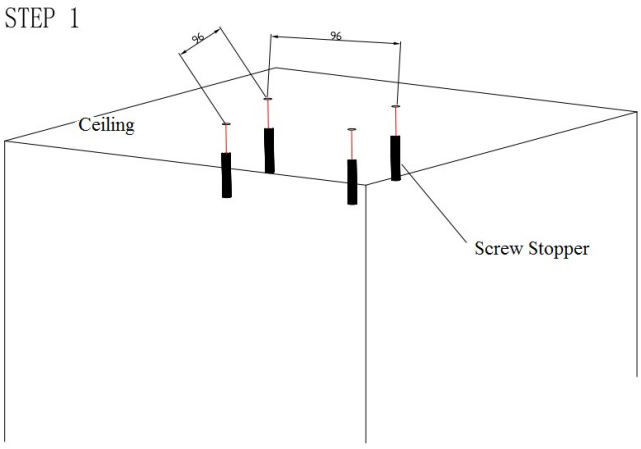


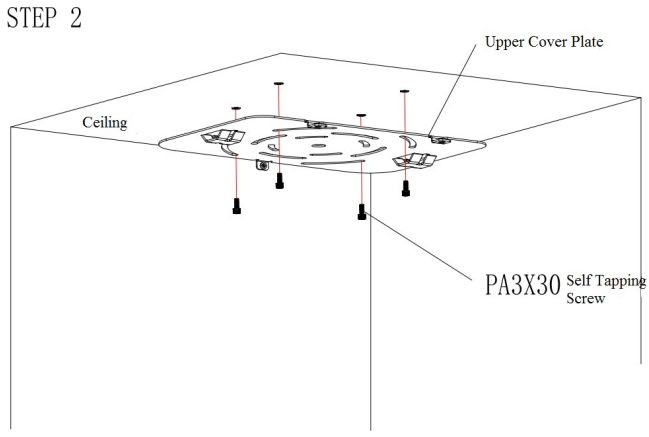
STEP 5

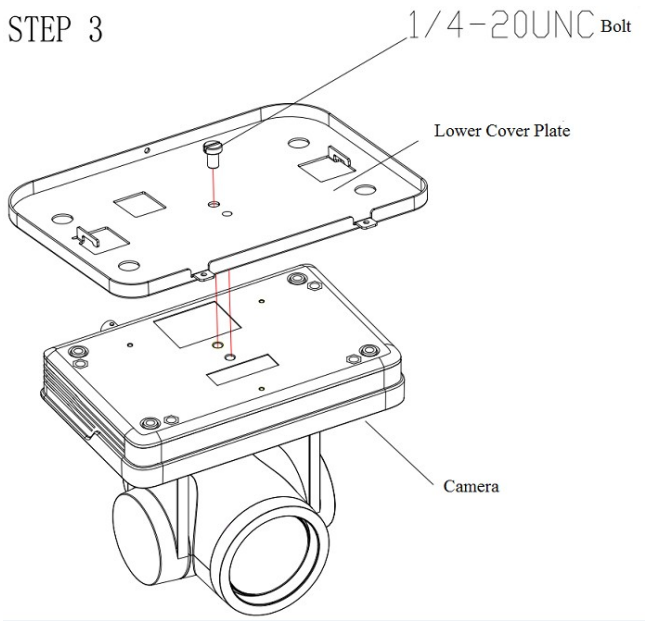


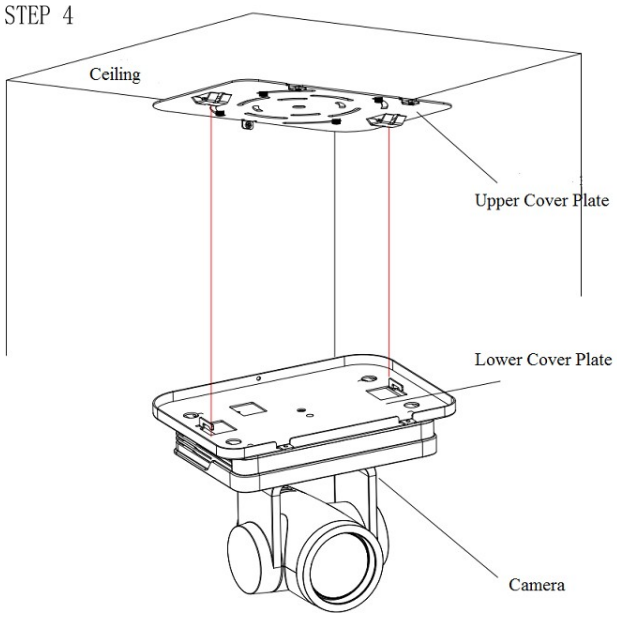
2) Ceiling Mounting

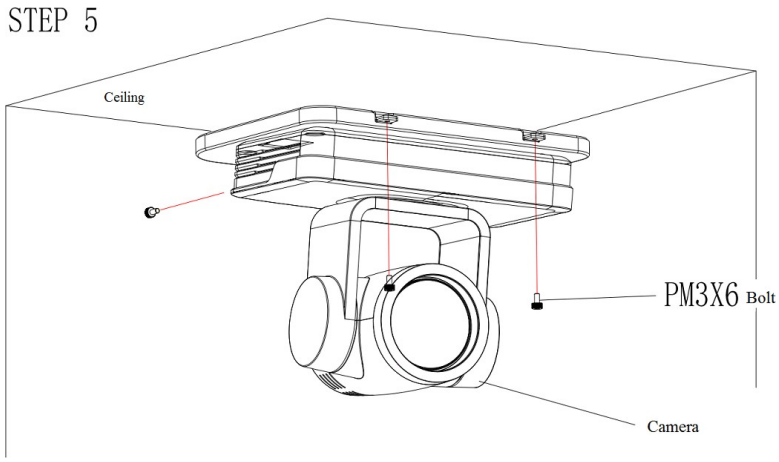












2. Product Overview

2.1 Dimension

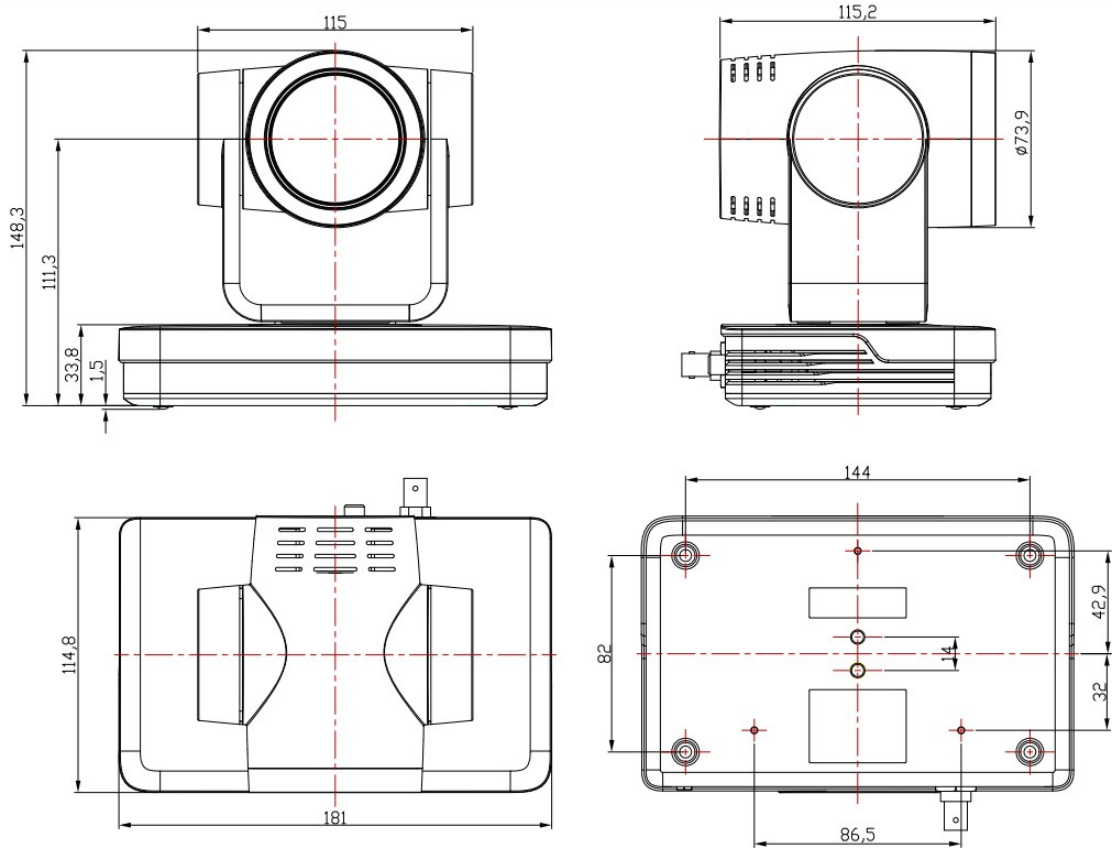


Figure 2.2 Product Dimension

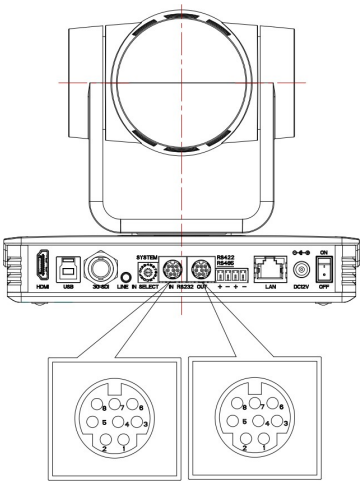
2.2 Accessory

Please check below standard and optional accessories when unpacking the box.

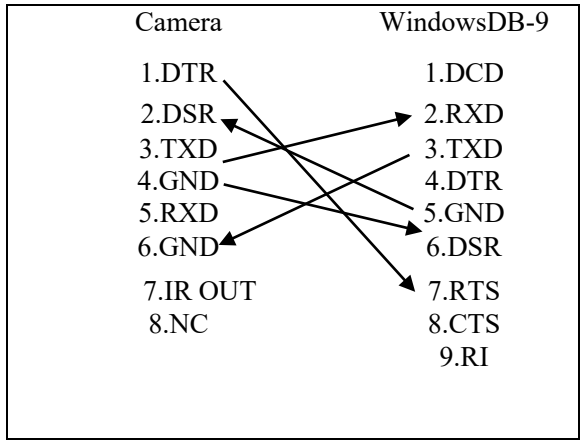
Standard Accessory	Optional Accessory
Power adapter	Wireless Remote Control
IR Remote Control	Ceiling Mount
RS232 Cable	Wall Mount
User Manual	
USB3.0 Cable	

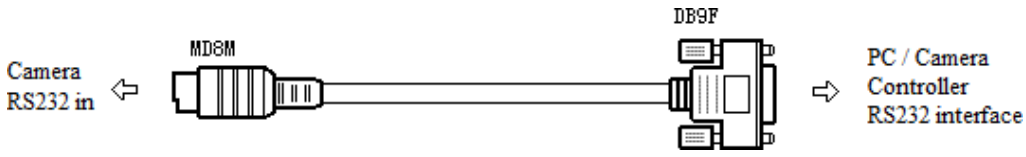
2.3 RS-232 Interface

1). RS-232 Interface Definition

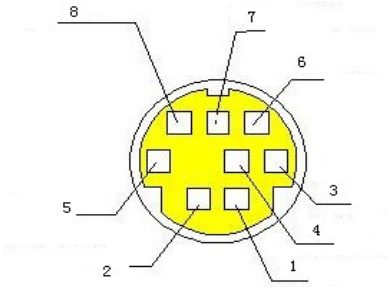


Connection to PC or Camera Controller



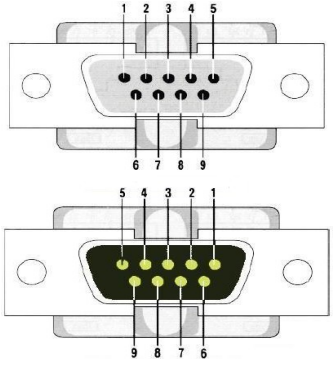


2). RS232 Mini-DIN 8-pin: Port Definition



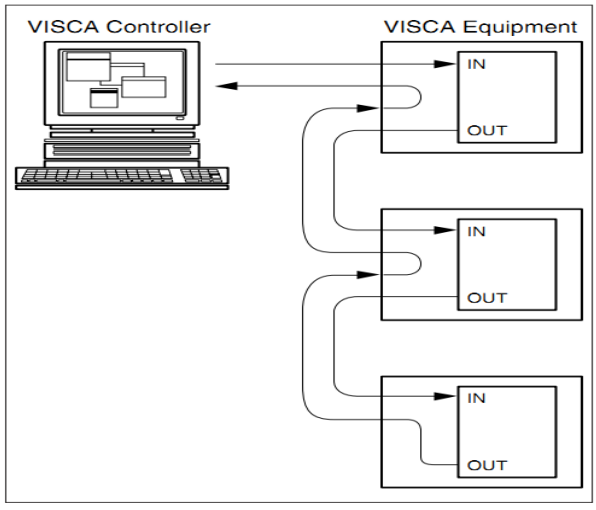
NO.	Port	Definition
1	DTR	Data Terminal Ready
2	DSR	Data Set Ready
3	TXD	Transmit Data
4	GND	Signal Ground
5	RXD	Receive Data
6	GND	Signal Ground
7	IR OUT	IR Commander Signal
8	NC	No Connection

3). RS232 (DB9) Port Definition



NO.	Port	Definition
1	DCD	Data Carrier Detect
2	RXD	Receive Data
3	TXD	Transmit Data
4	DTR	Data Terminal Ready
5	GND	System Ground
6	DSR	Data Set Ready
7	RTS	Request to Send
8	CTS	Clear to Send
9	RI	Ring Indicator

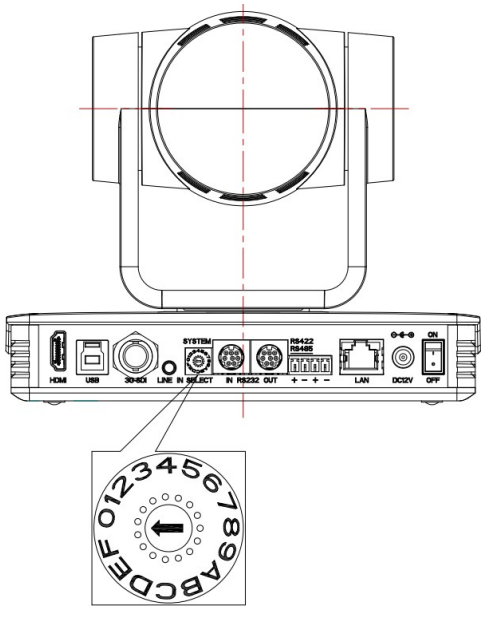
4). VISCA networking as shown below:



Camera cascade connection

Camera 1	Camera 2
1.DTR	1.DTR
2.DSR	2.DSR
3.TXD	3.TXD
4.GND	4.GND
5.RXD	5.RXD
6.GND	6.GND
7.IR OUT	7.OPEN
8. NC	8.OPEN

2.4 Rotary DIP Switch



Dial-up	video format	Dial-up	video format
0	1080P60	8	720P30
1	1080P50	9	720P25
2	1080I60	A	1080P59.94
3	1080I50	B	1080I59.94
4	720P60	C	720P59.94
5	720P50	D	1080P29.97
6	1080P30	E	720P29.97
7	1080P25	F	video format to be set on the menu

Note: 1. Please remember to reboot the camera to take effect when video format is switched.
2. If switched to F, please power off and reboot for setting to take effect.

2.5 Main Features

This series camera has exceptional functionality, superior performance and rich video output interfaces. Featuring advanced ISP processing algorithms, offering vivid and high resolution video with a strong sense of depth and fantastic color rendition. It supports H.264/H.265 encoding which makes motion video more fluent and clear under low bandwidth conditions.

- **Full HD Resolution:** 1/2.8 inch high quality CMOS sensor. Resolution is up to 1920x1080 with frame rate up to 60 fps.
- **Multiple Optical Zoom Lens:** 12X/20X/30X optical zoom lens.
- **Leading Auto Focus Technology:** Fast, accurate and stable auto focusing technology.
- **Low Noise and High SNR:** Super high SNR image is achieved with low noise CMOS. Advanced 2D/3D noise reduction technology further reduces the noise while ensuring high image clarity.
- **Multiple video output interfaces:** HDMI, SDI, USB3.0, LAN.
  Simultaneously output audio and video signal via HDMI, SDI, USB3.0 and LAN. LAN supports POE power supply, USB3.0 supports dual stream output, SDI output up to 100M with 1080P@60fps.
- **Multiple Audio/Video Compression Standards:** Supports H.264/H.265 video compression, up to 1920×1080 resolution at 60 fps; supports AAC, MP3 and G.711A audio compression, 8000,16000,32000,44100,48000 sampling frequency
- **Built-in Gravity Sensor:** Supports PTZ auto-flip function and easy installation.
- **Multiple Network Protocol:** Supports ONVIF, GB/T28181, RTSP, RTMP protocols; Supports RTMP push mode, which can easily be connected to streaming server (Wowza,FMS); Supports RTP multicast mode; Supports network full command VISCA control protocol.
- **Control Interface:** RS422 compatible with RS485, RS232-IN, RS2323-OUT, RS232 (cascade connection) .
- **Multiple Control Protocol:** Supports VISCA, PELCO-D, PELCO-P protocols, and automatic identification protocols.
- **Quiet Pan / Tilt Movement**: With a high accuracy step driving motor, camera can pan / tilt is extremely quiet and smooth.
- **Auto sleep function:** Auto sleep/wake up function with low power consumption, less than 400mw.
- **Multiple presets:** Up to 255 presets (10 presets via remote control).
- **IR / Wireless Remote Control:** Users can choose IR remote control or wireless remote control according to different conditions. 2.4G wireless remote control is not affected by the angle, distance or infrared interference. Far-end-control is also available.
- **Multiple Applications:** Online-education, Lecture Capture, Webcasting, Video conferencing, Tele-medicine, Unified Communication, Emergency command and control systems, etc.

2.6 Technical Parameter

Model	**12X**	**20X**	**30X**		
Camera Parameter					
Optical Zoom	12X f=3.9-46.8mm	20X 5.2-98mm	30X f=4.3-129mm		
Sensor	1/2.8 inch high quality HD CMOS sensor				
Effective Pixels	16: 9, 2.07 megapixel				
Video Format	**HDMI/SDI video format** 1080P60/50/30/25, 1080I60/50, 720P60/50 **USB3.0 interface video format:** **Main Stream:** YUY2/MJPEG/NV12/H.264/H.265: 1920×1080P30,1280×720P30,1024×576P30,960×540P30,800×448P30,720×480P30,640×360P30, 640×480P30,320×176P30 **Sub Stream:** YUY2/NV12: 640×360P30,640×480P30,320×176P30 MJPEG/H.264/H.265: 1920×1080P30,1280×720P30, 1024×576P30,960×540P30,800×448P30,720×480P30,640×360P30, 640×480P30,320×176P30				
View Angle	72.5°(W) 6.3°(T)	56° (W) 3.2°(T)	65°(W) 2.34°(T)		
AV	F1.8 – F2.4	F1.5～ F3.0	F1.6 – F4.7		
Digital Zoom	10X				

Minimum Illumination	0.5Lux (F1.8, AGC ON)
DNR	2D & 3D DNR
White Balance	Auto/Manual/One Push/Specify color temperature (range: 2400k-7100k)
Focus/Aperture/ Electronic Shutter	Auto/Manual/One Push Focus
Iris	Auto/Manual
Shutter	Auto/Manual
BLC	ON/OFF
WDR	OFF/ Dynamic level adjustment
Video Adjustment	Brightness, Color, Saturation, Contrast, Sharpness, B/W mode, Gamma curve
SNR	>50dB
Input/output Interface	
Video Interfaces	HDMI, SDI, LAN (POE), USB3.0 (type B compatible with USB2.0), RS232-IN, RS232-OUT, RS422 (compatible with RS485), A-IN, Rotary DIP switch, DC 12V port, Power Switch
Video Output	HDMI, SDI, LAN, USB3.0
Video Stream	Dual stream output for primary and secondary streams
Video Compression Format	LAN Interface: H.265, H.264, Dual stream output USB3.0 Interface: YUY2, MJPEG, H.264, NV12, H.265
Audio Input Interface	Stereo unbalanced 3.5mm input
Audio Output Interface	HDMI, SDI, LAN, USB3.0
Audio Compression Format	AAC/MP3/G.711A
Control Interface	RS232-IN, RS232-OUT, RS422 (compatible with RS485)
Control Protocol	VISCA/Pelco-D/Pelco-P, Baud Rate: 115200/38400/9600/4800/2400bps
Power Interface	HEC3800 outlet (DC12V)
Input Voltage	DC12V±10%
Input Electric Current	Maximum: 1A
Power Consumption	Maximum: 12W
Network Protocols	RTSP, RTMP, ONVIF, GB/T28181; Network VISCA control protocol; Support remote upgrade, reboot and reset
USB Communication	UVC (Video)，UAC (Audio)
PTZ Parameter	
Pan/Tilt Rotation	±170°, -30°～+90°
Pan Control Speed	0.1 - 100°/sec
Tilt Control Speed	0.1- 45°/sec
Preset Speed	Pan: 100°/sec, Tilt: 45°/sec
Preset Number	255 presets (10 presets via remote control)
Other Parameter	
Stored Temperature	-10℃~+70℃

Storage Humidity	20%~95%
Working Temperature	-10℃~+50℃
Working Humidity	20%~80%
Dimension	181mmX115mmX149mm
Weight	1.15KG
Accessory	
Package	Power Supply, RS232 Control Cable, USB3.0 cable(U3 model), IR Remote Control, User Manual
Optional Accessories	Ceiling / Wall Mount (Extra Cost)

3. Remote Control

3.1 Match Code for Wireless Remote Control

One to One Code Matching:

Press the "set" and "*" keys together for 3 seconds then the LED indicator will start flashing. The camera receives the signal and powers on, LED indicator will go off if code matching is successfull. The camera can be controlled by this wireless remote control only after one to one code pairing. Otherwise, please clear the code matching of this remote control, or use other remote control to pair with the camera again.

If one to one code matching fails, the red LED light will flash for 20 seconds and then switch off, camera will stop code matching and go into sleep mode; Press any key to wake up the camera and re-match the code.

Note: After code matching successfully, please select the camera address to control it.

Clear Code:

Press the "set" and "#" keys together for 3 seconds then the LED indicator will start flashing. Camera will power off and on, the LED indicator will go off if clearing the code was successful.

Sleep Mode and Wake Up:

Press any key to wake up the camera from sleep mode.

3.2 Keys Introduction for IR Remote Control

1). In this manual, “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 lastly press“【F1】”.

1. Standby Key

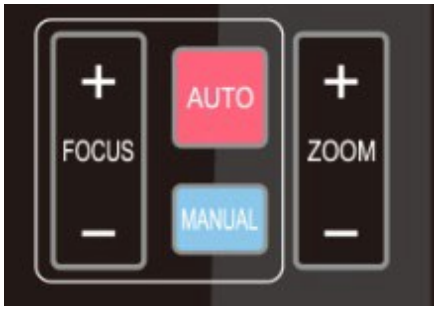
The camera enters standby mode if long press for 3 seconds on standby key;
Long press for 3 seconds again on the standby key, the camera will self-check again and return to HOME position (If preset 0

position is set, the camera will return to preset 0 position).

2. Camera Selection

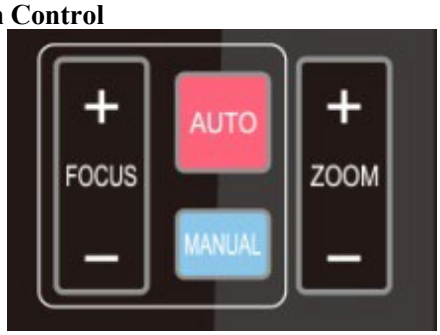
Select the camera address to control.

3. Focus Control



Auto: Auto focus mode
Manual: Manual focus mode
Focus + (near): Press【FOCUS +】key (Valid only in manual focus mode)
Focus - (far): Press【FOCUS -】key (Valid only in manual focus mode)
Press and hold the keys, the focusing action will continue and stop as soon as the key is released.

4. Zoom Control



ZOOM +: press【ZOOM +】key to zoom in
ZOOM - : press 【ZOOM -】key to zoom out
Press and hold the keys, the focusing action will continue and stop as soon as the key is released.

5. Set and Clear Presets

Set Preset: press【SET PRESET】button, and then press the number key 0-9 to set preset positions.
Note: 10 presets via remote control.

Call Preset: Press a number key 0-9 directly to call a preset position.

Clear Preset: press 【CLEAR PRESET】button, and then press the number key 0-9 to clear preset positions.

Note : press the【#】key three times successively to clear all presets.

6. Pan/Tilt Control

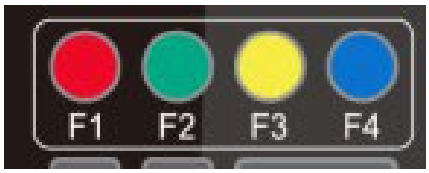
Up: press ◀ Down: press ▲
Left: press ▼ Right: press ◀
Back to middle position: press“【HOME】”

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

7. Menu Setting

【MENU】: Open / close the OSD menu
【HOME】: Camera lens back to the middle position, Confirms menu selection, Enter next menu
【↑】【↓】: Choose item
【←】【→】: Modify values
【BLC ON/OFF】: Turn on or off the back light compensation

8. Camera Remote Control Address Setting



【*】+【＃】+【F1】:Camera Address No.1
【*】+【＃】+【F2】:Camera Address No. 2
【*】+【＃】+【F3】:Camera Address No. 3
【*】+【＃】+【F4】:Camera Address No. 4

9. Key Combination

1) 【#】+【#】+【#】: Clear all presets
2) 【*】+【#】+【6】: Restore factory defaults
3) 【*】+【#】+【3】: Menu set to Chinese
4) 【*】+【#】+【4】: Menu set to English
5) 【*】+【#】+【9】: Flip switch
6) 【*】+【#】+ Auto: Enter aging mode
7) 【#】+【*】+ Auto: Exit aging mode
8) 【*】+【#】+ Manual: Restore the default user name, password, and IP address
9) 【#】+【#】+【0】: Switch the video format to 1080P60
10) 【#】+【#】+【1】: Switch the video format to 1080P50
11) 【#】+【#】+【2】: Switch the video format to 1080I60
12) 【#】+【#】+【3】:Switch the video format to 1080I50
13) 【#】+【#】+【4】: Switch the video format to 720P60
14) 【#】+【#】+【5】:Switch the video format to 720P50
15) 【#】+【#】+【6】: Switch the video format to 1080P30
16) 【#】+【#】+【7】: Switch the video format to 1080P25
17) 【#】+【#】+【8】: Switch the video format to 720P30
18) 【#】+【#】+【9】:Switch the video format to 720P25

Note: If the address of former remote control is not address 1 but either 2, 3, or 4, the corresponding camera address will restore to address 1 when all parameters are restored to factory default. User should change the remote control address to address 1.

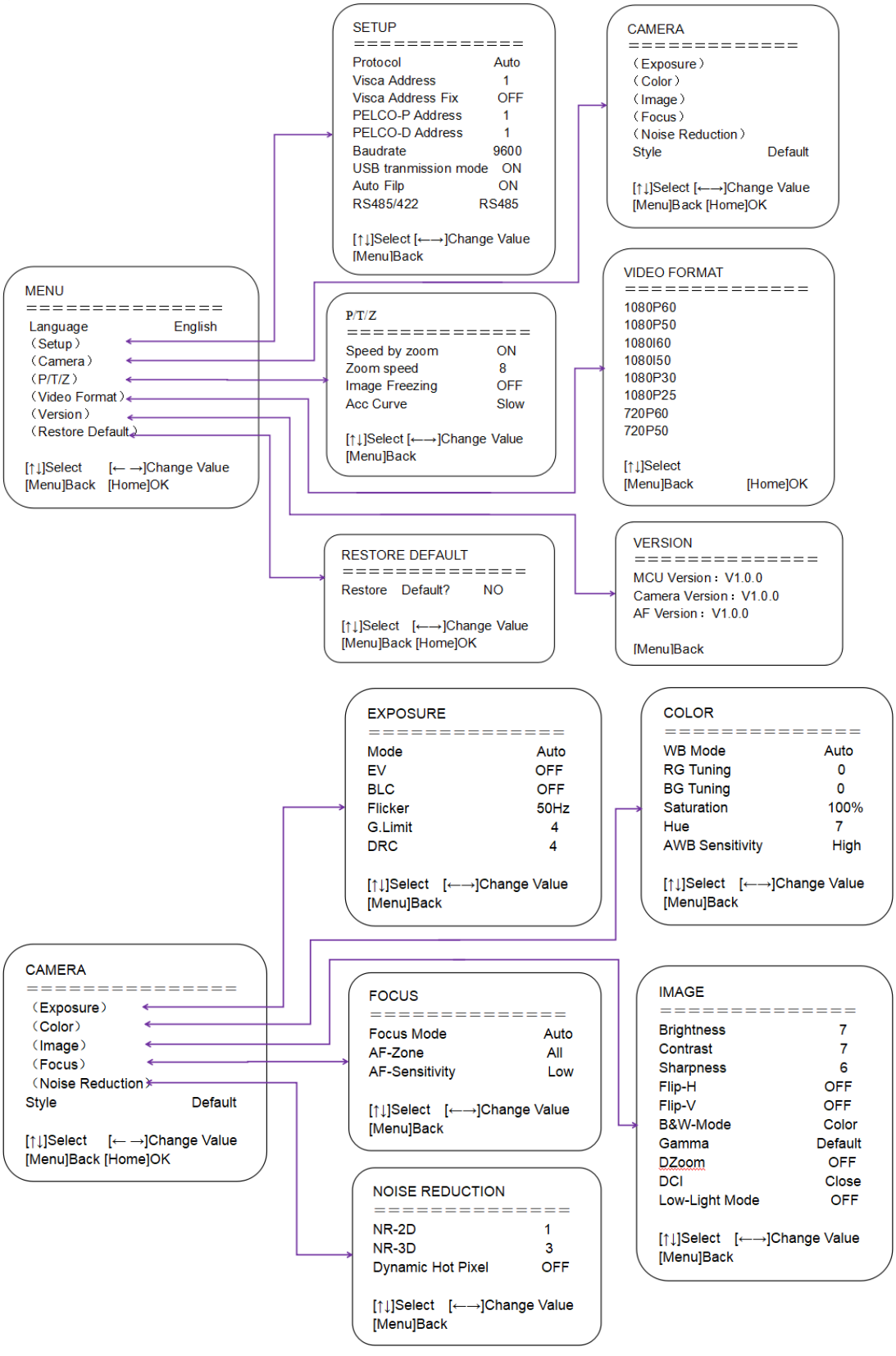
3.3 Menu Introduction

Note: The modification is only valid when the menu is exited before saving and powering off.

1). Menu Control

【MENU】: Enter / exit the OSD menu or return to the previous menu
【HOME】: Enter next menu
【↑】【↓】: Choose item
【←】【→】: Modify values

2). Menu Tree


SETUP
Protocol Auto
Visca Address 1
Visca Address Fix OFF
PELCO-P Address 1
PELCO-D Address 1
Baudrate 9600
USB tranmission mode ON
Auto Filp ON
RS485/422 RS485
[↑↓]Select [←→]Change Value
[Menu]Back
CAMERA
（Exposure）
（Color）
（Image）
（Focus）
（Noise Reduction）
Style Default
[↑↓]Select [←→]Change Value
[Menu]Back [Home]OK
MENU
Language English
（Setup）
（Camera）
（P/T/Z）
（Video Format）
（Version）
（Restore Default）
[↑↓]Select [← →]Change Value
[Menu]Back [Home]OK
P/T/Z
Speed by zoom ON
Zoom speed 8
Image Freezing OFF
Acc Curve Slow
[↑↓]Select [←→]Change Value
[Menu]Back
VIDEO FORMAT
1080P60
1080P50
1080I60
1080I50
1080P30
1080P25
720P60
720P50
[↑↓]Select
[Menu]Back [Home]OK
RESTORE DEFAULT
Restore Default? NO
[↑↓]Select [←→]Change Value
[Menu]Back [Home]OK
VERSION
MCU Version：V1.0.0
Camera Version：V1.0.0
AF Version：V1.0.0
[Menu]Back
EXPOSURE
Mode Auto
EV OFF
BLC OFF
Flicker 50Hz
G.Limit 4
DRC 4
[↑↓]Select [←→]Change Value
[Menu]Back
COLOR
WB Mode Auto
RG Tuning 0
BG Tuning 0
Saturation 100%
Hue 7
AWB Sensitivity High
[↑↓]Select [←→]Change Value
[Menu]Back
CAMERA
（Exposure）
（Color）
（Image）
（Focus）
（Noise Reduction）
Style Default
[↑↓]Select [← →]Change Value
[Menu]Back [Home]OK
FOCUS
Focus Mode Auto
AF-Zone All
AF-Sensitivity Low
[↑↓]Select [←→]Change Value
[Menu]Back
IMAGE
Brightness 7
Contrast 7
Sharpness 6
Flip-H OFF
Flip-V OFF
B&W-Mode Color
Gamma Default
DZoom OFF
DCI Close
Low-Light Mode OFF
[↑↓]Select [←→]Change Value
[Menu]Back
NOISE REDUCTION
NR-2D 1
NR-3D 3
Dynamic Hot Pixel OFF
[↑↓]Select [←→]Change Value
[Menu]Back

4. Network Configuration

4.1 Network Connection

Direct connection: Connect the camera and computer via a network cable.
Internet connection mode: Connect the camera to the Internet via Router or Switcher. User can login to the device via the browser web page.

Note: Please do not put the power cable and network cable in places where can be easily handled to prevent video signal transmission becoming unstable due to poor contact of cables.

The computer must have the network segment that the camera IP address belongs to. The device will not be accessible without the segment. The camera default IP address is **192.168.5.163**, segment 5 must be added in the computer. **Visca Port**: Set Visca port, the device will restart automatically after change (default **1259**; 0-65535 optional).

Firstly open the window of Local Area Connection Properties on computer, select the "Internet protocol version 4(TCP/IPv4)". Double click or click the property "Internet" protocol version 4 (TCP/IPv4) to enter into the Internet Protocol Version 4(TCP/IPv4) Properties window; select "Advanced" to enter into the Advanced TCP/IP Setting and add IP and subnet mask. Click the "Confirm" to finish the adding of IP segment. User can add the corresponding network segment according to the revised IP address of the camera.

Note: The IP address to be added cannot be same with that of other computers or devices. The existence of this IP address needs to be verified before adding.

To verify whether the network segment has been successfully added, click the "Start" and select "Command Prompt" to enter CMD, then click CONFIRM and open DOS command window, ping 192.168.5.26 and press Enter key to display information as shown below:

```
C:\Users\qq214>ping 192.168.5.26

Pinging 192.168.5.26 with 32 bytes of data:
Reply from 192.168.5.26: bytes=32 time<1ms TTL=128
Reply from 192.168.5.26: bytes=32 time=1ms TTL=128
Reply from 192.168.5.26: bytes=32 time<1ms TTL=128
Reply from 192.168.5.26: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.5.26:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\Users\qq214>
```

After camera power on and self-check, follow the steps above to verify network connection.
Open DOS command window, ping 192.168.5.163 and press Enter key.

```
C:\Users\qq214>ping 192.168.5.163

Pinging 192.168.5.163 with 32 bytes of data:
Reply from 192.168.5.163: bytes=32 time=2ms TTL=64
Reply from 192.168.5.163: bytes=32 time=1ms TTL=64
Reply from 192.168.5.163: bytes=32 time<1ms TTL=64
Reply from 192.168.5.163: bytes=32 time=4ms TTL=64

Ping statistics for 192.168.5.163:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 4ms, Average = 1ms

C:\Users\qq214>_
```

4.2 Web Interface Login

1) Web Page Login

Input the default IP address **192.168.5.163** in the browser and click the Enter button to enter into Web Client login page. User can login as administrator and normal user. If logging in as administrator (Default User name/Password: **admin**), users can preview, playback, and set configuration in the Web Client; If logging in as normal user (Default User name/Password: **user1** or **user**

2), 'Users' can only preview, playback and logout, there is no option for configuration.

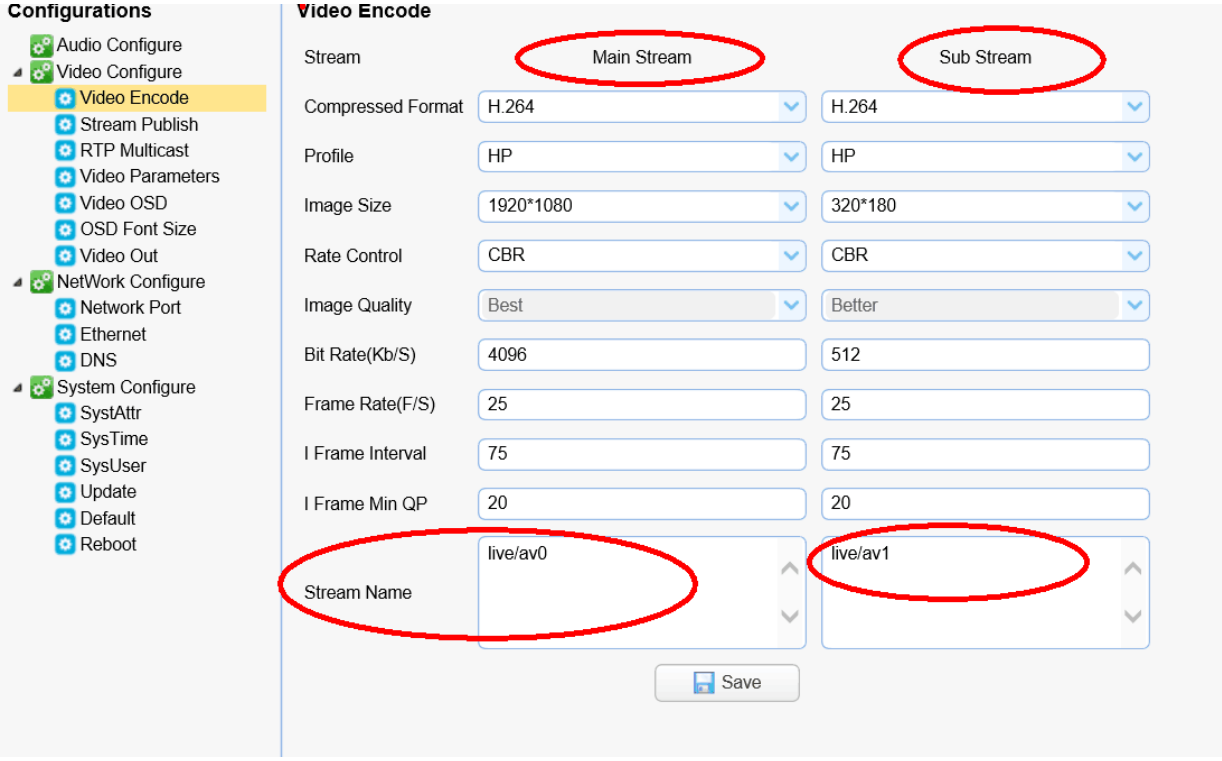
Note: Web access supports most web browsers: IE, 360 browsers and etc.
Chrome login is available after firmware update, but only supports basic configuration and preview video, no functions of recording videos, voice volume, video capture and playback.

3) Web Login Preview

When logged in to the camera's web interface, the preview of the camera image is available to view in the preview tab of the interface. If no image is shown, a camera firmware update may be required to update the camera firmware to accommodate HTML5 support. Please follow steps to perform the firmware update, further instructions are available under the specific camera model firmware download page at www.alfatronelectronics.com

4.3 Streaming

1). Video Stream Capture
Configurations -> Video Configure-> Video Encode



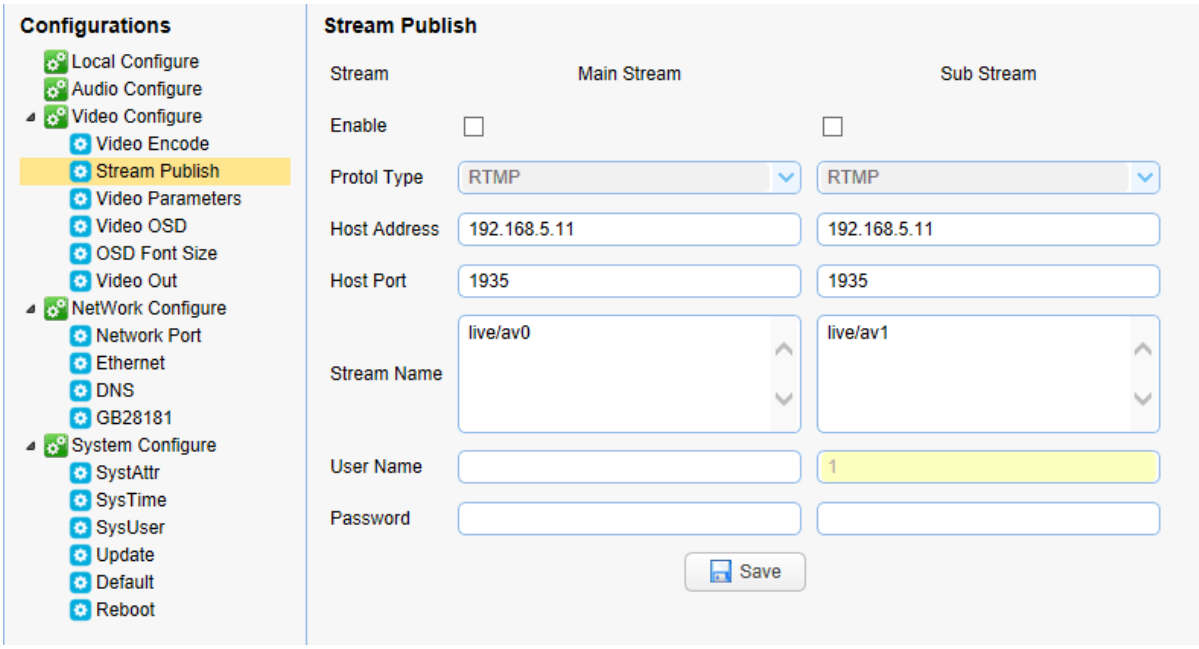
Configure the parameters according to the network environment.
Note: stream name live/av0 (live/ XXX)

For example:
The default IP address of the camera is 192.168.5.163. The way to obtain the RTSP video stream is as per below:
rtsp://192.168.5.163:554/live/av0（av0 main stream）
rtsp://192.168.5.163:554/live/av1（av1 sub stream）

The default IP address of the camera is 192.168.5.163. the way to obtain RTMP video stream is as per below:
rtmp://192.168.5.163:1935/live/av0（av0 main stream）
rtmp://192.168.5.163:1935/live/av1（av1 sub stream）

2). Push Video Stream

Configurations -> Video Configure-> Stream Publish



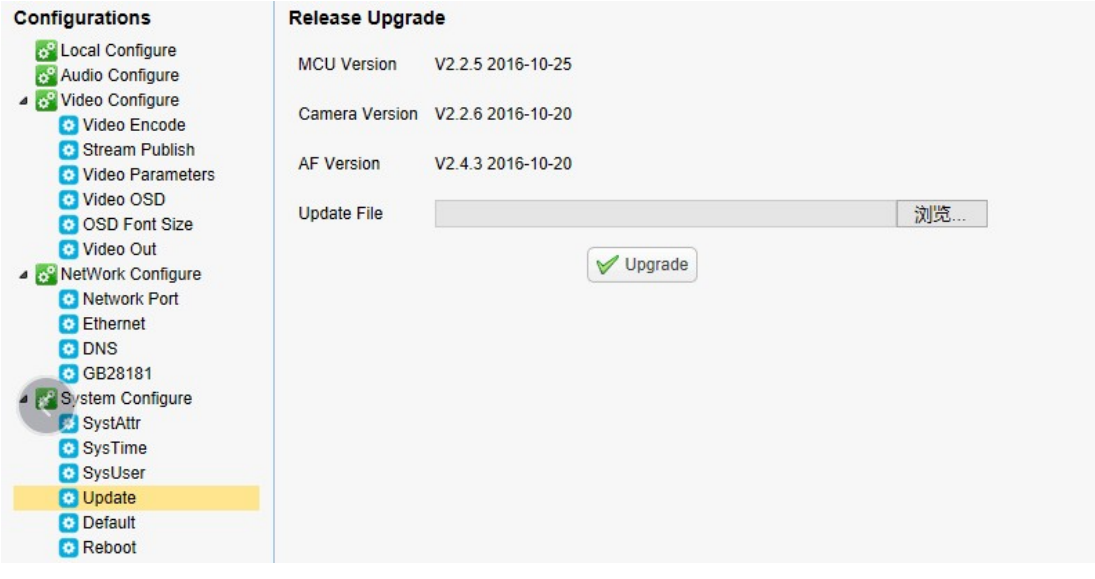
Push RTMP stream to public network server, the stream camera must be on the public network, or else it will fail to connect to the server.

Host address: server address, which can be either a domain name or an IP address
Host port: server default port number
Stream name: live/test (live/ XXX)
Username and password: the username and password set by the server, or leave it empty
Access url：rtmp://host domain name: host port/live/xxx
Or (rtmp://host IP address: host port/live/xxx)

4.4 Software Upgrading

1). Login to the web page to manage camera settings. The default page is preview interface, where users can use PTZ control, record video, preset camera positions etc.

2). Configurations -> System Configure-> Update



3). Click "browse" to select .mrg update file, then click on the upgrade button to finish software upgrading.
4). Camera will reboot after completion of firmware update. It prompts with "successful upgrade".
Log in to check the firmware version to make sure software upgrade successful.
Then click "restore factory default", reboot and restore parameters to factory default (default IP 192.168.5.163, user name: admin; password admin).

5. Serial port communication and control

The camera could be controlled through RS232/RS485 interface; RS232C serial parameter are as follows:
Baud rate: 2400/4800/9600/115200 bits / sec; Start bit: 1; data bits: 8; Stop bit: 1; Parity: None.

5.1 VISCA Protocol 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.

5.2 VISCA Protocol Control Command

Command	Function	Command packet	Note
AddressSet	Broadcast	88 30 0p FF	p：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	
	Tele(Standard)	8x 01 04 07 02 FF	
	Wide(Standard)	8x 01 04 07 03 FF	
	Tele(Variable)	8x 01 04 07 2p FF	p = 0(low) - F(high)
	Wide(Variable)	8x 01 04 07 3p FF	
	Direct	8x 01 04 47 0p 0q 0r 0s FF	pqrs: Zoom Position
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)	8x 01 04 08 2p FF	p = 0(low) - F(high)
	Near (Variable)	8x 01 04 08 3p FF	
	Direct	8x 01 04 48 0p 0q 0r 0s FF	pqrs: Focus Position
	Auto Focus	8x 01 04 38 02 FF	
	Manual Focus	8x 01 04 38 03 FF	

Command	Function	Command packet	Note
	One Push mode	8x 01 04 38 04 FF	
CAM _Zoom Focus	Direct	8x 01 04 47 0p 0q 0r 0s 0t 0u 0v 0w FF	pqrs: Zoom Position tuvw: Focus Position
CAM_AFSensitivity	High	8x 01 04 58 01 FF	Focus sensitivity Setting
	Normal	8x 01 04 58 02 FF	
	Low	8x 01 04 58 03 FF	
CAM_AFZone	Top	8x 01 04 AA 00 FF	Focus Region Setting
	Center	8x 01 04 AA 01 FF	
	Bottom	8x 01 04 AA 02 FF	
	ALL	8x1 01 04 AA 03 FF	
CAM_WB	One Push mode	8x 01 04 35 03 FF	
	One Push Trigger	8x 01 04 10 05 FF	One Push WB Trigger(Enabled during One Push WB mode)
	CAM_WB Mode	8x 01 04 35 pq FF	pq = 00--33 WBMode
CAM_AWBSensitivity	Low	8x 01 04 A9 00 FF	WB Sensitivity Setting
	Normal	8x 01 04 A9 01 FF	
	High	8x 01 04 A9 02 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	
	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
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 Limit	Reset	8x 01 04 0C 00 FF	Gain Limit Setting
	Up	8x 01 04 0C 02 FF	
	Down	8x 01 04 0C 03 FF	
	Gain Limit	8x 01 04 2C 0p FF	p: 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 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	

Command	Function	Command packet	Note
	Direct	8x 01 04 4E 00 00 0p 0q FF	pq: ExpComp Position
CAM_Back Light	On	8x 01 04 33 02 FF	Back Light Compensation
	Off	8x 01 04 33 03 FF	
CAM_WDRStrength	Reset	8x 01 04 21 00 FF	WDR Level Setting
	Up	8x 01 04 21 02 FF	
	Down	8x 01 04 21 03 FF	
	Direct	8x 01 04 51 00 00 00 0p FF	p: WDR Level Positon
CAM_NR	2D	8x 01 04 53 0p FF	P=0-7 0:OFF
	3D	8x 01 04 54 0p FF	P=0-8 0:OFF
CAM_Gamma		8x 01 04 5B 0p FF	p = 0 – 4 0：Default 1：0.45 2：0.503 ：0.55 4：0.63
CAM_Low-Light Mode	ON	8x 01 04 2D 01 FF	Low-Light Mode Setting
	OFF	8x 01 04 2D 00 FF	
CAM_Flicker	OFF	8x 01 04 23 00 FF	OFF
	50HZ	8x 01 04 23 01 FF	50HZ
	60HZ	8x 01 04 23 02 FF	60HZ
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_Picture effect	B&W-Mode	8x 01 04 63 04 FF	Picture effect Setting
	OFF	8x 01 04 63 00 FF	
CAM_Memory	Reset	8x 01 04 3F 00 pq FF	pq: Memory Number(=0 to 254) Corresponds to 0 to 9 on the Remote Commander
	Set	8x 01 04 3F 01 pq FF	
	Recall	8x 01 04 3F 02 pq 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	
CAM_ColorSaturation	Direct	8x 01 04 49 00 00 00 0p FF	P=0-E 0:60% 1:70% 2:80% 3:90% 4:100% 5:110% 6:120% 7:130% 8:140% 9:150% 10:160% 11:160% 12:180% 13:190% 14:200%
CAM_IDWrite		8x 01 04 22 0p 0q 0r 0s FF	pqrs: Camera ID (=0000 to FFFF)
SYS_Menu	ON	8x 01 04 06 06 02 FF	Turn on the menu screen
	OFF	8x 01 04 06 06 03 FF	Turn off the menu screen
IR_Receive	ON	8x 01 06 08 02 FF	IR(remote commander)receive On/Off
	OFF	8x 01 06 08 03 FF	
IR_ReceiveReturn	On	8x 01 7D 01 03 00 00 FF	IR(remote commander)receive message via the VISCA communication ON/OFF
	Off	8x 01 7D 01 13 00 00 FF	
CAM_SettingReset	Reset	8x 01 04 A0 10 FF	Reset Factory Setting
CAM_Brightness	Direct	8x 01 04 A1 00 00 0p 0q FF	pq: Brightness Position
CAM_Contrast	Direct	8x 01 04 A2 00 00 0p 0q FF	pq: Contrast Position
CAM_Flip	OFF	8x 01 04 A4 00 FF	Single Command For Video Flip
	Flip-H	8x 01 04 A4 01 FF	
	Flip-V	8x 01 04 A4 02 FF	
	Flip-HV	8x 01 04 A4 03 FF	
CAM_VideoSystem	Set camera video system	8x 01 06 35 00 0p FF	P: 0~E Video format 0:1080P60 5:720P50 1:1080P50 6:1080P30 2:1080i60 7:1080P25 3:1080i50 8:720P30

Command	Function	Command packet	Note
			4:720P60 9:720P25
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 ZZZZ: Tilt Position
	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-tilt LimitSet	Set	8x 01 06 07 00 0W 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF	W:1 Up Right 0:Down Left 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	

5.3 VISCA Protocol Inquiry 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_FocusAFModeInq	8x 09 04 38 FF	y0 50 02 FF	Auto Focus
		y0 50 03 FF	Manual Focus
		y0 50 04 FF	One Push mode
CAM_FocusPosInq	8x 09 04 48 FF	y0 50 0p 0q 0r 0s FF	pqrs: Focus Position
CAM_AFSensitivityInq	8x 09 04 58 FF	y0 50 01 FF	High
		y0 50 02 FF	Normal
		y0 50 03 FF	Low
CAM_AFZoneInq	8x 09 04 AA FF	y0 01 04 AA 00 FF	Top
		y0 01 04 AA 01 FF	Center
		y0 01 04 AA 02 FF	Bottom
		y0 01 04 AA 03 FF	All
CAM_WBModeInq	8x 09 04 35 FF	y0 50 pq FF	Auto
			pq =WBMode
CAM_AWBSensitivityInq	8x 09 04 A9 FF	y0 50 00 FF	Low
		y0 50 01 FF	Normal
		y0 50 02 FF	High
CAM_RGainInq	8x 09 04 43 FF	y0 50 0B FF	7000K
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_Gain LimitInq	8x 09 04 2C FF	y0 50 0p FF	p: Gain Positon
CAM_ BrightPosiInq	8x 09 04 4D FF	y0 50 00 00 0p 0q FF	pq: Bright Position
CAM_ExpCompModeInq	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_BacklightModeInq	8x 09 04 33 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_WDRStrengthInq	8x 09 04 51 FF	y0 50 00 00 00 0p FF	p: WDR Strength
CAM_NRLevel(2D) Inq	8x 09 04 53 FF	y0 50 0p FF	P: 2DNRLevel
CAM_NRLevel(3D) Inq	8x 09 04 54 FF	y0 50 0p FF	P:3D NRLevel
CAM_FlickerModeInq	8x 09 04 55 FF	y0 50 0p FF	p: Flicker Settings(0: OFF, 1: 50Hz, 2:60Hz)
CAM_ApertureInq	8x 09 04 42 FF	y0 50 00 00 0p 0q FF	pq: Aperture Gain
CAM_PictureEffectModeInq	8x 09 04 63 FF	y0 50 00 FF	Off
		y0 50 04 FF	B&W
CAM_MemoryInq	8x 09 04 3F FF	y0 50 0p FF	p: Memory number last operated.
SYS_MenuModeInq	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_ColorSaturationInq	8x 09 04 49 FF	y0 50 00 00 00 0p FF	p: Color Gain setting 0h (60%) to Eh (130%)
CAM_IDInq	8x 09 04 22 FF	y0 50 0p FF	p: Gamma ID
IR_ReceiveInq	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	Camera _Backlight
		y0 07 7D 01 04 3F FF	Camera _Memery
		y0 07 7D 01 06 01 FF	Pan_titleDriver
CAM_BrightnessInq	8x 09 04 A1 FF	y0 50 00 00 0p 0q FF	pq: Brightness Position
CAM_ContrastInq	8x 09 04 A2 FF	y0 50 00 00 0p 0q FF	pq: Contrast Position
CAM_FlipInq	8x 09 04 A4 FF	y0 50 00 FF	Off
		y0 50 01 FF	Flip-H
		y0 50 02 FF	Flip-V
		y0 50 03 FF	Flip-HV
CAM_GammaInq	8x 09 04 5B FF	y0 50 0p FF	p: Gamma setting
CAM_Low-LightModeInq	8x 09 04 2D FF	y0 50 00 FF	OFF
		y0 50 01 FF	ON
CAM_VersionInq	8x 09 00 02 FF	y0 50 ab cd mn pq rs tu vw FF	ab cd : vender ID (0220) mn pq : model ID rs tu : ARM Version vw : reserve
VideoSystemInq	8x 09 06 23 FF	y0 50 0p FF	P: 0~E Video format 0:1080P60 5:720P50 1:1080P50 6:1080P30 2:1080i60 7:1080P25 3:1080i50 8:720P30 4:720P60 9:720P25
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	wwww: Pan Position zzzz: Tilt Position

Note:[X] in the above table indicates the camera address to be operated,【y】=【x + 8】.

5.4 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
Stop	0xFF	Address	0x00	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

5.5 Pelco-P protocol command list

Function	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7	Byte 8
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
Stop	0xA0	Address	0x00	0x00	0x00	0x00	0xAF	XOR
Focus Far	0xA0	Address	0x01	0x00	0x00	0x00	0xAF	XOR
Focus Near	0xA0	Address	0x02	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

6. Maintenance and Troubleshooting

6.1 Maintenance

1) Please power off the camera and disconnect the power adapter and socket if it's not used for n extended period of time.
2) Use a soft cloth to clean the camera cover.
3) Wipe with a soft, dry cloth when cleaning the camera lens. Wipe gently with a mild detergent if needed. Do not use strong or corrosive detergents to avoid scratching the lens and affecting the video quality.

6.2 Troubleshooting

1) No video output
a. Check whether the camera power supply is connected, if the voltage is normal, and if the power indicator is lit.
b. Whether the camera could do a self-check after restarting.
c. Check whether the bottom of the DIP switch is the normal operating mode (see Table 2.2 and Table 2.3)
d. Check whether the video output cable or video display is normal

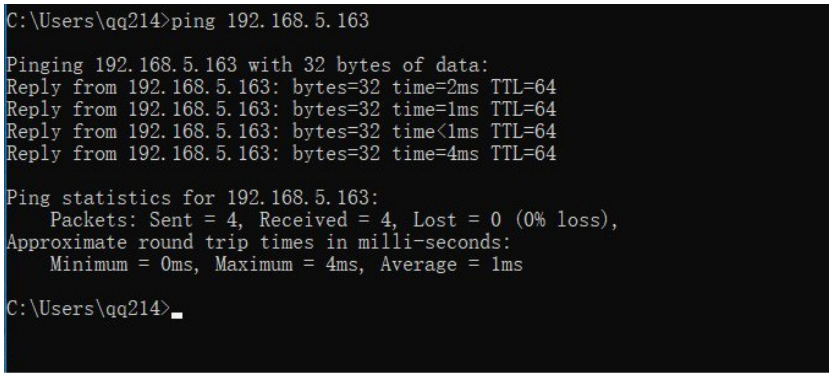
2) No image
a. Check whether the video output cable or video display is normal

3) Video dithering when zoom-in or zoom-out
a. Check whether the camera installation position is solid
b. Whether there is vibrating machine or objects around the camera

4) Remote control does not work
a. Remote control address is set to 1. If the machine is set back to the factory default, remote control addresses need to be put back to 1 too.
b. Check whether the batteries are in the remote controller or if they are low.
c, Check that the camera working mode is in normal operating mode (see Table 2.2 and Table 2.3)
d. Check if the menu is closed. Camera control through remote controller is only available after exiting the menu. If video output is from LAN, menu will not be displayed, menu will automatically exist 30 seconds later, then it can be controlled by remote controller.

5) Serial port not working
a. Check whether the camera serial device protocol, baud rate, and address is consistent.
b. Check whether the control cable is connected properly.
c. Check whether the camera working mode is in normal operating mode.

6) Web pages cannot log in
a. Check if the camera outputs video normally by connecting directly to the screen via HDMI or SDI outputs
b. Check whether the network cable is connected properly (Ethernet port amber light flashes to indicate normal network cable connection)
c. Check that your computer is in the same IP and Subnet range and that the range is consistent with the IP address of the camera. (Camera IP Address is briefly displayed on HDMI output on boot up of camera)
d. Click "Start" and select "Run" and then type "cmd" into the computer; Click "OK" then turn on a DOS command window and type 'ping 192.168.5.163'. Press the Enter key to see message as follows: (below image show network connection is normal)



7. Warranty

1.1 This limited warranty covers defects in materials and workmanship in this product.

1.2 Should warranty service be required, proof of purchase must be presented to the Company. The serial number on the product must be clearly visible and not have been tampered with in any way whatsoever.

1.3 This limited warranty does not cover any damage, deterioration or malfunction resulting from any alteration, modification, improper or unreasonable use or maintenance, misuse, abuse, accident, neglect, exposure to excess moisture, fire, improper packing and shipping (such claims must be presented to the carrier), lightning, power surges, or other acts of nature. This limited warranty does not cover any damage, deterioration or malfunction resulting from the installation or removal of this product from any installation, any unauthorized tampering with this product, any repairs attempted by anyone unauthorized by the Company to make such repairs, or any other cause which does not relate directly to a defect in materials and/or workmanship of this product. This limited warranty does not cover equipment enclosures, cables or accessories used in conjunction with this product.

This limited warranty does not cover the cost of normal maintenance. Failure of the product due to insufficient or improper maintenance is not covered.

1.4 The Company does not warrant that the product covered hereby, including, without limitation, the technology and/or integrated circuit(s) included in the product, will not become obsolete or that such items are or will remain compatible with any other product or technology with which the product may be used.

1.5 Only the original purchaser of this product is covered under this limited warranty. This limited warranty is not transferable to subsequent purchasers or owners of this product.

1.6 Unless otherwise specified, the goods are warranted in accordance with the manufacturer's product specific warranties against any defect attributable to faulty workmanship or materials, fair wear and tear being excluded.

1.7 This limited warranty only covers the cost of faulty goods and does not include the cost of labor and travel to return the goods to the Company's premises.

1.8 In the event of any improper maintenance, repair or service being carried out by any third persons during the warranty period without the Company's written authorization, the limited warranty shall be void.

1.9 A 7 (seven) year limited warranty is given on the aforesaid product where used correctly according to the Company's instructions, and only with the use of the Company's components.

1.10 The Company will, at its sole option, provide one of the following three remedies to whatever extent it shall deem necessary to satisfy a proper claim under this limited warranty:

1.10.1 Elect to repair or facilitate the repair of any defective parts within a reasonable period of time, free of any charge for the necessary parts and labor to complete the repair and restore this product to its proper operating condition.; or

1.10.2 Replace this product with a direct replacement or with a similar product deemed by the Company to perform substantially the same function as the original product; or

1.10.3 Issue a refund of the original purchase price less depreciation to be determined based on the age of the product at the time remedy is sought under this limited warranty.

1.11 The Company is not obligated to provide the Customer with a substitute unit during the limited warranty period or at any time thereafter.

1.12 If this product is returned to the Company this product must be insured during shipment, with the insurance and shipping charges prepaid by the Customer. If this product is returned uninsured, the Customer assumes all risks of loss or damage during shipment. The Company will not be responsible for any costs related to the removal or reinstallation of this product from or into any installation. The Company will not be responsible for any costs related to any setting up this product, any adjustment of user controls or any programming required for a specific installation of this product.

1.13 Please be aware that the Company's products and components have not been tested with competitor's products and therefore the Company cannot warrant products and/or components used in conjunction with competitor's products.

1.14 The appropriateness of the goods for the purpose intended is only warranted to the extent that the goods are used in accordance with the Company's installation, classification and usage instructions.

1.15 Any claim by the Customer which is based on any defect in the quality or condition of the goods or their failure to correspond with specification shall be notified in writing to the Company within 7 days of delivery or (where the defect or failure was not apparent on reasonable inspection by the Customer) within a reasonable time after discovery of the defect or failure, but, in any event, within 6 months of delivery.

1.16 If delivery is not refused, and the Customer does not notify the Company accordingly, the Customer may not reject the goods and the Company shall have no liability and the Customer shall pay the price as if the goods had been delivered in accordance with the Agreement.

1.17 THE MAXIMUM LIABILITY OF THE COMPANY UNDER THIS LIMITED WARRANTY SHALL NOT EXCEED THE ACTUAL PURCHASE PRICE PAID FOR THE PRODUCT.