Dahua (IR) Explosion-proof PTZ Camera
User's Manual

Version 1.0.1
Zhejiang Dahua System Engineering CO., LTD.

Table of Contents

Welcome

Thank you for purchasing our product!

This user's manual is designed to be a reference tool for the operation of your system.

Here you can find information about this speed dome features and functions, as well as a detailed menu tree.

Please keep it well for future reference!

Before installation and operation, please read the following safeguards and warnings carefully!

Important Safeguards and Warnings

1．Electrical safety

- All installation and operation here should conform to your local electrical safety codes.
- We assume no liability or responsibility for all the fires or electrical shock caused by improper handling or installation.
- We are not liable for any problems caused by unauthorized modification or attempted repair.

2．Transportation Security

- No heavy stress, violent vibration or water splash are allowed during transportation, storage and installation.
- Please use the original packing material (or the material of the same quality) when you ship it back to the manufacturer.

3．Installation

- Do not apply power to the product before completing installation.
- Do not put object on the product.

4．Environment

- This series product should be installed in a cool, dry place away from direct sunlight, inflammable, explosive substances and etc.
- Please keep it away from the electromagnetic radiation object and environment.
- Please keep the sound ventilation.
- Do not allow the water and other liquid falling into the device. This series product complies with the IP66 standard specified in the Degrees of Protection Provided by Enclosure.
- Please make sure the CMOS(CCD) component is out of the radiation of the laser beam device. Otherwise it may result in CMOS(CCD) optical component damage.
- Usually we recommend thunder-proof device to prevent thunder strike.
- The GND port of the product shall be grounded to further enhance the reliability of the device.

5. Daily Maintenance
- Current series product has no power button. Please unplug all corresponding power cables before your begin installation or daily maintenance work.
- Please keep the dustproof cap back to protect the CCD or CMOS part if the device does not work for a long time.
- Do not touch CMOS(CCD) component. You can use the blower to clean the dust on the surface of the device. You can use the dry cloth with some alcohol or mild detergent to clear if necessary.
- Do not use the volatility solvent such as the benzene or thinner, or detergent with strong abradability. It may result in lens damage or it may adversely affect the device performance.

- If there is too much dust, please use the water to dilute the mild detergent first and then use it to clean the device. Finally use the dry cloth to clean the device.

6. about Accessories

Always use all the accessories recommended by manufacturer.

Before installation, please open the package and check that all the components are included in the package:

Contact your local retailer ASAP if something is missing in your package.

7. Explosion-proof Structure Description

- It is fully considered that even if there is any explosive gas mixture entering inside of the device, it won't cause explosion due to electrical operation when designing the product enclosure. The explosion-proof performance of the device is completely ensured by the enclosure intensity and the junction surface gap, length and max surface temperature limit of each component that makes up the enclosure.
- The enclosure can sustain the hydrostatic test regulated in the GB3836.2-2010 after welding and finish machining; test pressure is 1.5 MPa and lasts 10-12 seconds without dripping and deformation of the structure.
- The max surface temperature of the enclosure is not allowed to exceed 80℃ during normal work.
- Inspection window adopts tempered glass, which can sustain impact and thermal shock test.
- IP67 compliance for the enclosure.
- Cable entry mode of the product adopts packing mode, which is to fully compress the cable without looseness.
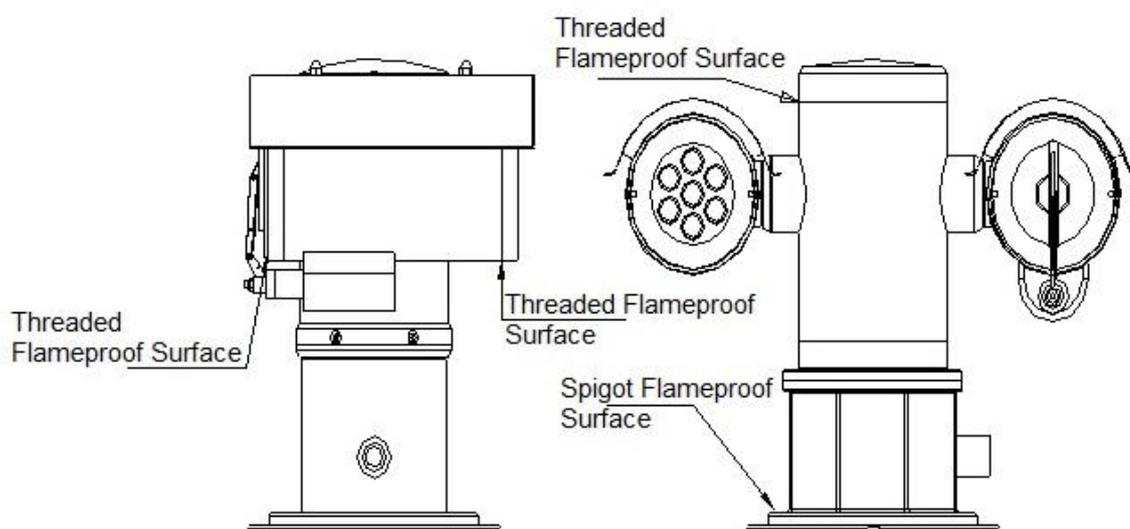
1 Overview

(IR) explosion-proof PTZ camera is a new generation of explosion-proof monitoring device, which adopts more advanced manufacturing technique, with the guarantee of mature quality management system, it makes the product quality, and performance and appearance take the leading position among the competition products. The product can be solely applied in the environment with flammable and combustible gas, flammable dust, which is to realize the purpose of monitoring scene.

(IR) explosion-proof PTZ is designed and manufactured by strictly conforming to GB3836.1-2010 *Explosive Environment Chapter 1: Device General Requirements,* GB3836.2-2010 *Explosive Environment Chapter 2: The device protected by flameproof enclosure "d"* , GB12476.1-2013 <Flammable dust environment electrical device chapter 1: General Requirements and some other standards. Besides, the device is equipped with several features such as small size, light weight, convenient installation and so on, which can be widely applied in many industries such as oil, chemical, dock, port, mine, aerospace, aviation, military, food processing and so on.

1.1 Product Features

- (IR) explosion-proof PTZ camera adopts high performance color camera, omnidirectional PTZ and multi-functional decoding controller, which has integrated multiple communication protocols and communication rates, playing an important role in the various security systems.
- (IR) explosion-proof PTZ camera is equipped with wide voltage working range and it can self-adapt to various all-in-one cameras.
- (IR) explosion-proof PTZ camera adopts integrated structure design; There is no external cable connection between PTZ and camera, which realizes 360 ° continuous rotation horizontally and ±90 ° rotation vertically. Besides, sun shield, wiper and auto heating apparatus are included in the accessory bag.

1.2 Application Range

The device can be applied to the explosion-proof occasions such as II area of gas explosion-proof and A21~A22 area of dust explosion-proof.

1.3 Mechanical Index

Refer to table 1-1 for more details about mechanical index.

Parameter	Index
Material	Stainless steel 316L
Horizontal rotation	360° continuous
Vertical rotation	+90°～-90°
Horizontal rotation speed	0.1°～40°/S
Vertical rotation speed	0.1°～30°/S
Preset quantity	128
Preset accuracy	≤0.1 °
Lightning protection	Built-in signal lightning-arrester

Parameter	Index
Auto heating	Auto heating enabled when it is lower than -10℃.
Weight	30.6kg (net weight), 42.6kg (gross weight, including bracket and other accessories)
Installation mode	Upright installation

Table 1-1

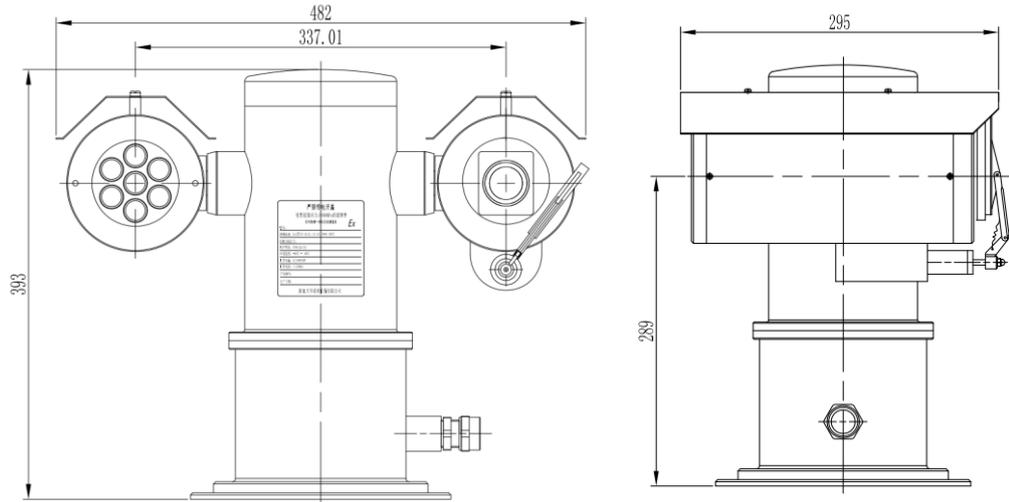## 1.4 Product Dimension

Refer to Figure 1-1 for product dimension.

Figure 1-1

1.5 Electrical Index

Refer to Sheet 1-2 for more details about electrical index.

Parameter	Index
Input voltage	100V AC～240V AC
Max current	≤1A
Power consumption	≤100W
Electrical connection	2m composite cable
Address code	0~255, it is set as 1 by default.

Sheet 1-2

1.6 Application Environment Condition

Refer to table 1-2 for application environment condition.

Parameter	Index
Atmospheric pressure	80 kPa～ 106kPa
Environment temperature	-40℃～ +60℃
Relative humidity	No more than 95%RH (+25℃)

Sheet 1-3

1.7 Electrical Safety (under standard test atmospheric conditions)

Insulation resistance: DC500V insulation resistance between power input terminal and enclosure shall be no less than 100 MΩ.

Power frequency withstand voltage: It can sustain 50Hz, 1500V power-frequency voltage test for one minute between power input terminal and enclosure; besides, there is no breakdown or flashover.

2 Installation and Debugging

2.1 Notes before Installation

After users open the product outer box, it has to check if there is any obvious damage to the product appearance and if all the accessories are included; users can refer to the packing list to check it out. It is to install the device after being checked completely.

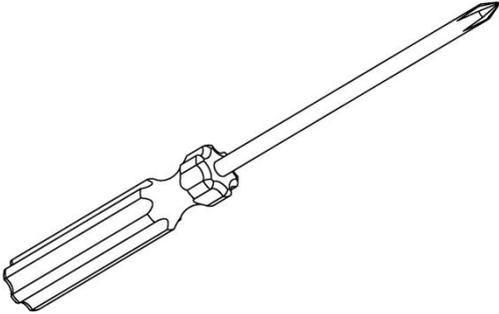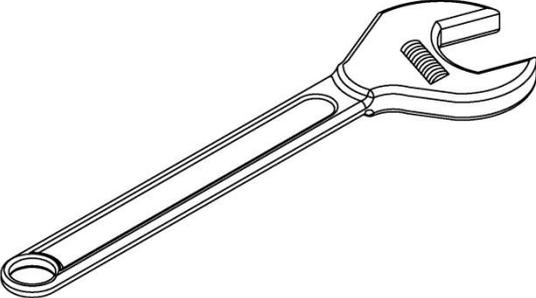Refer to table 2-1 for installation tools and other accessories

Accessory	Note
	Cross screwdriver, specification: 6×150, quantity: 1
	Outer hex wrench, specification: 300×36, Quantity: 1

Table 2-1

Notes before installation and during use

● Users are not allowed to dismount the device unprofessionally, please operate the device according to the requirements mentioned in the user manual.

● Please make sure it is to use the regulated power which conforms to chapter 1.5.

● Please use the device in the environment with proper atmospheric pressure, temperature, humidity range which are regulated in Chapter 1.6.

● Due to the particular characteristics of explosionproof products, it is recommended to power on and debug first if possible. It is to implement on-site installation after getting familiar with the device performance.

2.2 Install (IR) Explosion-proof PTZ Camera

2.2.1 Assemble Product Components

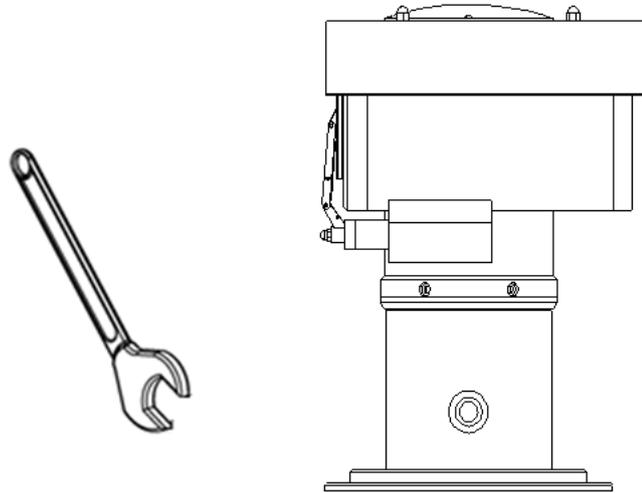Please refer to Figure 2-1 for assembling product components.

Figure 2-1

Note

It has to use wrench to tighten glad nut after completing cable connection or explosionproof flexible tube installation.

2.2.2 Cable

2.2.2.1 Use Explosionproof Flexible Tube

Step 1
Cover explosionproof flexible tube component on the cable in advance; take down the compression nut and reserve the default gasket and rubber gasket (users can also use the spare parts in the package), see Figure 2-2.
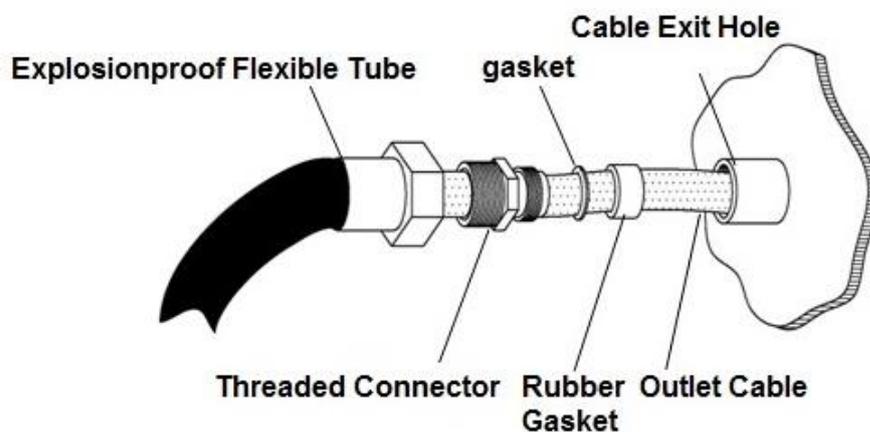

Figure 2-2

Step 2

After tightening the threaded connector firmly, then tighten the explosionproof flexible tube, see Figure 2-3.
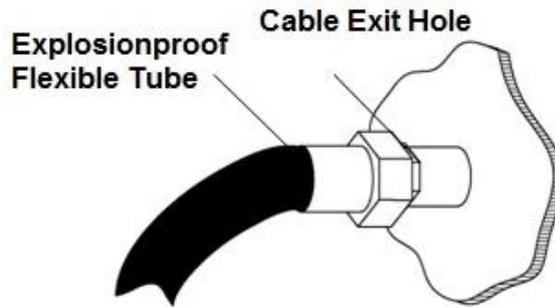

Figure 2-3

2.2.2.2 Use Armoured Cable

Step 1

Peel off appropriate length of cable outer sheath according to the practical requirements, and it comes out the metal armoring surface (steel belt); leave certain length of steel belt and cut off the spare part. See Figure 2-4.
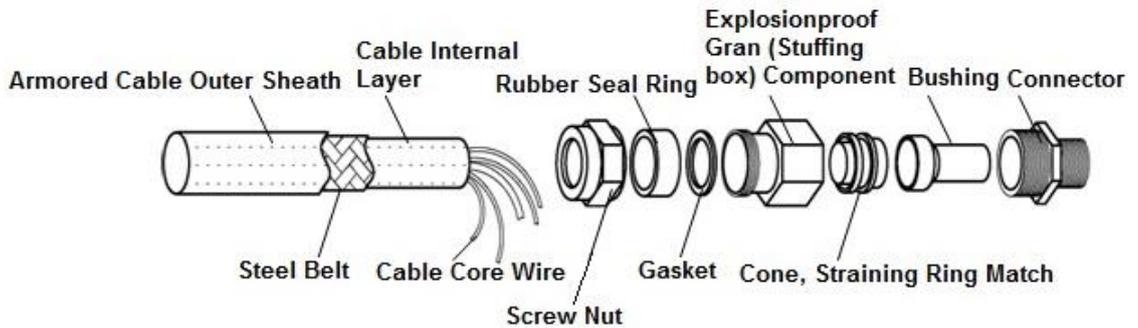

Figure 2-4

Step 2

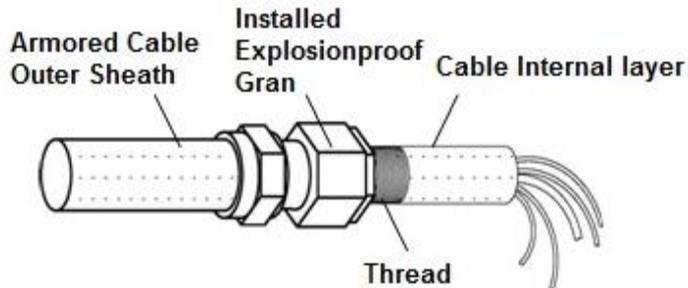Install the explosionproof gran on the armored cable, see Figure 2-5.

Figure 2-5

Note

The armored cable with explosionproof gran can be directly connected to various explosionproof equipments.

2.3 Debugging Use

2.3.1 System Connection

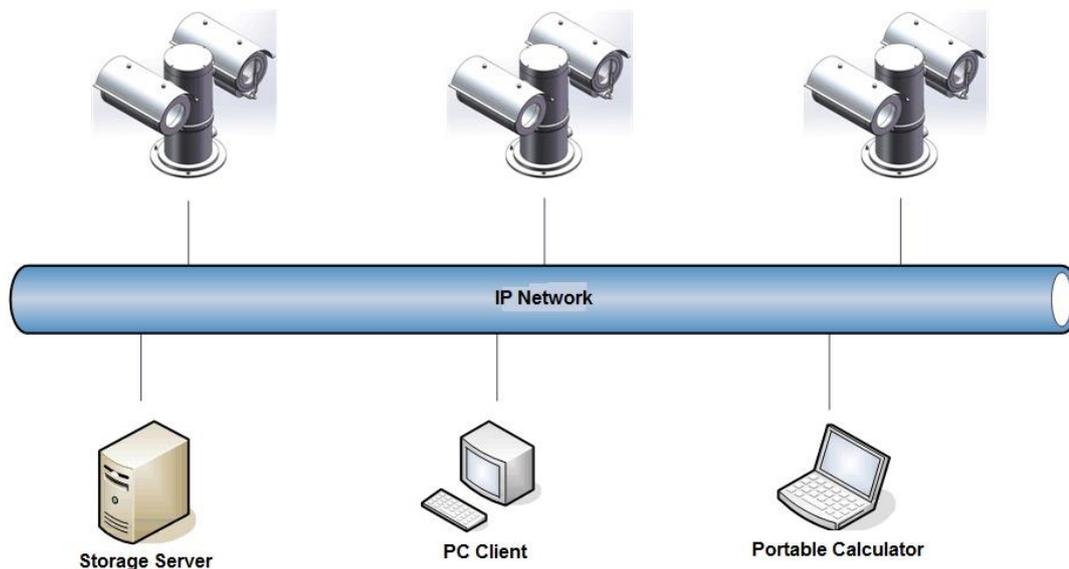Please refer to Figure 2-6 for system connection.

Figure 2-6

2.3.2 Cable Definition

The HD explosionproof PTZ is equipped with a composite cable by factory default, the cable is pulled out from the cable exit hole on the PTZ top, the length is no less than 2m; it only needs to inlet the composite cable into the junction box and connect to the system bus when it is being used.

Note

Composite cable is a type of special cable; generally a composite cable includes a set of power cable, a set of control cable, a set of coaxial cable; a 5 UTP, a set of alarm cable, a set of audio cable. It is widely applied in industrial monitoring system due to its reasonable structure and convenient laying. Please refer to table 2-1 for the cable definition.

Name	Composite cable							
	Power cable			Control cable (with shield)		Video cable	Network cable	
Function	Live wire	Null line	Ground wire	RS485-A	RS485-B	SYV-75-3 coaxial cable	Standard UTP5	
Color	Brown	Blue	Yellow/green	Yellow	White			
Name	Alarm cable					Audio cable		
Function	Input 1	Output 2	GND	Output	Output	Output	Input	GND
Color	Blue& white	Blue	Black& white	Orange	Orange & White	Purple	Purple & White	Black

Table 2-1
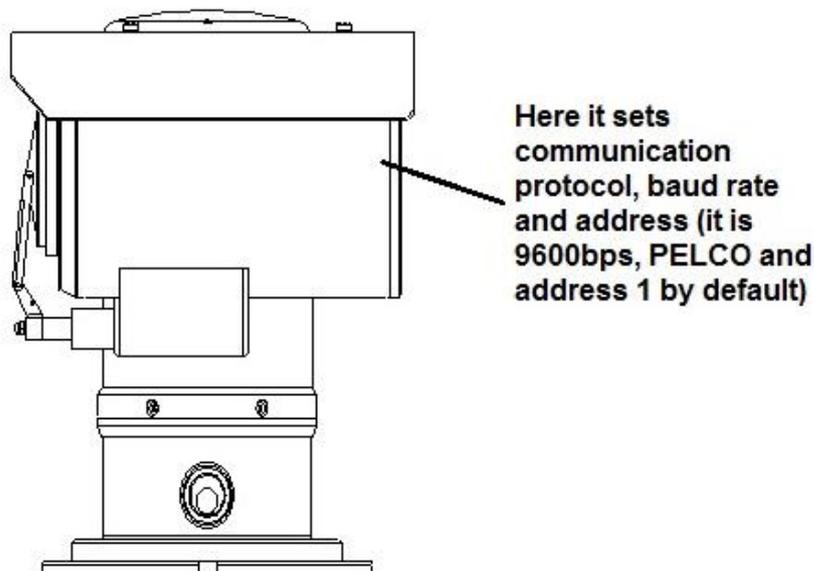
2.3.3 Parameter Setup

Figure 2-7

Use the equipped F-type wrench to open the rear cover of the camera and you can see the DIP switch, which is shown in Figure 2-8.
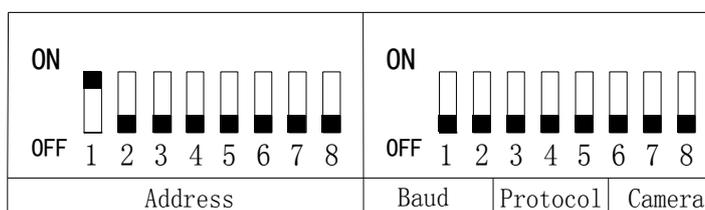

Figure 2-8

It adopts binary system to set address, refer to table 2-2 for address 1-10, max 255 addresses.

Switch bit Address	1	2	3	4	5	6	7	8
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
9	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF
10	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF
…	…							
255	ON	ON	ON	ON	ON	ON	ON	ON

Table 2-2

Refer to table 2-3 for 1-2 address bit of DIP switch SW2 and baud rate setup.

DIP switch address		Baud Rate bps
1	2	
OFF	OFF	2400
ON	OFF	4800
OFF	ON	9600
ON	ON	19200

Table 2-3

Refer to table 2-4 for 3-5 address bit of DIP switch and protocol setup.

DIP switch address			Protocol name
3	4	5	
OFF	OFF	OFF	PELCO-D
ON	OFF	OFF	
ON	ON	ON	

Table 2-4

Note

RS485 only supports PELCO protocol and 3-5 address bit of DIP switch SW2.

2.3.4   Working Condition and Check when Power on for Use

The (IR) explosion-proof PTZ camera will first implement self-check automatically after it is enabled. The PTZ will move to number 1 preset if it has been set.

2.4   Preparation before Installation

2.4.1   Bracket Installation Mode

Select mounting holes for bracket in proper location, use high quality anchor bolt (or expansion bolt) to fasten the bracket. If it needs to install explosionproof junction box, it is generally installed in a location which is convenient for installation and easy for maintenance. Lay the cable into the junction box via cable slot or Cable Bridge, which is shown in Figure 2-8.
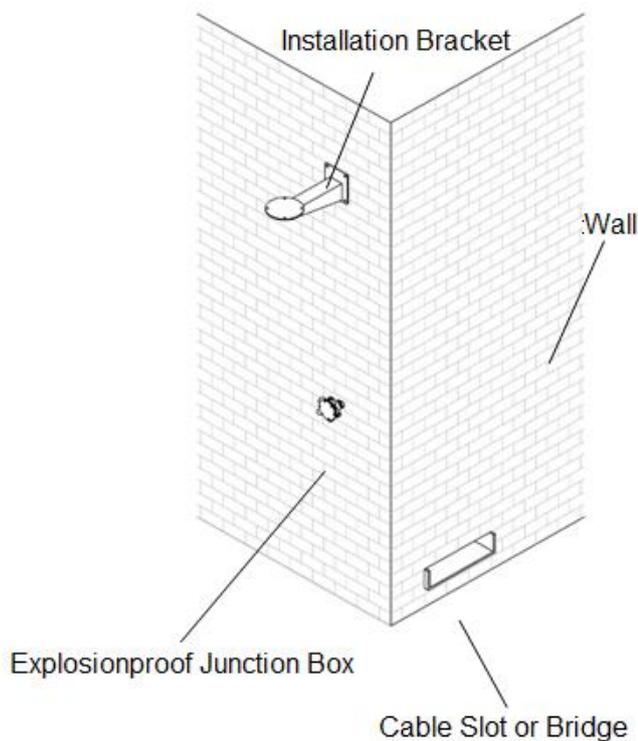
Figure 2-8

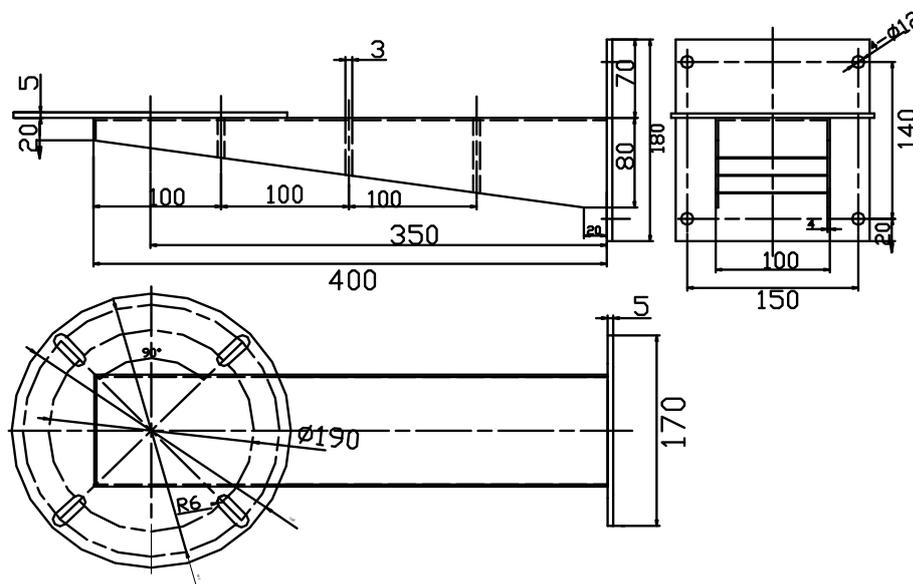Refer to Figure 2-9 for the specification of installation bracket.

Figure 2-9

2.5 Product On-site Installation

It is recommended to power on and debug the device indoors first if possible due to the special features of the explosionproof product; it is to implement on-site installation after getting familiar with the device performance.

2.5.1 Camera Installation Mode

Refer to Figure 2-9 for bottom mounting holes when installing camera. Put the reserved cable of camera bottom into the cable hole on the mounting bracket. It has to use flexible tube (armored cable can be used as well) for protection when the camera cable is connected to control cabinet. It has to use metal tube for protection or directly lay armored cable when the junction box is connected to the cable in control cabinet. Refer to Figure 2-10 for more details.
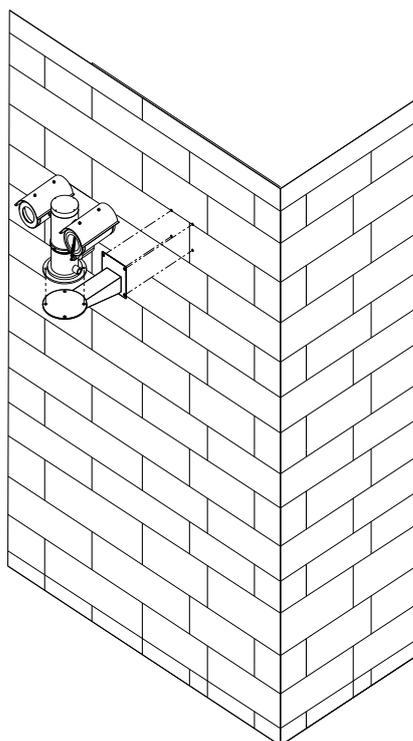

Figure 2-10

3 Web Client

3.1 Overview

Network camera supports device access and management via WEB page on PC end.
WEB client system provides 6 application modules, which are coding setup bar, window adjust bar, system menu bar, window function option bar, PTZ control bar and PTZ setup/menu.

3.2 System Login

3.2.1 Network Connection

Step 1
Make sure the network camera is correctly connected to network.
Step 2
Set IP address, subnet mask and gateway for the computer host and network camera respectively, the default IP address of network camera is 192.168.1.108.
Note
● Please allocate IP address with the same segment if there is no router in the network.
● It needs to set corresponding gateway and subnet mask if there is router in the network.
Step 3
Use ping ***. ***. ***. *** (network camera IP address) to check if network is connected.

3.2.2 Login WEB

Step 1
Open IE web browser, input the IP address of the network camera you want to log in in the address bar.
Step 2
When opening system, it will pop up safety pre-warning which asks you whether it is to accept WEB control webrec.cab or not. Make sure the users select OK, the system will auto recognize and install, it will cover the previous WEB client when it is upgrading to new version of WEB. If it is not allowed to download, please make sure if it has installed other plugins which forbid controls to be downloaded, besides, it has lowered the security level of IE.
Step 3
After it is successfully connected, you can refer to Figure 3-1. Input user name and password, click the button to log in the system. The factory default administrator user name and password are admin and admin respectively, please modify the administrator password in time after your first login.

Figure 3-1

Step 4

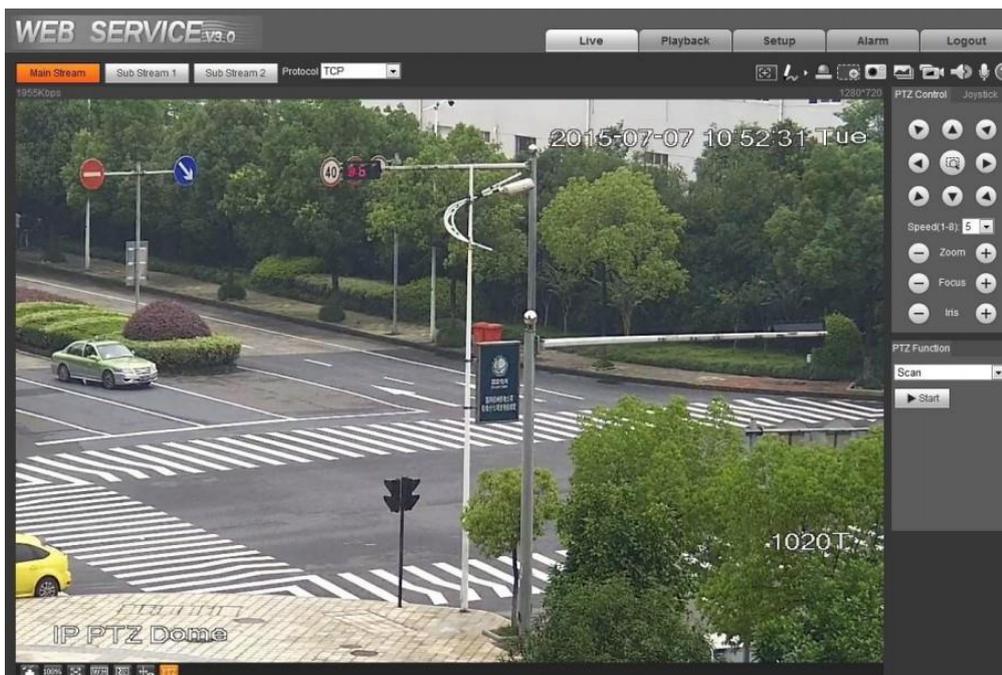After you logged in WEB successfully, you will see the interface shown in Figure 3-2.

Figure 3-2

Please refer to the *Dahua Network Camera Web Operation Manual WEB 3.0* included in the resource CD for detailed operation instruction.

4 Quick Config Tool

Note

It can use quick configuration tool to search current IP address, modify IP address and so on. Meanwhile, you can use it to upgrade the device. Currently the quick config tool only supports the search of device IP address which is in the same segment with PC.

4.1 Log in WEB

Step 1

Double click and operate the *ConfigTools.exe* executable file, it will display IP address, port number, subnet mask, default gateway, MAC address and other information of all the normally-operating devices in the device list on the search interface. You can refer to Figure 4-1 for more details.
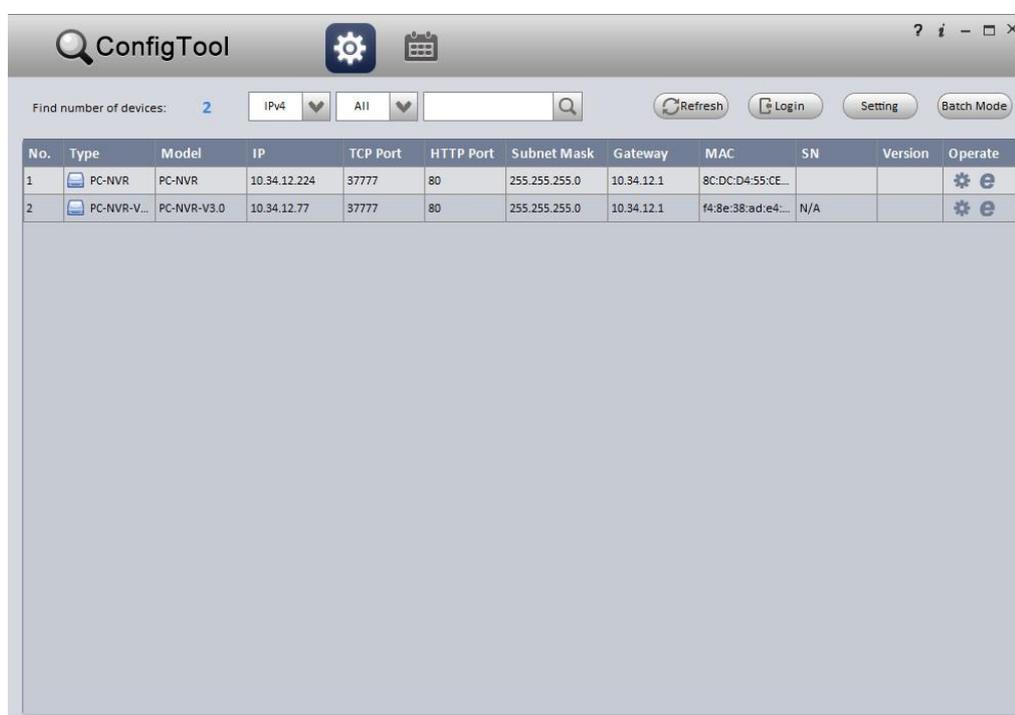

Figure 4-1

Step 2

Select the searched device IP address, right click the IP address to display the option of *Open Device Web Page,* click the command to open the device WEB login page of corresponding IP address, which is shown in Figure 4-2.
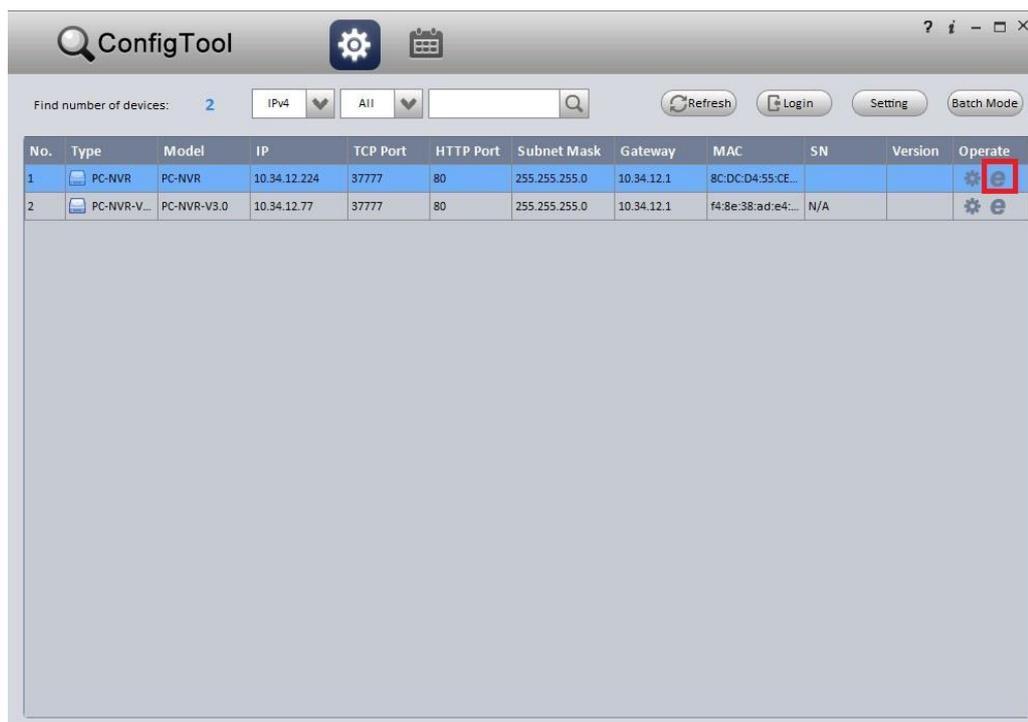
Figure 4-2

4.2 Modify Setup

If users need to quickly modify the device IP address, PPPOE setup, system info setup and so on not by logging in device WEB interface, it can log in the main interface of quick config tool to set. Select an IP address in the *Device List Information* of search interface, double click the IP address to open the login prompt box of quick config tool, also you can single click the *Login* button on the search interface to open the login prompt box of quick config tool after selecting the IP address. Single click the *Login* button on the search interface to open the login prompt box of quick config tool. Generally it displays the device default user name, password and port number on the login prompt box, users can modify the user name and password of corresponding login quick config tool according to the requirements, the port number needs to in accordance with the port number which is set in *System Config >Network Setup> TCP Port* on device WEB, otherwise, it will fail to log in. Single click the *Login* button on the login prompt box to log in the main interface of quick config tool.

Step 1

Open quick config tool, refer to Figure 4-3. Click *Login* and then it pops up the login prompt box, input correct IP address, user name, password and port number, and then click *Login*.
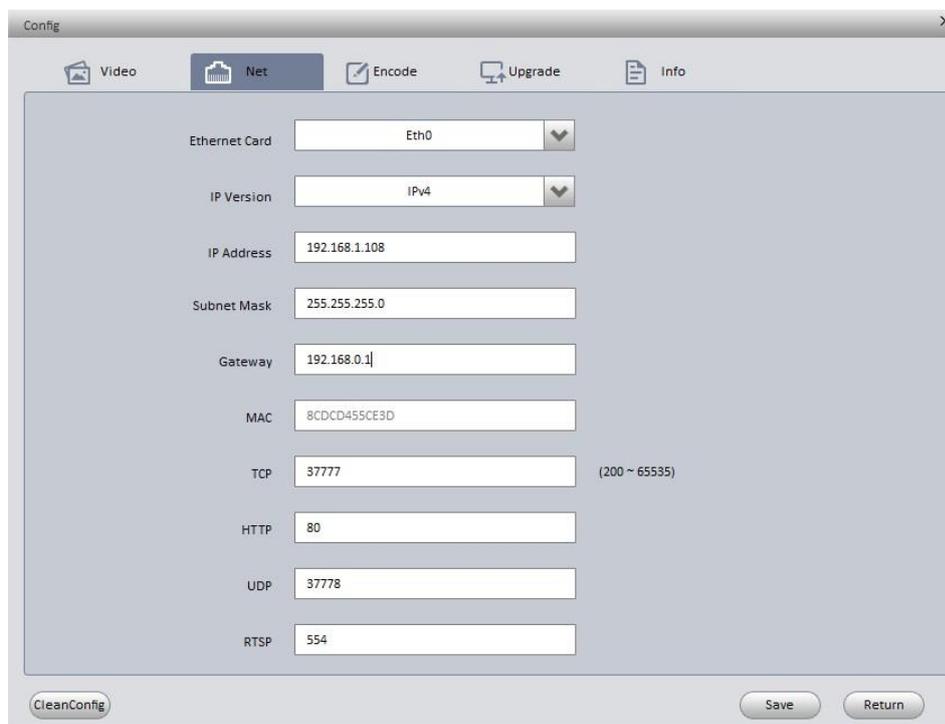
Figure 4-3

Step 2

Users can modify the device IP address, PPPOE setup and system info setup etc. after it is successfully logged in, which is shown in Figure 4-4.

Figure 4-4

Note

For detailed parameters setup and system upgrade method, please refer to the *Quick Configuration Tool User's Manual* included in the resources CD.

5 FAQ

Symptom	Cause	Solution
No image display	Power disconnected	Confirm if power supply is normal.
	Bad connection for video signal cable	Check video signal cable
Image is unstable, PTZ control abnormity	Bad connection for video signal cable	Check video signal cable
	Signal cable is not well connected.	Check if signal cable is correctly connected
	Communication distance is too long, and it caused signal attenuation	Add repeater and extend communication distance.
	Signal reflection exists	Make 120 jumper short circuit on the communication board of the furthest camera in the bus, add 120Ω to remove reflection.
	Address incorrect	Reset according to the user manual
	Protocol incorrect	
	Baud rate incorrect	
Camera is out of control	Camera model setup incorrect	
	Control mode (SW2) setup incorrect	

Note

● This manual is for reference only. Slight difference may be found in the user interface.

● All the designs and software here are subject to change without prior written notice.

● All trademarks and registered trademarks are the properties of their respective owners.

● If there is any uncertainty or controversy, please refer to the final explanation of us.

● Please visit our website or contact your local service engineer for more information.

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