

# User Manual

## for Explosion-proof PTZ Camera

### Function and Installation

**YK-EP2014-EX\*\*\*/YK-EP2014S-EX\*\*\***



Thank you for choosing our product. Please read the User Manual carefully before using the product. The User Manual will provide you appropriate instructions for installation and use.

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# Contents

- 1. PRECAUTIONS FOR SAFETY.....2**
  - 1.1 Warning ..... 2
  - 1.2 Precautions ..... 4
- 2 PRODUCT INTRODUCTION.....4**
  - 2.1 Applications of the Product ..... 4
  - 2.3 Product Features ..... 6
  - 2.4 Technical Parameters ..... 7
- 3 INSTALLATION AND USE .....8**
  - 3.1 Precaution for Installation ..... 8
  - 3.2 Prior-installation Confirmation ..... 9
  - 3.3 Appearance Description ..... 10
  - ..... 10
  - 3.4 Installation Requirements ..... 11
  - 3.5 Installation Steps ..... 12
- 4. CONTROL AND OPERATING INSTRUCTIONS .....14**
  - 4.1 DIP switch settings ..... 14
  - 4.2 Operation instruction ..... 15
- 5. FAULT AND TROUBLESHOOTING .....16**
- 6. NETWORK SETUP.....18**
  - 6.1 Operation Requirement ..... 18
  - 6.2 LAN Access &Active Installation ..... 18
  - 6.3 Setting ..... 20

## 1. PRECAUTIONS FOR SAFETY

### 1.1 Warning

- 1.1.1 Please read the User Manual carefully prior installation and use of the PTZ and hold for safekeeping for later use.

## **Youngkook**User Manual for Explosion-proof PTZ Camera

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- 1.1.2 All warning items on PTZ and in the User Manual shall be abided by, and all operation instructions and use descriptions shall be abided by.
- 1.1.3 Disconnect power prior cleaning. Do not use liquid or spray detergent. Use wet cloth to scrub.
- 1.1.4 Accessories recommended by distributor or our company shall be used. Otherwise PTZ failure might occur.
- 1.1.5 Power category of power supply and voltage specified in the User Manual shall be used for PTZ. Contact distributor or our company in case the power and voltage at installation site is unclear.
- 1.1.6 Protect wires including power wire, connector assembly and camera, etc., appropriately.
- 1.1.7 Please install lightning arrester to avoid damage from lightning stroke. Sufficient distance shall be kept between visual signal transmission and high voltage device or cable, and protective measures like prevention from lightning, surging, etc., shall be available if necessary.
- 1.1.8 Avoid fire or electric shock. Do not make the installation wire of PTZ be too long to cause overload.
- 1.1.9 Prevent foreign matters from entering PTZ and do not let corrosive liquid enter PTZ to avoid hazard.
- 1.1.10 Do not install PTZ on loose shelf or wall. Otherwise it might cause damage to PTZ or man.
- 1.1.11 Do not install and use PTZ in the place which is too humid, dusty or with smoke ash and near heat source.
- 1.1.12 It's strictly forbidden to open cover, since opening cover or separating PTZ might cause electric shock or other hazard, especially where there is explosive gas. Therefore, do not try to repair on your own. Please contact our company for all repairs.
- 1.1.13 In case PTZ gives abnormal smell or smoke, stop use immediately, cut off power supply and contact with supplier. It's strictly forbidden to separate and repair on your own.
- 1.1.14 Contact our company immediately in case of the following circumstances:
  - a. There is damage to power and control wire.

b. Wrong power supply or voltage is used.

c. Parts fall down or shell is damaged.

d. There is abnormality in product performance.

e. PTZ still does not work normally although being operated as per the User Manual.

1.1.15 When replacing spare parts, please use those that are recognized by our company or that are the same with the original ones. Substitutes without recognition might cause hazard.

1.1.16 It's suggested to use threaded fastening adhesive to fasten in installing the product.

### **1.2 Precautions**

1.2.1 Heavy load, strenuous vibration and soaking are forbidden in transit, safekeeping and installation. Otherwise the equipment might be damaged.

1.2.2 The product shall be kept away from vibrating or strong magnetic field.

1.2.3 If you want to change the place where the product has been installed, make sure power has been shut off and then move.

1.2.4 Contact supplier if the product does not work normally. Do not separate or modify the product in any form. Manufacturer bears no responsibility for any problem that has been caused by unapproved separation or repair.

1.2.5 Do not scrub the surface of the product with chemical detergent or other corrosive liquid. Otherwise, the product surface might be deformed or its protective layer might be damaged.

1.2.6 Effective grounding to PTZ shell shall be conducted to guarantee the safety of the equipment inside PTZ.

1.2.7 Do not focus the camera installed inside PTZ at object with strong light for long time. Otherwise, the camera's CCD might become ineffective easily, causing the fault like no image or fuzzy image.

## **2Product Introduction**

### **2.1 Applications of the Product**

The PTZ High-definition integrated explosion-proof head camera , the whole case is made of stainless steel 316. With a full-featured, smooth operation, image clarity, high stability and so on. This series has 360 ° continuous rotation, automatic scanning, automatic cruise and other functions, suitable for large areas of monitoring, can be widely used in chemical, oil, coal and other hazardous environments and hazardous areas of the special environment.

## **2.2 Function**

### **2.2.1 Presetting Bit**

It means the space location corresponded with a set of data including the parameters like PTZ coordinate and lens focal length, focus, etc., that are saved in advance.

Note: Presetting bit function means that PTZ can save the locations parameters of PTZ in current state like its horizontal angle, vertical angle and camera lens, etc., into the memory that isn't prone to be denatured, and those parameters can be called quickly from the memory that isn't prone to be denatured and PTZ and camera lens can be adjusted to the locations recorded if necessary. Operator can timely call presetting bit conveniently and quickly by controlling the setting of the equipment like keyboard, etc.

### **2.2.2 Automatic Route Scan**

The process that PTZ moves horizontally back and forth at certain speed between two fixed points or two preset points.

Note: Left limit point (angle of boundary) and right limit point (angle of boundary) are preset, thus PTZ conducts cruise back and forth between the left and the right limit points can be realized, and the cruise speed can be preset in programming form.

### **2.2.3 Automatic Cruise-control**

The process that PTZ calls presetting bit repeatedly in certain sequence at certain interval.

Note: automatic cruise-control function means to program some presetting bits to automatic cruise-control queue as per required sequence by preset programming, and only one order is needed to let PTZ realize continuous back-and-forth movement in preset sequence of presetting bit at preset interval automatically. Setting presetting bit at various important locations can make PTZ realize automatic cruise-control at presetting bit.

### **2.2.4 Watch Bit**

When PTZ's stand-by time reaches the preset value, functions including presetting bit

adjustment, automatic cruise-control, automatic scan, tracing, and others can be run automatically.

Note: By setting a kind of function for PTZ (such as an important presetting bit, an automatic cruise route, an automatic scan route, etc.), PTZ will execute and call the preset function automatically after keeping preset stand-by time in the stand-by state. Watch bit is sometimes called watch.

### **2.2.5 Compressed Encoding**

The process of transferring the read and input analogue signals into digital signals, and to process digital information to reduce bit numbers and thus generate an effective encoding bit stream that accords with standard.

### **2.2.6 Bitrate**

Bitrate is the data bits transmitted per unit time in data transmission, with unit being kbps, e.g., Kilo-Bytes Per Second.

### **2.2.7 Number of Frames**

Number of image frames per second in video image sequence.

Note: it means the refreshing times by image processor per second, expressed as frames per second (FPS).

## **2.3 Product Features**

**2.3.1** Outdoor intelligent variable speed PTZ, the fuselage selection of high strength aluminum alloy material, exterior design can resist strong winds, smooth operation, high precision.

**2.3.2** Products using high-precision stepper motor and precision worm gear drive combination, power can be self-locking.

**2.3.3** Support a variety of lens preset function, zoom adaptive function, the rotation speed can be automatically adjusted according to the lens zoom factor.

**2.3.4** Products using high-precision stepper motor and precision worm gear drive combination, power can be self-locking.

**2.3.5** Powerful, with preset, cruise, line sweep, keep watch and other functions.

**2.3.6** Visual pitch angle range, monitoring a wide range of horizontal speed up to 60 °/s.

**2.3.7** Equipment has its own automatic heating system, low temperature Introduction automatically start heating function, to ensure that products can be applied to cold areas.

**2.3.8**Network transmission signal can reach 100Mbps.

**2.3.9**Device supports RS485 / RS422 communication interface, you can remotely upgrade the device program, easy to maintain.

**2.3.10**Power failure memory function, accidental power after re-power, the memory of the last running state, can be restored to power before running state.

Default parameter	
IP	192.168.1.20
Name	admin
Password	123456

**2.4 Technical Parameters**

Type	YK-EP2014-EX***	YK-EP2014S-EX***
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Power	AC24V±25%, 50/60Hz	
Rotation Speed	Horizontal 0.1°/s ~60°/s, Vertical 0.1°/s ~30°/s	
Rotation Angle	Horizontal 0°~360°(continuous rotation), Vertical -90°~+90°	
Presetting Locations	220 (effective) locations	
Preset accuracy	±0.1°	
Lens control speed	Zoom, focus continuously adjustable control speed	
PTZ speed adaptive	support	
Automatic cruise	Support one	
Automatic scanning	Support one	
Keep watch	One preset or one automatic cruise route or one auto scan route can be set	
Power-off memory location	Support (can be restored before the power off position, preset position status, cruise status, line sweep state)	
Protocol	Pelco D or Pelco P	
Communication Interface	Optional RS485 communication, support angle query return Optional RS422, support angle real-time return RJ45 network port	
Voltage input range	AC24V±25%, 50/60Hz	
Power consumption	≤100W	
Product material	Stainless steel 316	
Storage temperature	-40°C~+70°C	
Operating temperature	-25°C~+65°C 90±5%RH ( No heating )	-40°C~+70°C 90±5%RH ( With heating )
Product material	Stainless steel 316	

**Note: camera parameters will differ subject to different type of camera**

## 3 Installation and Use

### 3.1 Precaution for Installation

1) The following inspection must be conducted prior installing the product and it's



forbidden to use if requirement isn't met.

- a, whether explosion-proof certificate code is available;
- b, whether explosion-proof mark accords with using in environment with explosive gas mixture;
- c, that there is no crack and defects that might influence explosion-proof performance in all the explosive-proof spare parts;
- d, whether there is grounding sign.

2) Explosion-proof surface protection

Pay attention to protect explosion-proof surface and do not knock and scratching when installing, operating and servicing PTZ.

3) Grounding

PTZ shall be grounded safely.

4) Reserved cable for PTZ

The reserved cable for PTZ shall be no less than 1 m, and its free end shall be connected with the explosion-proof cabinet that is appropriate for the using environment or with equipment inside.

5) “It’s strictly forbidden to open cover with power on”.

**3.2 Prior-installation Confirmation**

Confirm whether PTZ’s spare parts in Table 3-1 are available. Please contact with supplier in case of any missing. Please keep well the original packaging materials of the product, so that the product can be packed well with the original package and sent to supplier for processing in case of any problem.

Note: Using non-original packaging material might cause unexpected damage to the product in transit, and thus cause occurrence of extra expense. Avoid moving protective hood with strength in moving PTZ. Otherwise the hood might become loose.

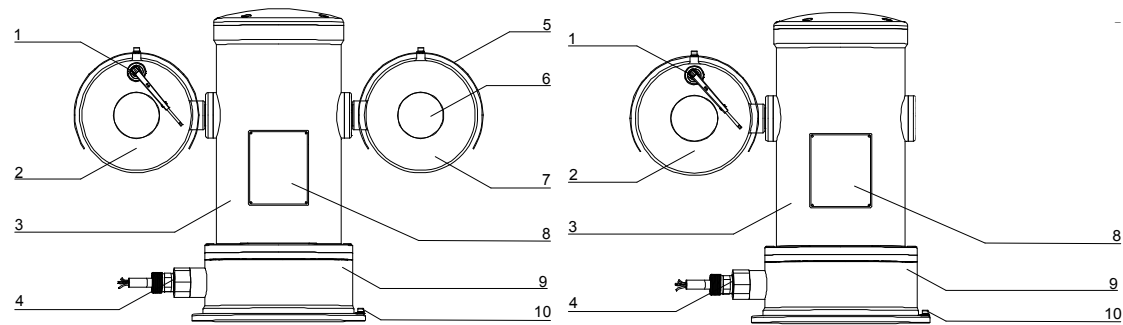
Table 3-1

Name	Quantity	Remark
13mm wrench	1	For mounting fixtures and mounting

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14mm sleeve	1	brackets
Cross screwdriver(big)	1	For common construction
Cross screwdriver(small)	1	Used to disassemble the DIP cover to adjust the device communication parameters
Inside the hex wrench	1set	Used for disassembly of pan/tilt pallet and shield connection
Word screwdriver (small)	1	Used to secure the wiring harness connection terminals
Wire strippers	1	Stripping

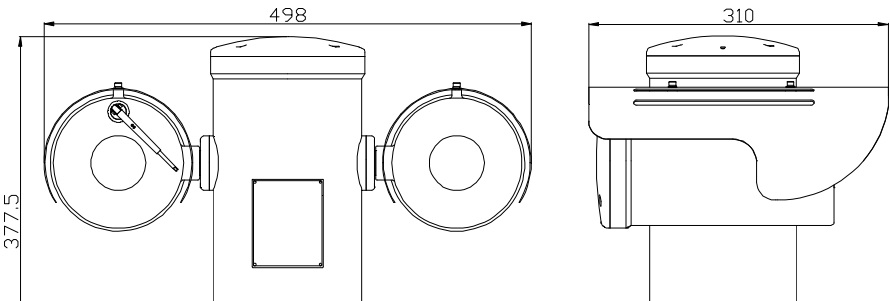
**3.3 Appearance Description**

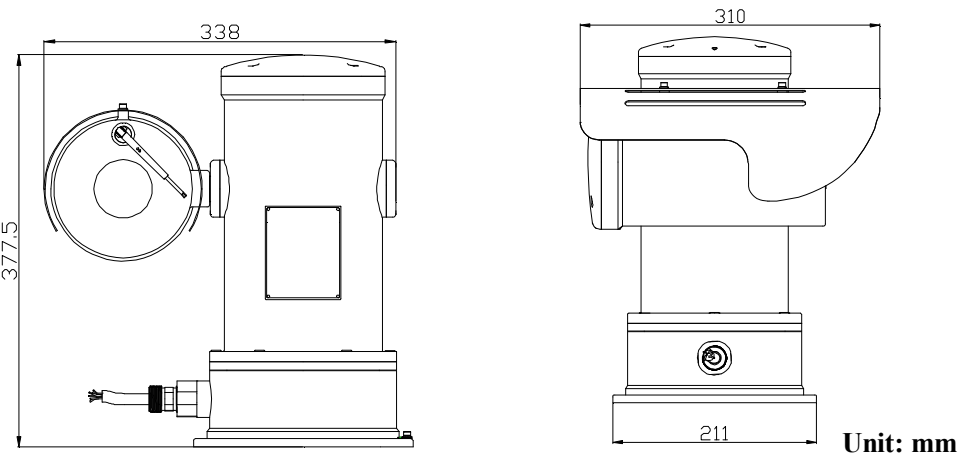


Note:

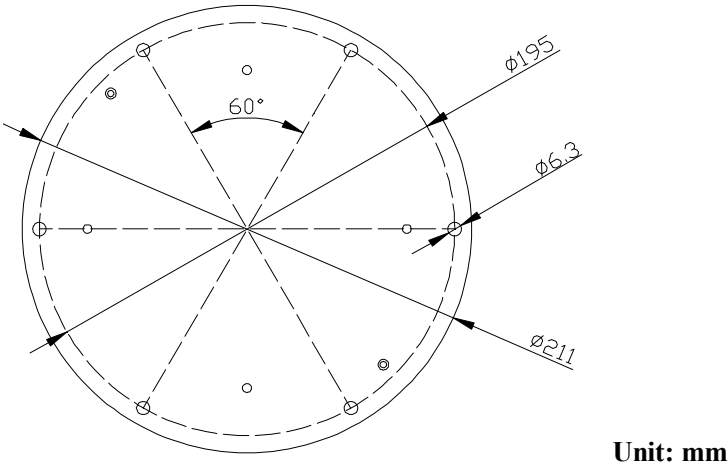
- 1. Windshield wiper
- 2. Left protective hood (camera)
- 3. Main body of PTZ
- 4. External cable introduction device of PTZ
- 5. Sun shade
- 6. Observation window glass
- 7. Right protective hood (lightning device)
- 8. Nameplate
- 9. Base
- 10. Grounding sign

**Dimensional Size:**





**Base Size:**



**3.4 Installation Requirements**

**3.4.1 Requirements on Personnel**

- 1)All contents in the User Manual has been fully understood.

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2)be equipped with basic knowledge and operational skill on low-voltage wiring and low-voltage electric connection.

3)With national explosion-proof qualification certificate or technical personnel engaging in the installation and repairing of explosion-proof products being available.

4)With qualification certificate of CCTV system installation and repairing work and with qualification certificate of relative work (like work high above the ground, etc.).

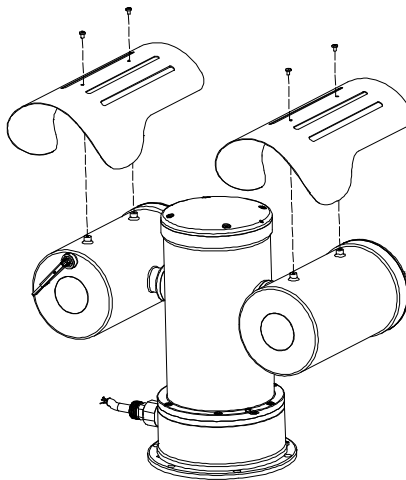
5)Must be equipped with basic knowledge and installation skill of CCTV system and its components.

### **3.4.2 Loading Requirements**

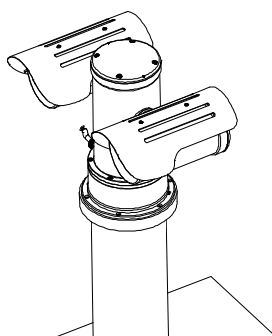
Confirm prior installation supports for the product and its accessories has sufficient bearing capacity. For safety, the supports for the product shall bear at least three times of the weight of the product.

### **3.5 Installation Steps**

3.5.1 Firstly install the sun shade at corresponding location.

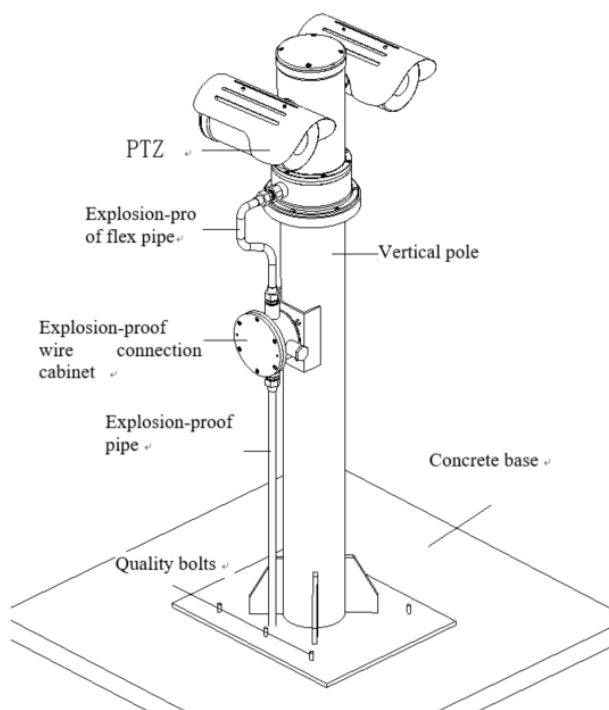


3.5.2 Then align the six screw holes on the base of PTZ with the six screw holes on the fixed objects for screw hole, use M6X30 inner hexagon screw to cross through the screw holes on PTZ's base and that on the fixed objects one after another, and finally use  $\Phi 6$  flat socket,  $\Phi 6$  spring washer and M6 nut to fix it.



**Note: when installing PTZ, no person shall stand below the installation location to avoid falling objects causing damage to personnel; the screw for fixing PTZ and vertical pole shall be smeared with threaded fastening adhesive.**

3.5.3 PTZ's compound cable jacket and explosion-proof flex pipe, and then enter explosion-proof ware cabinet for wire connection. The whole design sketch is as follows:



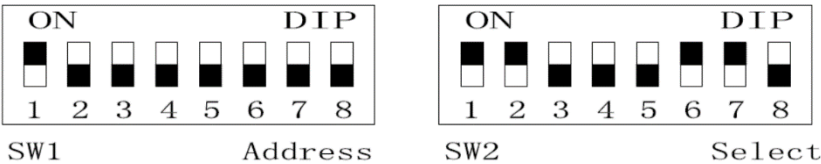
**Note: It's forbidden to mount the product on wall. The inner diameter of explosion-proof flex pipe shall be no less than 13mm and the thread holding-on at the connection site between the explosion-proof flex pipe and PTZ's**

explosion-proof cabinet must exceed five threads, and the screw thread of PTZ’s outlet hole is G3/4” thread.

4. Control and operating instructions

4.1 DIP switch settings

Use the cross screwdriver to remove the screw of the fixed DIP switchcover, remove the DIP switch cover, you can see the DIP switch as shownbelow ( Add 1 Protocol PelcoD Baud rate 9600)



SW1 is the address DIP switch, SW2 is the baud rate protocol DIP switch.

•The address can be set from 1 to 255. The address dialing method isshown in the table below（SW1）

Add	1st	2nd	3rd	4th	5th	6th	7th	8th
1	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
2	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
3	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF
4	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
5	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF
6	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF
7	ON	ON	ON	OFF	OFF	OFF	OFF	OFF
8	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
...	.....							
254	OFF	ON	ON	ON	ON	ON	ON	ON
255	ON	ON	ON	ON	ON	ON	ON	ON

•Optional Pelco D and Pelco P （SW2）

## Youngkook User Manual for Explosion-proof PTZ Camera

Protocol	1st	2nd	3rd	4th
Pelco-P	OFF	ON	OFF	OFF
Pelco-D	ON	ON	OFF	OFF

•Baud rate 2400、4800、9600、19200 （SW2）

Baud rate	5th	6th
2,400	OFF	OFF
4,800	ON	OFF
9,600	OFF	ON
19,200	ON	ON

### 4.2Operation instruction

function	Operation instruction
Open/Close Wiper	Set251st / Recall 251st preset
Speed adaptive on / off	Set101st / Recall 101st preset
The cruise function starts	Recall 98th preset
Cruise speed setting	Set 90th preset + recall 90th preset + set 98th preset + set 97th preset + set the speed level (speed grade optional range 1 ~ 63)
Line sweep left bordersettings	Set 92nd preset
Line sweep right border setting	Set 93rd preset
The line sweep functionstarts	Recall 99th preset
Line sweep speed setting	Set 90th preset + recall 90th preset + set 99th preset + set 97th preset + set the speed level (speed grade optional range 1 ~ 63)
Start / Close keep watching	Set 94th preset + recall 94th preset Note: default keep watch 1st preset
Keep Watching presetfunction	Set 90th preset + recall 90th preset + set 94th preset + set 94th preset + set (No.) N0. is represented as a preset number.
Keep Watching ring sweepfunction	Set 90th preset + recall 90th preset + set 94th

## Youngkook User Manual for Explosion-proof PTZ Camera

	preset + set 97h preset
Keep Watching cruise function	Set 90th preset + recall 90th preset + set 94th preset + set 98h preset
Keep Watching line sweep function	Set 90th preset + recall 90th preset + set 94th preset + set 99h preset
Device Reboot	Set or recall 254th preset Re-check, do not clear all the parameters have been set.
Reset	Set 90th preset + recall 90th preset + set 255th preset + recall 255h preset Clear the set parameters and re-check.
Turn on / off the power-off memory function	Set / recall 108th preset

Please promptly remove the security risks, the use of the process found any problems, please contact our company for after-sales consultation to confirm the serious problem of rework processing.

## 5. Fault and troubleshooting

Fault phenomenon	Reason / solution
No self-test after power supply, no image output	There is a broken line in the circuit / find breakpoints, rewiring. Low supply voltage / Replace the power adapter to increase the output voltage.
Self-test exception	Low supply voltage / Replace the power adapter to increase the output voltage.
Equipment control is normal, image instability	Poor video circuit contact / troubleshooting, rewiring. Access device exception / replacement access device
Equipment control is normal, image instability	Network line bad contact / dismantling bad point, re-wiring. Access to computer performance is insufficient, take up CPU usage / lower stream and resolution. Lack of network bandwidth / replacement of



## Youngkook User Manual for Explosion-proof PTZ Camera

	industrialGigabit switches Access decoder performance / replacement ofhigh-performance decoder
Self-test normal, cannot control	Wrong wiring / rewiring Set the baud rate, protocol, address and device mismatch / screen configuration according to device parameters
Repeated restart	Insufficient supply voltage or voltage instability / to ensure that the input device voltage stability
Can not control the lens to perform zoom zoom action	Wiring error / re-connect the lens control lineCircuit board lens control problems / replacementcircuit board (please contact after-sales reworkprocessing, do not replace parts or repair)
Can not recall the set lens preset point	DIP switch relative to the set lens preset dialing is not set to ON / DIP switch control lens preset dialing dial into ON
The image is lost when the control device rotates	Rotation process at the same location lost image /conductive slip ring there is a bad contact, replacethe parts (please contact after-sales rework, do notreplace parts or repair)

Note: If the customer to buy this product does not use the lens preset function, as far as possible the DIP switch relative to the set lens preset dialing is not allocated to OFF.

## 6. Network Setup

### 6.1 Operation Requirement

This system is advised to operate in the Windows 7 operating system. In order to use and operate the system better, Please make sure below items setup or install correctly after this system installation.

6.1.1. Monitor resolution setup to: 1024x768 or more, color setup to Color (32 bit). Please refer to the Windows user manual or online help.

6.1.2. Please confirm install the fonts the system need in the operating system. If the system interface display abnormal, because of it maybe not install the system needed fonts or the fonts are damaged and need to reinstall the fonts.

6.1.3. If it is the first time to use the camera, please download the ActiveX control. Before download it needs to setup the IE browser to confirm download successfully.

Notice: Please use the IE browser of Windows operating system , confirm the version is above 6.0 Please don't use any third-party browser and any IE browser shell like Maxthon, FireFox, Window of the World, we do not ensure use these software can log on the network video server

### 6.2 LAN Access & Active Installation

Run IE and input default IP address 192.168.1.20(for example).

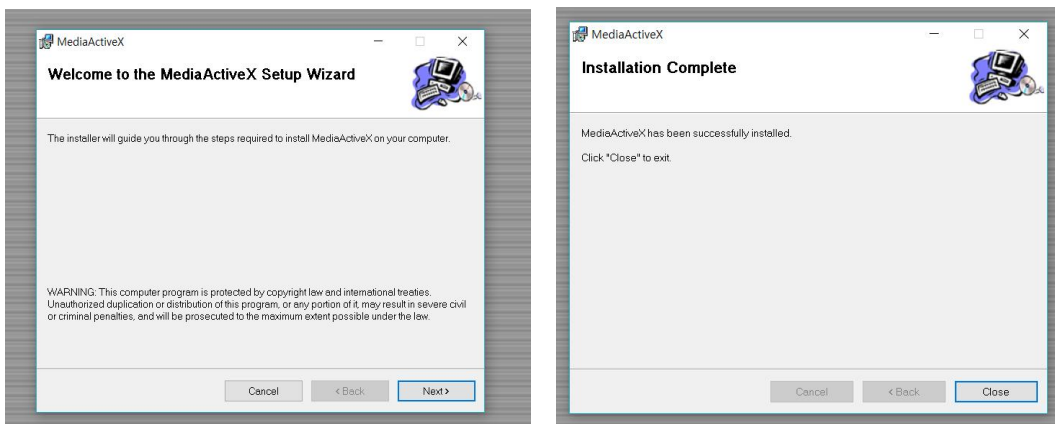


The image shows a 'Web Server' login dialog box. It has a title bar with the text 'Web Server'. Below the title bar, there are three input fields: 'User Name' with the text 'admin', 'Password' (empty), and 'Language' with a dropdown menu showing 'English'. Below these fields, there is a checkbox labeled 'Remember' and a button labeled 'Plug-in Download'. At the bottom, there are two buttons: 'Login' and 'Cancel'. To the right of the dialog box, there is a red rectangular box.

## Youngkook User Manual for Explosion-proof PTZ Camera

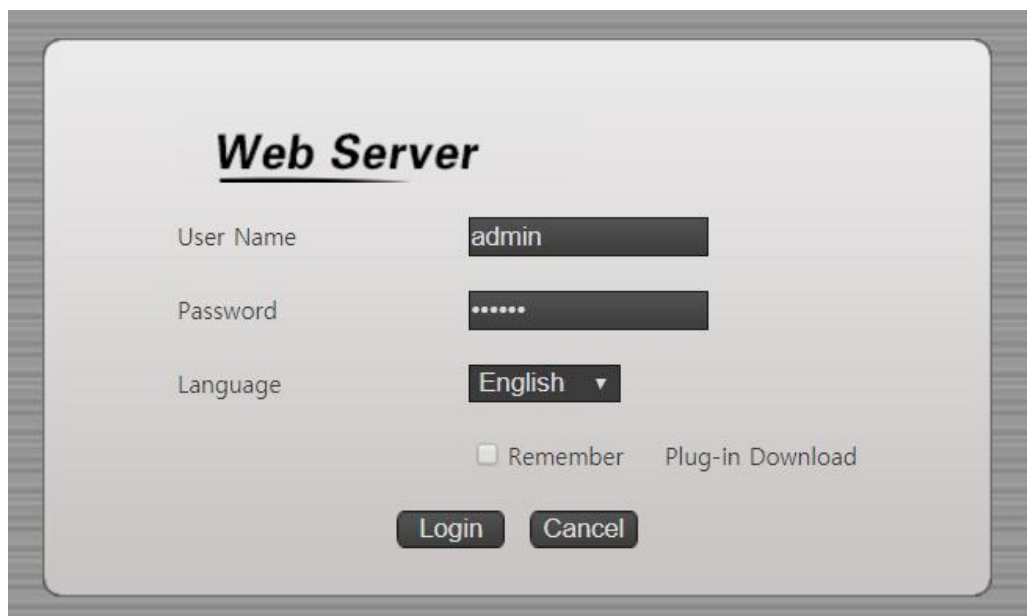
Install active for the first time log in IE Click→Installation→NextStep→Finished, if antivirus block, please keep running.

Some version of IE may have different authority matter and cause auto run failed and need to click to run.



After installation success, refresh the web page to log in.

Input user name and password in page log in, default user name is **admin** and password is **123456**. Password can be changed after log in, please keep in mind. After log in success, set through menu.

The image shows a web-based login interface titled 'Web Server'. It has a light gray background with a rounded rectangle containing the login fields. The fields are: 'User Name' with the text 'admin' entered, 'Password' with six dots indicating a masked password, and 'Language' with a dropdown menu showing 'English'. Below these fields are two checkboxes: 'Remember' (unchecked) and 'Plug-in Download' (unchecked). At the bottom are two buttons: 'Login' and 'Cancel'.

<b><u>Web Server</u></b>	
User Name	admin
Password	.....
Language	English ▼
<input type="checkbox"/> Remember	<input type="checkbox"/> Plug-in Download
<b>Login</b>	<b>Cancel</b>

# Youngkook User Manual for Explosion-proof PTZ Camera



①	Main Menu	④	Image Shortcut Menu
②	Code Menu	⑤	Control Shortcut Menu
③	PTZ Menu		

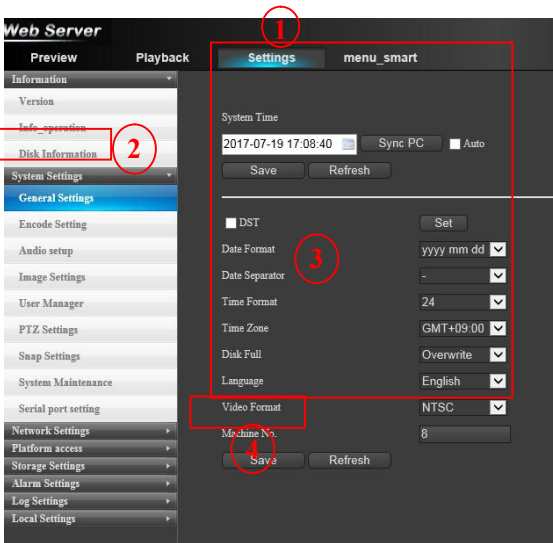
## 6.3 Setting

This file explains a few of common setting.

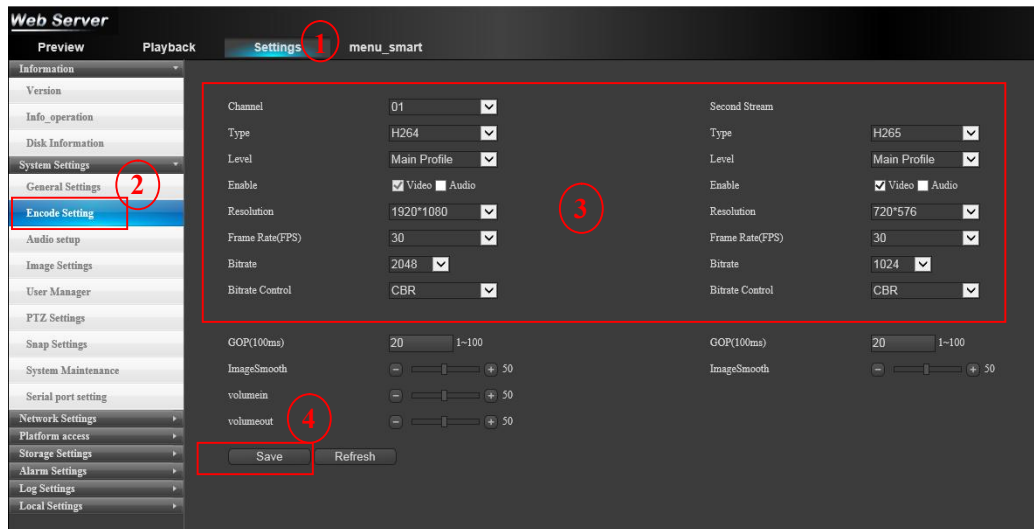
### 6.3.1. System Setting→General Setting

Click

- ① Setting, Main Menu→Click
- ② General Menu
- ③ Setting time synchronization, data mode, time mode, mode at storage device full
- ④ Save after setting.



## 6.3.2. System Setting→Code



Click

- ① Setting, Main Menu→Click
- ② Encode Setting
- ③ to set encoding mode, level, stream
- ④ Save after setting.