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# **Thermal Hybrid Anti-corrosion PTZ Quick Start Guide**

**Version 1.0.0**

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## **Welcome**

Thank you for purchasing our product!

This quick start guide is designed to be a reference tool for the operation of your system.

Here you can find information about this PTZ camera 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. Installation and Maintenance Professionals Requirements

All the installation and maintenance professionals must have qualification certificate or experiences of installing and maintaining CCTV system, electric apparatus in the explosive gas environment and working high above the ground. Besides, they have to acquire the following knowledge and operation skills.

- Basic knowledge and installation skills of CCTV system.
- Basic knowledge and operation skills of low voltage wiring and low voltage electronic circuit wire connection.
- Basic knowledge and operation skills of electric apparatus installation and maintenance in hazardous sites.

## 2. Power Requirements

- All installation and operation should conform to your local electrical safety code.
- Please check if the power supply is correct before operating the device.
- Please install easy-to-use device for power off before installing wiring, which is for emergent power off when necessary.
- Please prevent the line cord from being trampled or pressed, especially the plug, power socket and the junction from the device.

## 3. Application Environment Requirements

- Please transport, use and store the device within the allowed humidity and temperature, please refer to the technical parameter of corresponding models for the device working temperature and humidity.
- Please don't place the device in the humid, dusty, extremely hot and cold site with strong electromagnetic radiation or unstable illumination.
- Please don't block the ventilation opening near the device, which is to avoid heat accumulation for the device.
- Please don't install the device near the place with heat source, such as radiator, heater, stove or other heating equipment, which is to avoid fire.
- Please don't aim the lens at intense radiation source directly (such as sun, laser and molten steel etc.), which is to avoid causing damage to the thermal detector.
- Please don't let any liquid enter the device, which is to avoid causing damage to the internal components; please stop using the device immediately and cut off the power, plug out all the cables which are connected to the device if there is liquid entering the device, and contact the local customer service center.
- Please don't stuff any foreign matter into the device in case that it may cause device short circuit, which may cause damage to the device or human injury.
- Please use the factory default package or material with equal quality to pack the device when transporting the device.
- Please don't press, vibrate or soak the device during transportation, storage and installation.

## 4. Operation and Maintenance Requirements

- Please don't touch the heat dissipation component of the device in case you may get burnt.

- Please don't dismantle the device; there is no part which can be repaired by users themselves. It may cause water leakage or bad image for the device if it is dismantled unprofessionally.
- It is recommended to use the device together with a lightning arrester, which is to improve the effect of lightning protection, it needs to conform to the lightning protection regulation for outdoor application.

## **5. Warning**

- Please modify the default password after login, in case it is stolen.
- Please use the accessories regulated by the manufacturer, and the device should be installed and maintained by professionals.
- Internal and external ground connection should be stable.
- Please don't provide two or more power supply modes to the device, otherwise, it may cause damage to the device.
- Around 2.5m long control cable is reserved when the device is delivered out of factory, it should use explosionproof flexible tube or armor cable to protect when the control cable is connected to the explosionproof control cabinet.
- Please cut off power before device maintenance and overhaul. It is prohibited to open the cover with power on in the explosion environment.
- Please make sure all the explosionproof components and parts are complete without any cracks and there is no defect which may affect explosionproof performance.
- Please contact the local dealer or the nearest service center if the device fails to work normally, please don't dismantle or modify the device.

## **6. Disclaimer**

- Please refer to the actual product for more details; the manual is just for reference.
- The manual will be regularly updated according to the product upgrade; the updated content will be added in the manual without prior announcement.
- Please contact the supplier or customer service if there is any problem occurred when using the device.
- Please contact the customer service for the latest procedure and supplementary documentation.
- There might be deviation between the actual value of some data and the value provided in the manual due to the reasons such as the real environment is not stable and so on. Please refer to the final explanation of the company if there is any doubt or dispute.
- The company is not liable for any loss caused by the operation that does not comply with the manual.

## **Privacy Protection Notice**

As the device user or data controller, you might collect personal data of others' such as face, fingerprints, car plate number, Email address, phone number, GPS and so on. You need to be in compliance with the local privacy protection laws and regulations to protect the legitimate rights and interests of other people by implementing measures include but not limited to: providing clear and visible identification to inform data subject the existence of surveillance area and providing related contact.

## About the Guide

- The Guide is for reference only. If there is inconsistency between the Guide and the actual product, the actual product shall prevail.
- We are not liable for any loss caused by the operations that do not comply with the Guide.
- The Guide would be updated according to the latest laws and regulations of related regions. For detailed information, see the paper Quick Start Guide, CD-ROM, QR code or our official website. If there is inconsistency between paper User's Guide and the electronic version, the electronic version shall prevail.
- All the designs and software are subject to change without prior written notice. The product updates might cause some differences between the actual product and the Guide. Please contact the customer service for the latest program and supplementary documentation.
- There still might be deviation in technical data, functions and operations description, or errors in print. If there is any doubt or dispute, please refer to our final explanation.
- Upgrade the reader software or try other mainstream reader software if the Guide (in PDF format) cannot be opened.
- All trademarks, registered trademarks and the company names in the Guide are the properties of their respective owners.
- Please visit our website, contact the supplier or customer service if there is any problem occurred when using the device.
- If there is any uncertainty or controversy, please refer to our final explanation.

## FCC Information



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

### **FCC conditions:**

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

### **FCC compliance:**

This equipment has been tested and found to comply with the limits for a digital device, pursuant to part 15 of the FCC Rules. This equipment generate, uses and can radiate radio frequency energy and, if not installed and used in accordance with the guide, may cause harmful interference to radio communication.

- For class A device, these limits are designed to provide reasonable protection against harmful interference in a commercial environment. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
- For class B device, these limits are designed to provide reasonable protection against harmful interference in a residential installation. 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.





# 1 Packing List

Please check if there is any obvious damage to the device appearance when opening the packing box, and confirm if the accessories in the box are in accordance with those on the list. Please refer to Table 1-1 for more details about the list.

Accessory Name	Quantity
Thermal Camera	1
Power Adapter	1
Quick Start Guide	1
Installation Accessory Bag	1

Table 1-1

## 2 Device Structure

### 2.1 Device External Cable

#### Note

- The following figure is for reference only, which is only used to know the function of cable ports.
- The cable structure may be different according to different devices, please refer to the actual device for more details.

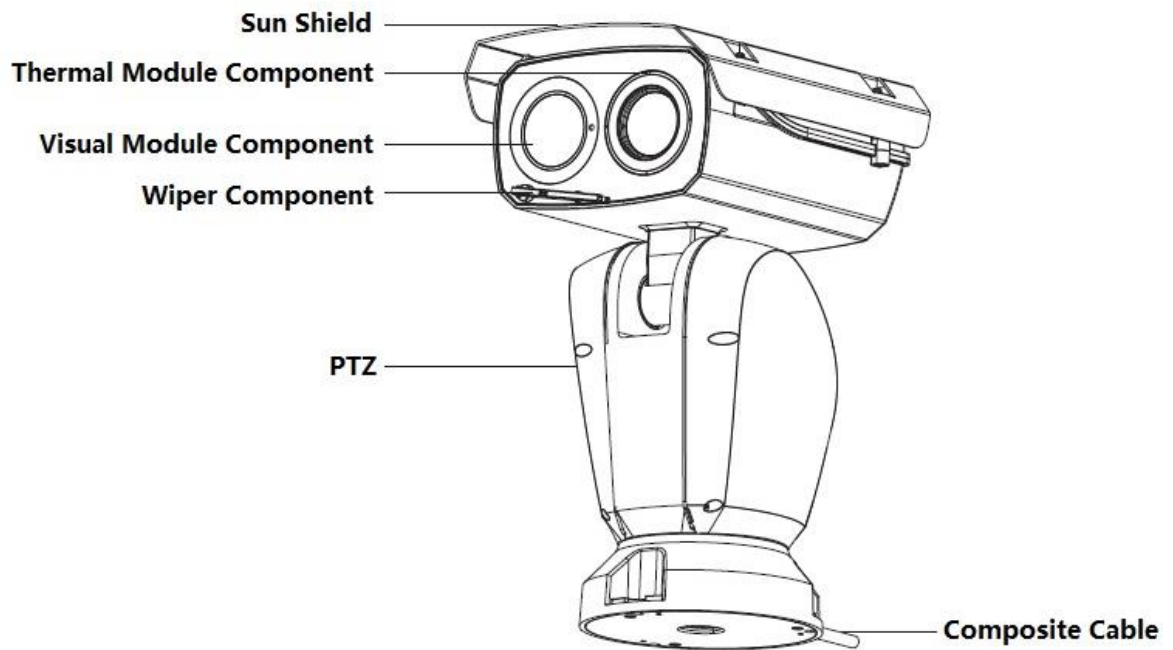


Figure 2-1

Thermal hybrid PTZ camera is equipped with a multi-functional composite cable by default, which is shown in Figure 2-2.

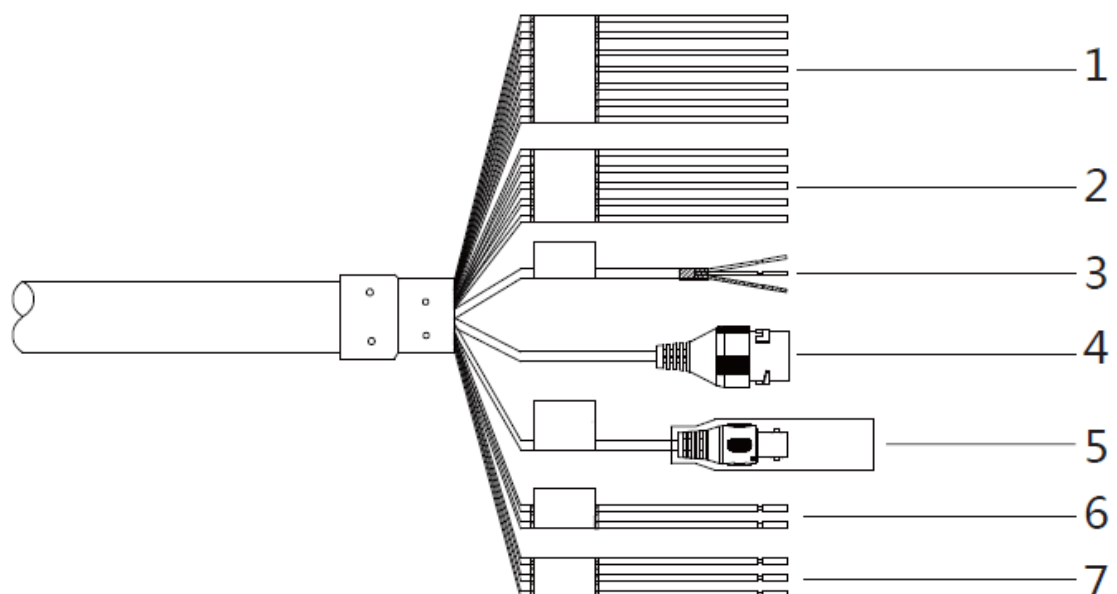


Figure 2-2

Please refer to Table 2-1 for more details about the external cable function.

SN	Port	Port name	Connector	Function description
1	I/O	I/O port	Various external sirens	It includes alarm input and output; refer to Table 2-2 for more details.
2				
3	AUDIO IN	Audio input port	RCA	Input audio signal, receive analog audio signal from sound pick-up and so on.
	AUDIO OUT	Audio output port	RCA	Output audio signal to speaker and other devices.
	AUDIO GND	Audio ground terminal	--	Grounding terminal.
4	LAN	Network port	Ethernet port	Connect to standard Ethernet cable. <b>Note</b> Connector operation description: <ul style="list-style-type: none"> <li>● Plug the connector into the network port before powering up the device, then the device is powered on, at this moment, BNC outputs HDCVI signal.</li> <li>● After the device is powered on, the connector is not inserted, wait till the device starts normally and it has access to WEB interface, then plug the connector into the network port and plug it out after waiting for about 5 seconds, the device will reboot automatically and restore factory settings (including IP, user password and so on).</li> </ul>
5	VIDEO OUT	Analog video output	BNC	Output analog video signal, it can connect to TV monitor to check image.
6	RS485	RS485 port	-	RS485 port, it can control PTZ and so on.
7	POWER	Power input port	-	Please supply power to the device according to device label when inputting AC 24V. <b>Attention</b> It may cause damage to the device if it fails to power the device according to label instruction.

Table 2-1

Please refer to Table 2-2 for introduction of I/O port function.

Port	Cable port name	Function description
I/O port	ALARM_OUT1	Alarm output port 1, output alarm signal to alarm device.
	ALARM_COM1	<b>Note</b> ALARM_OUT1 can only be used together with ALARM_COM1 when connecting to alarm device.
	ALARM_OUT2	Alarm output port 2, output alarm signal to alarm device.
	ALARM_COM2	<b>Note</b> ALARM_OUT2 can only be used together with ALARM_COM2 when connecting to alarm device.
	ALARM_IN1~ALARM_IN7	Alarm input port 1~ alarm input port 7; it is to receive on-off signal from external alarm source.
	ALARM_GND	Grounding terminal.

Table 2-2

## 2.2 Dimension

### Note

The figures below are for reference only, which are used to know the device dimension. Please refer to the real product for more details.

Please refer to Figure 2-3 and Figure 2-4 for the dimension of device structure. The unit is mm (inch).

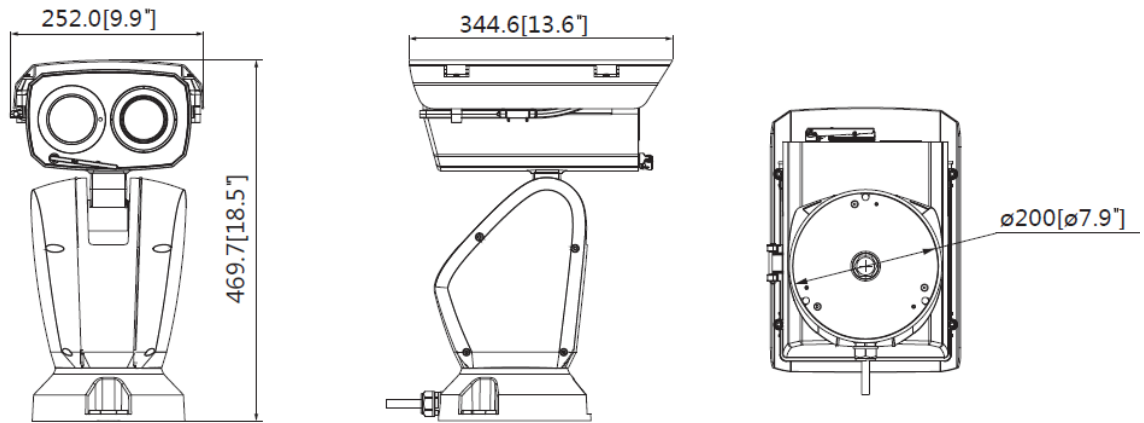


Figure 2-3

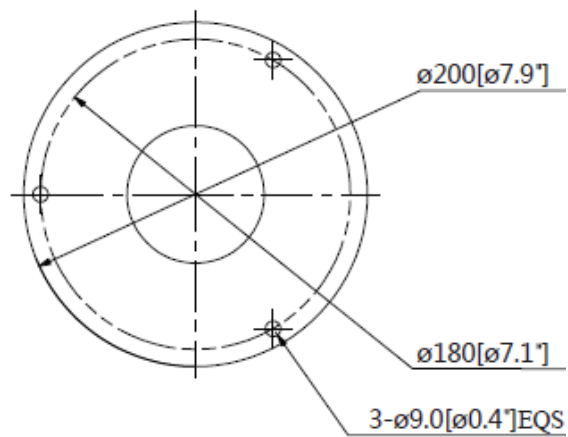


Figure 2-4

## 3 Device Installation

### 3.1 Preparation before Installation

#### 3.1.1 Check Installation Space and Intensity

Make sure the installation site has enough space to hold the device and its mounting structural components. Please make sure the mounting location where the PTZ camera is installed can sustain at least 8x weight of PTZ camera and its mounting structural components.

#### 3.1.2 Cable Preparation

Select Needed Video Cable

- 75 ohm.
- Full cable with copper conductor.
- 95% knitted copper shield.

International Model	Max Transmission Distance (Ft/M)
RG59/U	750Ft/229M
RG6/U	1,000Ft/305M
RG11/U	1,500Ft/457M

Table 3-1

#### Select Needed Power Cable

Power adapter is not provided by default, users need to prepare power adapter and power cable by themselves. It is recommended to implement according to the following requirements when the users need to lengthen the power cable.

Max. Transmission distance is recommended when the size of wire diameter is fixed and 24V AC voltage loss rate is lower than 10%. Please refer to the following table for more details.

Wire Diameter (mm)	Max. Distance (Feet/M)
1.000	22ft (6m)
1.250	35ft (10m)
2.000	90ft (27m)

Table 3-2

#### Select Needed Signal Cable

All signal cables (audio, alarm input and output, RS485 etc.) are recommended to use 0.56mm (24AWG) and above cable as lengthened wire signal cable.

### 3.2 Installation Steps

Both side cable outlet and bottom cable outlet are available during device installation, please select installation mode according to the actual needs.

#### Warning

- The mounting surface has to sustain 8X weight of PTZ, make sure it is steady and stable. It is prohibited to install the PTZ in a unstable environment.
- It shall avoid device, parts, tools and other objects falling from high altitude during installation, in case it may hurt people, damage device and other objects, drop parts.

### 3.2.1 Device Installation (Side Cable Outlet)

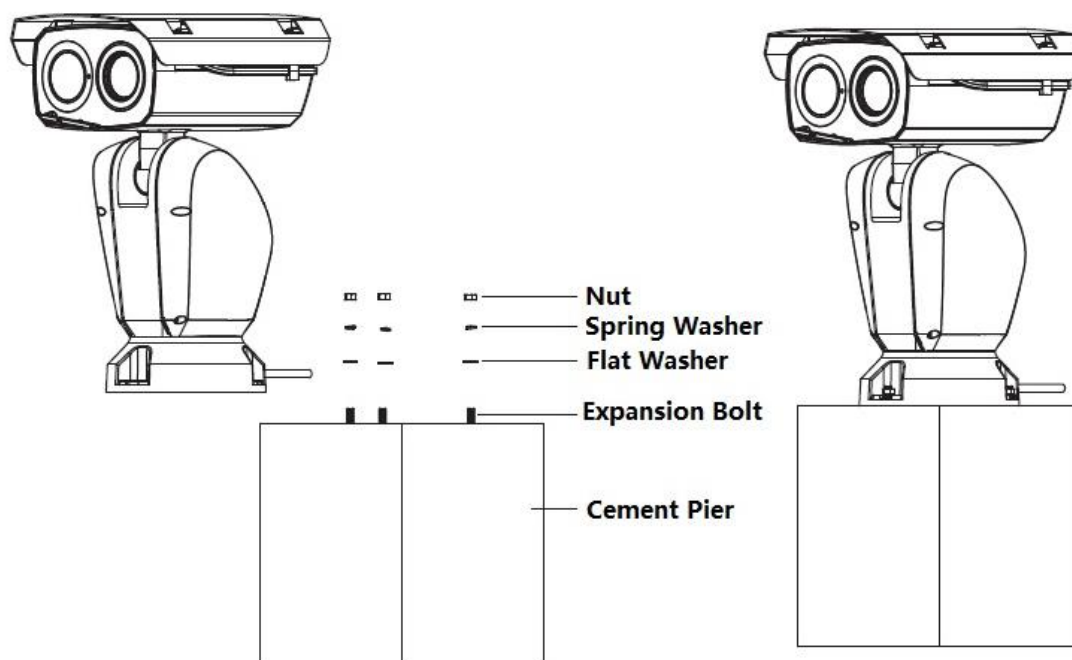


Figure 3-1

#### Step 1

Fix the device on the mounting surface.

1. Dig 3 mounting hole sites according to the mounting hole on the cement pier. Please be aware that the hole size and depth need to match the expansion bolts, make sure there is no deviation for hole site.
2. Use a hammer to knock the expansion bolts into the holes which have been well dug, bury all the expansion tubes of expansion bolts into the wall and make it level with the mounting surface.
3. Pull 3 mounting holes of the camera into the expansion bolts and make it covered by flat washer and spring washer successively, use nut to lock it firmly and fix the device on the cement pier stably.

#### Step 2

1. Connect the corresponding power, video output, RS485 control cable, alarm input and output ports well according to requirements, and then use insulated rubber tape to twine the connection joint well to make it waterproof.

#### Note

- The video port is covered with heat-shrinkable tube with high shrinkage ratio, it needs to heat and shrink the tubes on both sides after the video port is well connected, which is to make sure the video port is moistureproof and waterproof.
  - It is recommended to add anti-corrosion measurement upon the tail circuit, such as junction box.
  - The grounding hole is recommended to be grounded, which is to enhance device reliability.
2. It is to install waterproof cover for network port according to actual implementation by referring to step 3.
  3. It can properly lengthen device cable according to actual construction requirements.

#### Step 3

(Optional) Install waterproof cover for network port.

#### Note

It needs to implement the step when the device is equipped with waterproof cover and it is used outdoors.

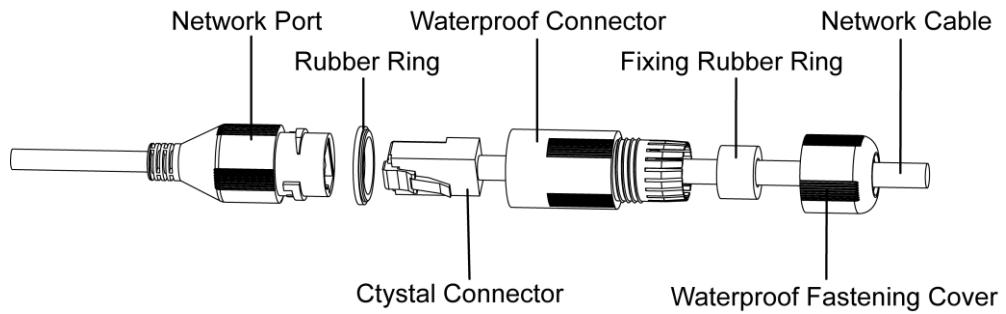


Figure 3-2

1. Keep the convex groove outward and install the rubber ring into the network port, and keep the smaller hole of the rubber ring outward and install the fixing rubber ring into the main body of the waterproof connector.
2. After pulling the network cable without crystal head through main body of waterproof connector, fixing rubber ring and waterproof fastening cover, make the crystal connector of network cable and then insert it into the network cable.
3. Put the main body of waterproof connector on the network port and rotate it clockwise to lock the network port and waterproof connector firmly.
4. Put the waterproof fastening cover on the main body of waterproof connector and rotate it clockwise to lock the waterproof connector and waterproof fastening cover firmly.

### 3.2.2 Device Installation (Bottom Cable Outlet)

Pole-mounted PTZ can be used in pole-mounted bracket structure in both indoor and outdoor environments, the hole sites of pole-mounted bracket should be in accordance with those of PTZ pedestal.

#### Note

- Please make sure there is enough space for cabling in the middle of the pole-mounted bracket when adopting bottom cable outlet installation.
- Pole-mounted bracket can sustain at least 8X weight of PTZ.
- Make sure the pole-mounted bracket is stable and reliable; it is not allowed to install the device in an unstable application environment.

#### Step 1

Replace cable outlet location

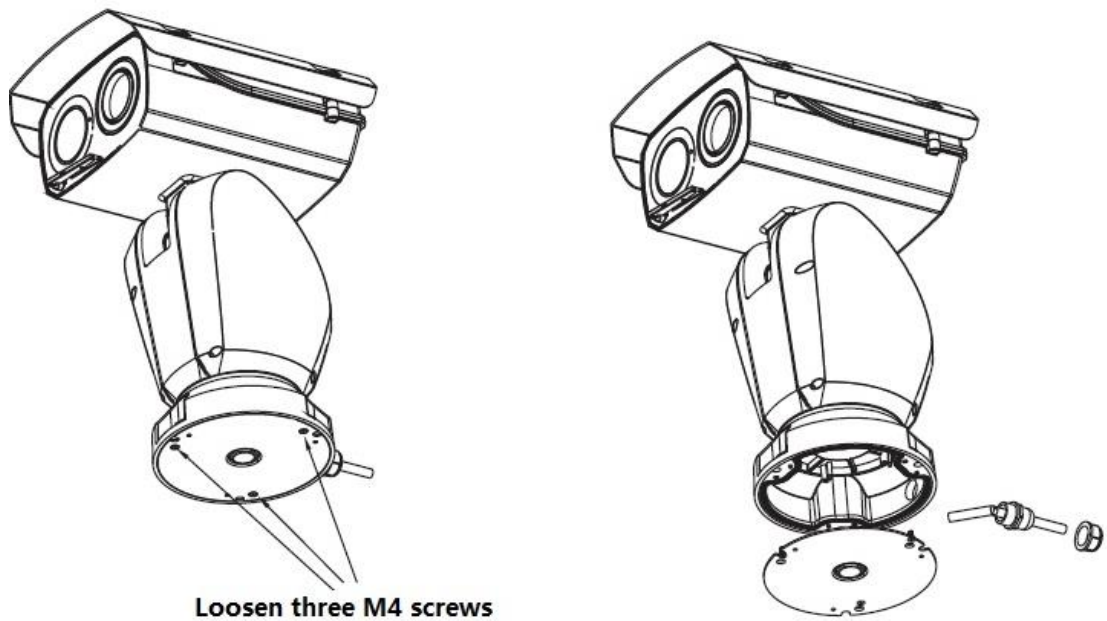


Figure 3-3

1. Use inner hex wrench to loosen three screws on the bottom.
2. Pull out the white plug of the composite cable, loosen composite cable connector and bottom metal plug respectively, and then make cable replacement.
3. Tighten the metal plug on the baseboard firmly, and then install bottom three screws well.

**Note**

Make sure the washer is well located in the sealed groove, in case it may cause water leakage and damage the device.

**Step 2**

Fix the device on the pole-mounted bracket.

1. Pull the cable through pole-mounted bracket.
2. Align the screw hole of PTZ bottom with the mounting hole sites on the pole-mounted bracket, and then use fixed bolt to fix the device on the pole-mounted bracket.

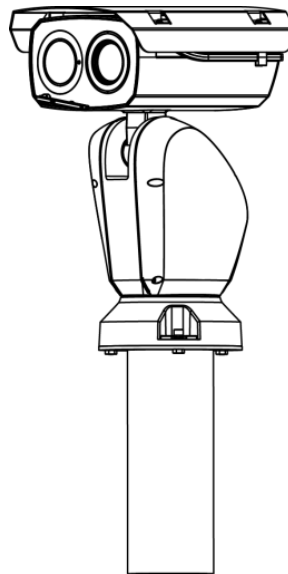


Figure 3-4



**Step 3**

Connect the external cable well according to the application requirement.

Please refer to step 2 in 3.2.1 Device Installation (Side Cable Outlet) for more operation details.

**Step 4**

Install waterproof cover.

Please refer to step 3 in 3.2.1 Device Installation (Side Cable Outlet) for more operation details.

## 4 Device Configuration

### 4.1 Device Initialization

It needs to set the user password when logging in for the first time (the username is admin by default). The figures listed in the following chapter are for reference only. There is difference about interface between different devices, please refer to the actual device for more details.

#### Note

- It fails to use device if the device is not initialized.
- In order to make sure the device is safe, please keep admin user password well after initialization and modify it regularly.

#### Step 1

Open IR browser, input camera default IP address in the address bar, and then press Enter.

#### Note

The factory default IP address is: 192.168.1.1087.

The system will display the interface of “Device Initialization” after it is successfully connected, which is shown in Figure 4-1.

The screenshot shows a web interface titled "Device Initialization". It contains the following elements:

- Username:** A text input field with the value "admin".
- Password:** A text input field with a password strength indicator below it showing "Weak", "Middle", and "Strong" buttons.
- Confirm Password:** A text input field.
- Email Address:** A text input field with a checked checkbox labeled "Email Address".
- Instructions:** A paragraph of text: "Use a password that has 8 to 32 characters, it can be a combination of letter(s), number(s) and symbol(s) with at least two kinds of them.(please do not use special symbols like ' ; : & )".
- Reset Note:** A note below the email field: "To reset password, please input properly or update in time."
- Save Button:** A button labeled "Save" at the bottom center.

Figure 4-1

#### Step 2

Set the login password of admin; please refer to Table 4-1 for more details about the parameters.

Parameter	Note
Password	The password can be set as 8 to 32 nonblank characters, which can be made up of number, letter and special character (except “'” , “”” , “;” , “:” and “&” ), and it has to contain at least two types of characters. Please set the password with high security according to the password intensity prompt.
Confirm Password	
Email Address	In order to reset password, please input email address properly or update in time

Table 4-1

#### Step 3

Click “OK” to complete initialization.

## 4.2 Modify IP Address

### Step 1

Log in camera WEB interface in the IE browser.

#### Note

- The factory default IP address is: 192.168.1.108.
- The default user is admin; the password is set during device initialization.

### Step 2

Select “Setup > Network > TCP/IP” and the system will display the interface of “TCP/IP”, which is shown in Figure 4-2.

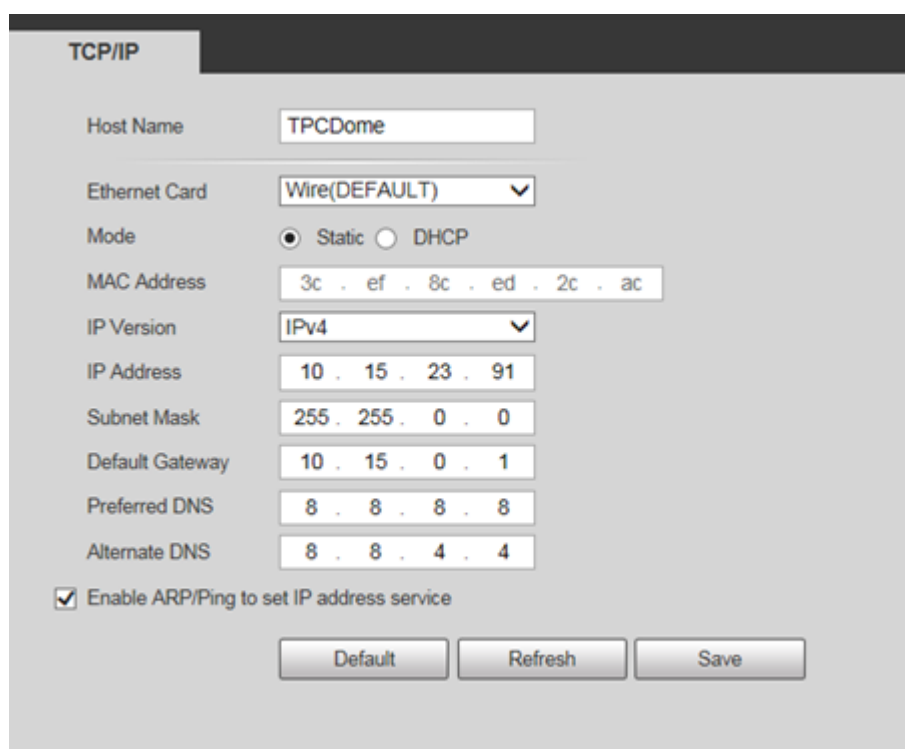


Figure 4-2

### Step 3

Configure relevant info of IP address, click “OK”.

## 4.3 Live Video

#### Note

Different devices might have different WEB interfaces, the figure in this document is just for reference, please refer to the document *WEB Operation Manual* in the disk and the actual interface for more details.

### Step 1

Log in camera WEB interface in the IE browser.

#### Note

- IP address is the one which has been modified.
- Default user is admin; the password has been set during device initialization.

### Step 2

Click “Login” and the system will display the WEB main interface, which is shown in Figure 4-3.

### Note

It will prompt you to install plug-in for the first system login, please save and install plug-in according to prompt. The WEB interface will refresh automatically after plug-in installation is completed, then live video will show up.

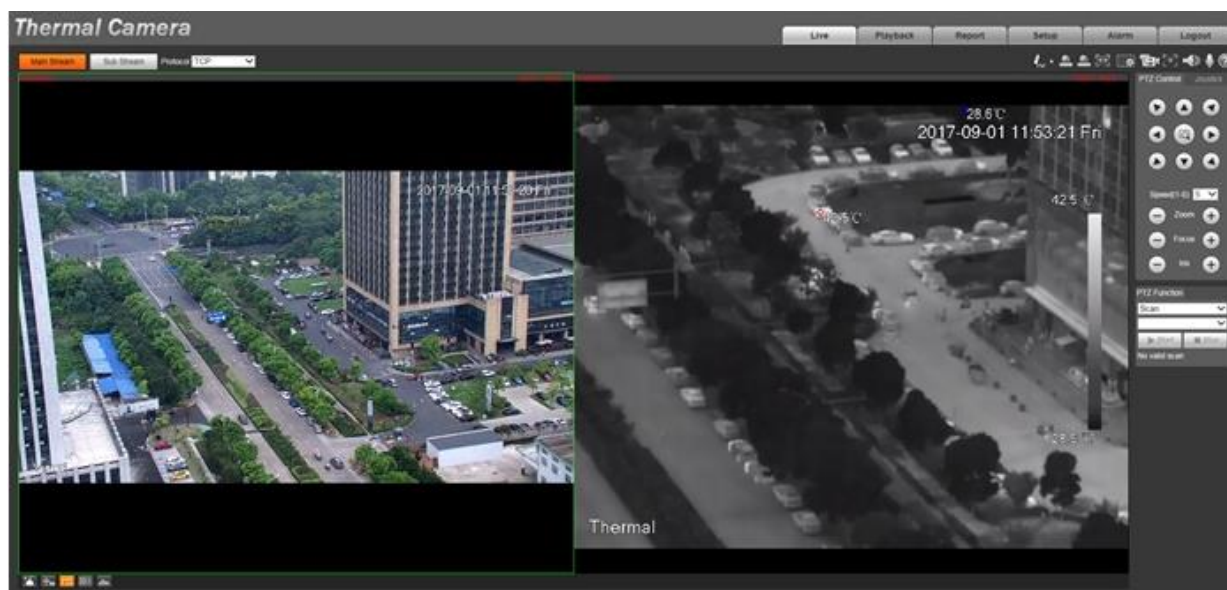


Figure 4-3

## 4.4 Alarm Setup

### Note

- Some devices do not support alarm function, the chapter cannot be applied.
- It has to cut off power first when connection cables.

### Alarm input and output connection description

#### Step 1

Connect alarm input device to alarm input port of I/O cable.

#### Step 2

Connect alarm output device to alarm output port of I/O cable, alarm output is relay switch output, the alarm output port can only be connected to NO alarm device.

#### Step 3

Open WEB interface, select “Setup > Event > Alarm”.

#### Step 4

Make corresponding settings upon alarm input and output in the alarm setup interface, click “OK”.

- Alarm input is corresponding to the alarm input port of device I/O cable. It is to set corresponding NO and NC according to the high and low level signal generated by alarm input device when alarm occurs.
- Alarm output is corresponding to the alarm output port of device I/O cable.

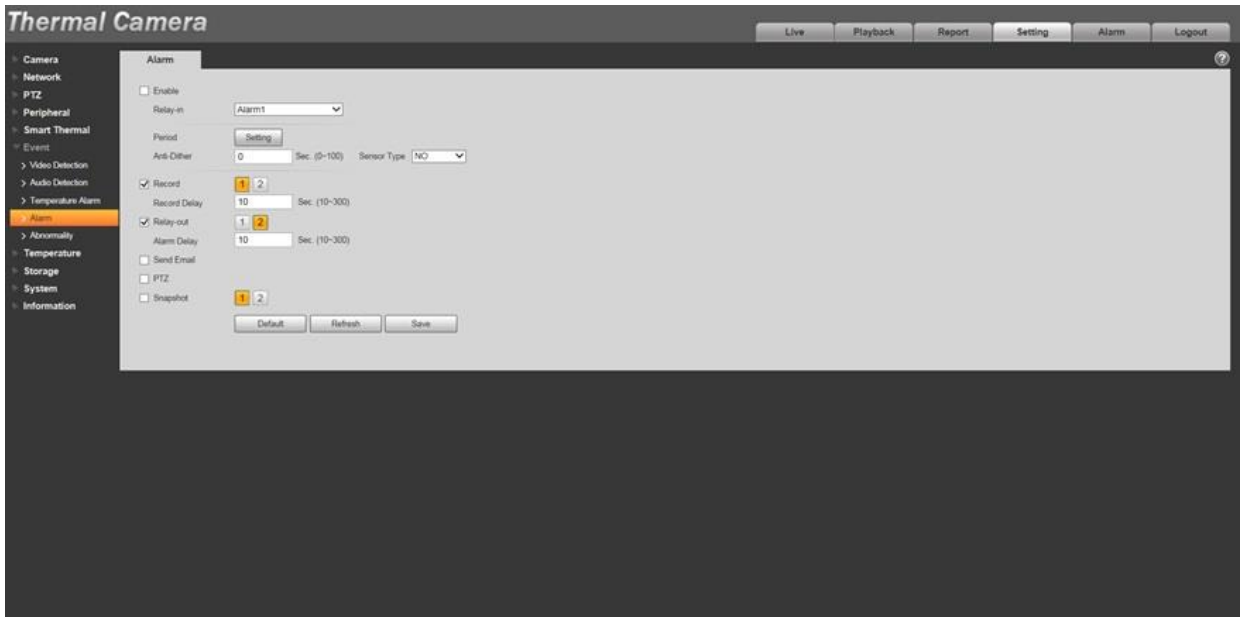


Figure 4-4

Alarm input and output figures

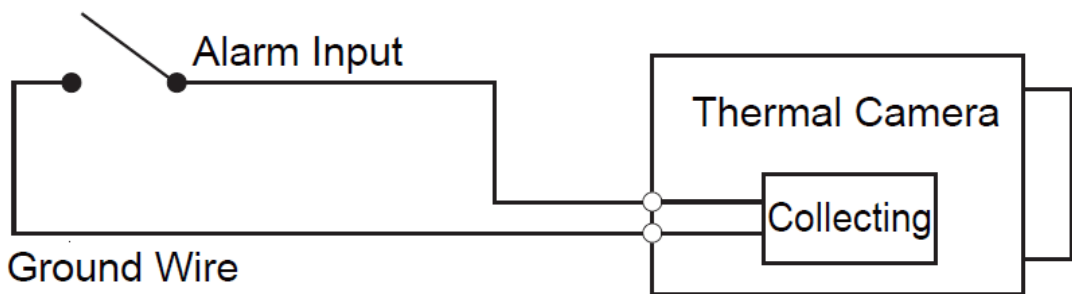


Figure 4-5

Alarm input: input signal is idle or grounded; the device can collect different states of alarm input port. Input signal is connected to 3.3V or idle, device collects logic "1"; input signal is grounded, the device collects logic "0".

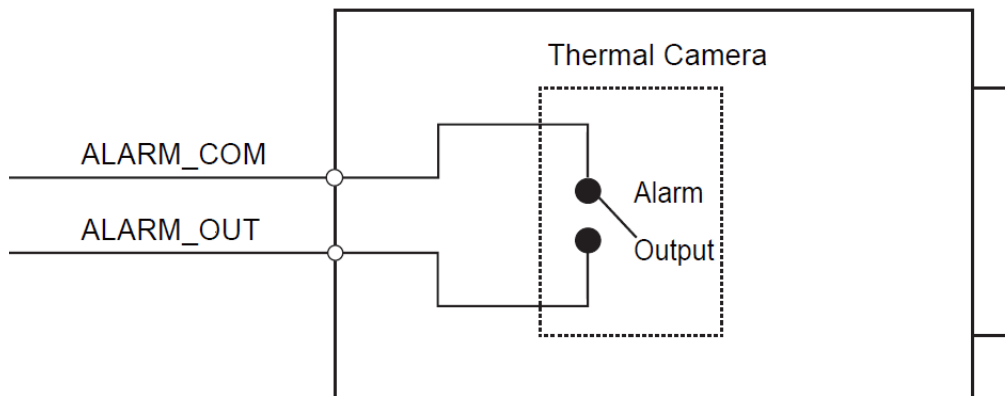


Figure 4-6

Alarm output: port ALARM\_OUT and ALARM\_COM form a switch, which can be used to provide alarm output. Normally the switch is on, the switch will be off when there is alarm output.

**Note**

ALARM\_OUT1 can only be used together with ALARM\_COM1 while ALARM\_OUT2 can only be used together with ALARM\_COM2 when connecting to alarm device.

## 5 Appendix I Lightning Protection and Surge Protection

This series speed dome adopts TVS lightning protection technology. It can effectively prevent damages from various pulse signals below 6000W, such as sudden lightning and surge. While maintaining your local electrical safety code, you still need to take necessary precaution measures when installing the speed dome in the outdoor environment.

- The distance between the signal transmission cable and high-voltage device (or high-voltage cable) shall be at least 50 meters.
- Outdoor cable layout shall go under the penthouse if possible.
- For vast land, please use sealing steel tube under the land to implement cable layout and connects one point to the earth. Open floor cable layout is forbidden.
- In area of strong thunderstorm hit or near high sensitive voltage (such as near high-voltage transformer substation), you need to install additional high-power thunder protection device or lightning rod.
- The thunder protection and earth of the outdoor device and cable shall be considered in the building whole thunder protection and conform to your local national or industry standard.
- System shall adopt equal-potential wiring. The earth device shall meet anti-jamming and at the same time conforms to your local electrical safety code. The earth device shall not short circuit to N (neutral) line of high voltage power grid or mixed with other wires. When connect the system to the earth alone, the earth resistance shall not be more than  $4\ \Omega$  and earth cable cross-sectional area shall be no less than  $25\ \text{mm}^2$ . See Figure 5-1.

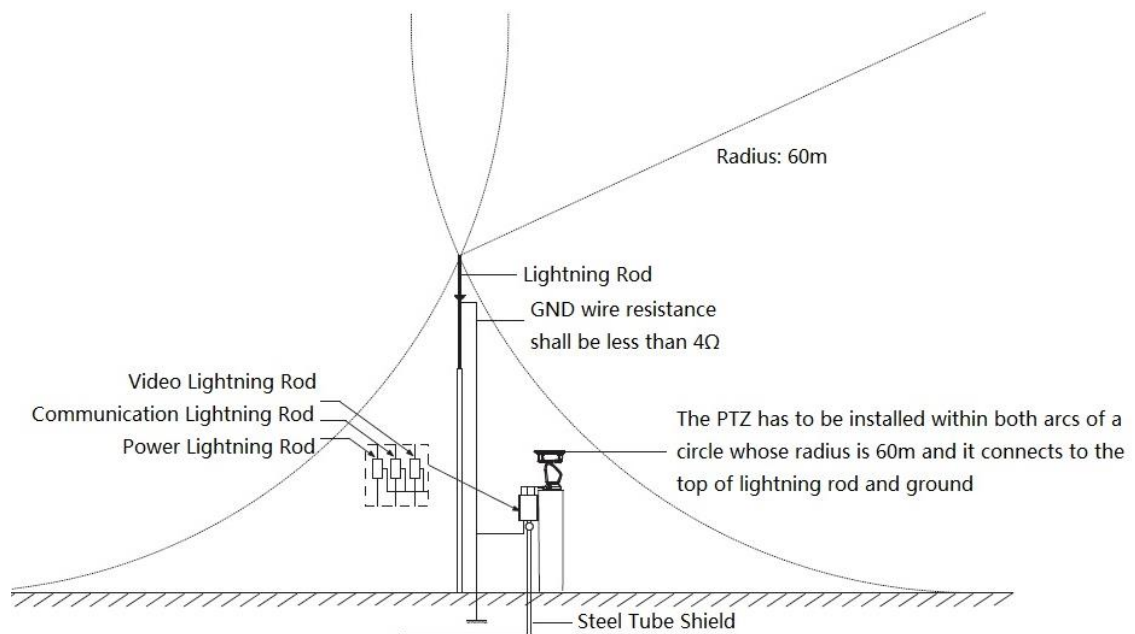


Figure 5-1

### 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.