Thermal Hybrid PTZ Camera

Quick Start Guide

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Welcome

Thank you for purchasing our thermal hybrid PTZ!

Please read the following safeguards and warnings carefully before you install or use the product!

Cybersecurity Recommendations

Mandatory actions to be taken towards cybersecurity

1. Change Passwords and Use Strong Passwords:

The number one reason systems get "hacked" is due to having weak or default passwords. It is recommended to change default passwords immediately and choose a strong password whenever possible. A strong password should be made up of at least 8 characters and a combination of special characters, numbers, and upper and lower case letters.

2. Update Firmware

As is standard procedure in the tech-industry, we recommend keeping NVR, DVR, and IP camera firmware up-to-date to ensure the system is current with the latest security patches and fixes.

"Nice to have" recommendations to improve your network security

1. Change Passwords Regularly

Regularly change the credentials to your devices to help ensure that only authorized users are able to access the system.

2. Change Default HTTP and TCP Ports:

- Change default HTTP and TCP ports for systems. These are the two ports used to communicate and to view video feeds remotely.
- These ports can be changed to any set of numbers between 1025-65535. Avoiding the default ports reduces the risk of outsiders being able to guess which ports you are using.

3. Enable HTTPS/SSL:

Set up an SSL Certificate to enable HTTPS. This will encrypt all communication between your devices and recorder.

4. Enable IP Filter:

Enabling your IP filter will prevent everyone, except those with specified IP addresses, from accessing the system.

5. Change ONVIF Password:

On older IP Camera firmware, the ONVIF password does not change when you change the system's credentials. You will need to either update the camera's firmware to the latest revision or manually change the ONVIF password.

6. Forward Only Ports You Need:

- Only forward the HTTP and TCP ports that you need to use. Do not forward a huge range of numbers to the device. Do not DMZ the device's IP address.

- You do not need to forward any ports for individual cameras if they are all connected to a recorder on site; just the NVR is needed.

7. Disable Auto-Login on SmartPSS:

Those using SmartPSS to view their system and on a computer that is used by multiple people should disable auto-login. This adds a layer of security to prevent users without the appropriate credentials from accessing the system.

8. Use a Different Username and Password for SmartPSS:

In the event that your social media, bank, email, etc. account is compromised, you would not want someone collecting those passwords and trying them out on your video surveillance system. Using a different username and password for your security system will make it more difficult for someone to guess their way into your system.

9. Limit Features of Guest Accounts:

If your system is set up for multiple users, ensure that each user only has rights to features and functions they need to use to perform their job.

10. UPnP:

- UPnP will automatically try to forward ports in your router or modem. Normally this would be a good thing. However, if your system automatically forwards the ports and you leave the credentials defaulted, you may end up with unwanted visitors.
- If you manually forwarded the HTTP and TCP ports in your router/modem, this feature should be turned off regardless. Disabling UPnP is recommended when the function is not used in real applications.

11. SNMP:

Disable SNMP if you are not using it. If you are using SNMP, you should do so only temporarily, for tracing and testing purposes only.

12. Multicast:

Multicast is used to share video streams between two recorders. Currently there are no known issues involving Multicast, but if you are not using this feature, deactivation can enhance your network security.

13. Check the Log:

If you suspect that someone has gained unauthorized access to your system, you can check the system log. The system log will show you which IP addresses were used to login to your system and what was accessed.

14. Physically Lock Down the Device:

Ideally, you want to prevent any unauthorized physical access to your system. The best way to achieve this is to install the recorder in a lockbox, locking server rack, or in a room that is behind a lock and key.

15. Connect IP Cameras to the PoE Ports on the Back of an NVR:
Cameras connected to the PoE ports on the back of an NVR are isolated from the outside world and cannot be accessed directly.

16. Isolate NVR and IP Camera Network
The network your NVR and IP camera resides on should not be the same network as your public computer network. This will prevent any visitors or unwanted guests from getting access to the same network the security system needs in order to function properly.

Important Safeguards and Warnings

Safety Measures

1. Qualified Engineer Needed

- The installation engineer or maintenance engineer shall have corresponding CCTV system installation certificate or maintenance qualification certificate.
- The installation engineer or maintenance engineer shall have qualification certificate for work at height.
- The installation engineer or maintenance engineer shall have the basic knowledge and operation technique for low-voltage cable layout and low-voltage electronic cable connection.
- Please read the installation manual carefully and keep it well for future reference,
- We are not liable for any problems caused by unauthorized modifications or attempted repair.

2. Lifting Appliance Requirement

- Please select the proper thermal hybrid PTZ installation mode and use the lifting appliances at the safety environment.
- The lifting appliances shall have the enough capacity to reach the installation height.
- The lifting appliances shall have safe performance.

3. Power Requirements

- 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.
- Please check if the power supply is correct before device operation.
- The power shall conform to the requirement in the SELV (Safety Extra Low Voltage) and the rated voltage of Limited power source according to IEC60950-1. The power supply requirement is subject to the device label.
- Please install easy-to-use power failure device when installing the cables, 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.
- The power adapter is provided by default.

The precaution measures include two types: Warning and Note.

- Warning: It is to alert you there is an optional risk of death or series injury!
- Note: It is to alert you there is an optional risk of damage or property loss!

Warning

- Be sure to use all the accessories (such as power adapter) recommended by manufacturer.
- Do not connect several thermal hybrid PTZ to one power adapter. It may result in overheat or fire if it exceeds the rated load.

- Avoid aiming the lens at the strong radiation source directly (such as sun, laser, molten steel etc); in case it may cause unrecoverable damage to the thermal imaging detector. What's worse, it may cause severe damage to the detector.
- Avoid oil stain and kinds of chemicals tarnishing and damaging the lens surface.
- Store the device in a cool and dry place where there is ventilation but no intense electromagnetic field.
- Violent vibration or crash is not allowed during transportation and application.
- Before you connect the cable, install or uninstall, or begin the daily maintenance work, please turn off the power and unplug the power cable.
- Please make sure the produce is secure firmly on the wall or the ceiling.
- Please turn off the power and unplug the power cable, If there is any smoke, disgusting smell, or noise. Please contact your local retailer or customer service centre for help.
- All the examination and repair work should be done by the qualified service engineers. We are not liable for any problems caused by unauthorized modifications or attempted repair.

Note

1. Safety Transportation

- Heavy stress, violent vibration or water splash are not allowed during transportation, storage and installation.
- This series product must use split type package during the transportation.
- We are not liable for any damage or problem resulting from the integrated package during the transportation.

2. When device is malfunction

Shut down the device and disconnect the power cable immediately if there is smoke, abnormal smell or abnormal function. Please contact your local retailer ASAP.

3. Do not try to dismantle or modify the device

- There is risk of personal injury or device damage resulting from opening the shell.
- Please contact your local retailer if there is internal setup or maintenance requirement.
- We are not liable for any problems caused by unauthorized modifications or attempted repair.

4. Do not allow other object falling into the device

- Please make sure there is no metal or inflammable, explosive substance in the thermal hybrid PTZ.
- The above mentioned objects in the device may result in fire, short-circuit or damage.
- Please shut down the device and disconnect the power cable if there is water or liquid falling into the camera. Please contact your local retailer ASAP.
- Please pay attention to the camera. Avoid the sea water or rain to erode the camera.

5. Handle carefully

Do not allow this series product fall down to the ground.

Avoid heavy vibration.

6. Installation Environment Requirement

● This series thermal hybrid PTZ should be installed in a cool, dry place away from direct sunlight, inflammable, explosive substances and etc.
● This series product shall be away from the strong electromagnetism radiant, please keep it away from wireless power, TV transmitter, transformer and etc.

7. Daily Maintenance

● Please use the soft cloth to clean dust on the shell, or you can use soft cloth with cleaning liquid to clean the shell and then use soft cloth to make it dry.
● Do not use gasoline, dope thinner or other chemical material to clean the shell. It may result in shell transfiguration or paint flake.
● Do not allow the plastic or rubber material to touch the shell for a long time. It may result in paint flake.

1 Accessory List

Please check if there is any obvious damage to the device appearance when opening the external packing box, besides, you need to confirm if the accessories are in accordance with the ones on the list. Please refer to Table 1-1 for the accessories; please be aware that the actual config is based on the specific product.

Name	Quantity
Thermal Hybrid PTZ	1
Quick Start Guide	1
Power Cable	1
DC Power Adapter	1
Aviation Port Composite Cable	1
Sun Shield	2
Dual Purpose Screwdriver	1
PTZ Installation Screw Package (M8 nut, bolt, spring washer and plain washer 4pcs respectively)	1
Sun Shield Installation Screw Package (M3 screw 8pcs)	1

Table 1-1

2 Device Structure

2.1 Dimension

Note

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

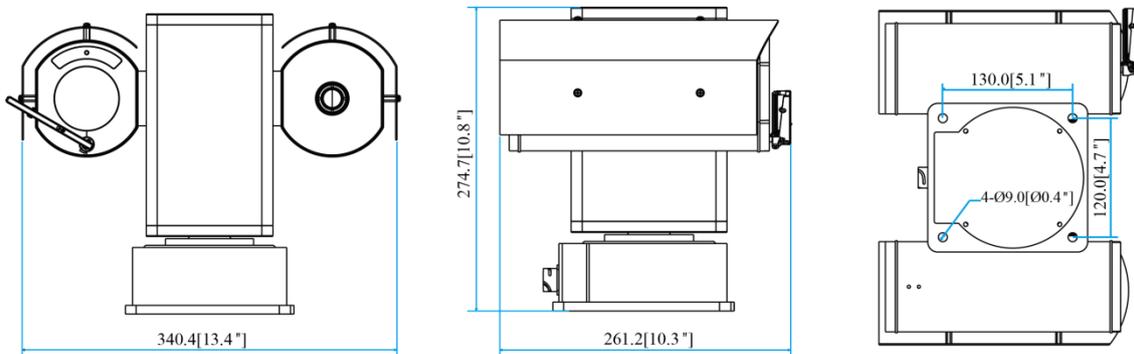Please refer to Figure 2-1 for device dimension.

Figure 2-1

2.2 Device External Cable

Note

- The following figure is for reference only, which is only used to know cable port function.
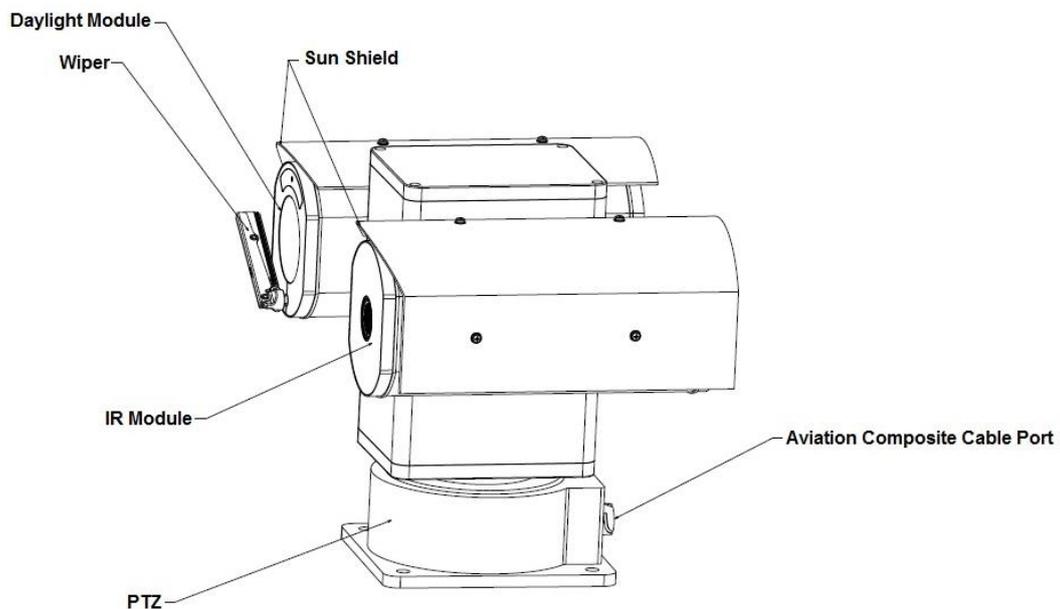- Slight difference may exist between different device structures, please refer to the actual device for more details.

Figure 2-2

The thermal hybrid PTZ camera is equipped with a multi-functional composite cable; please refer to Figure 2-3 for more details.
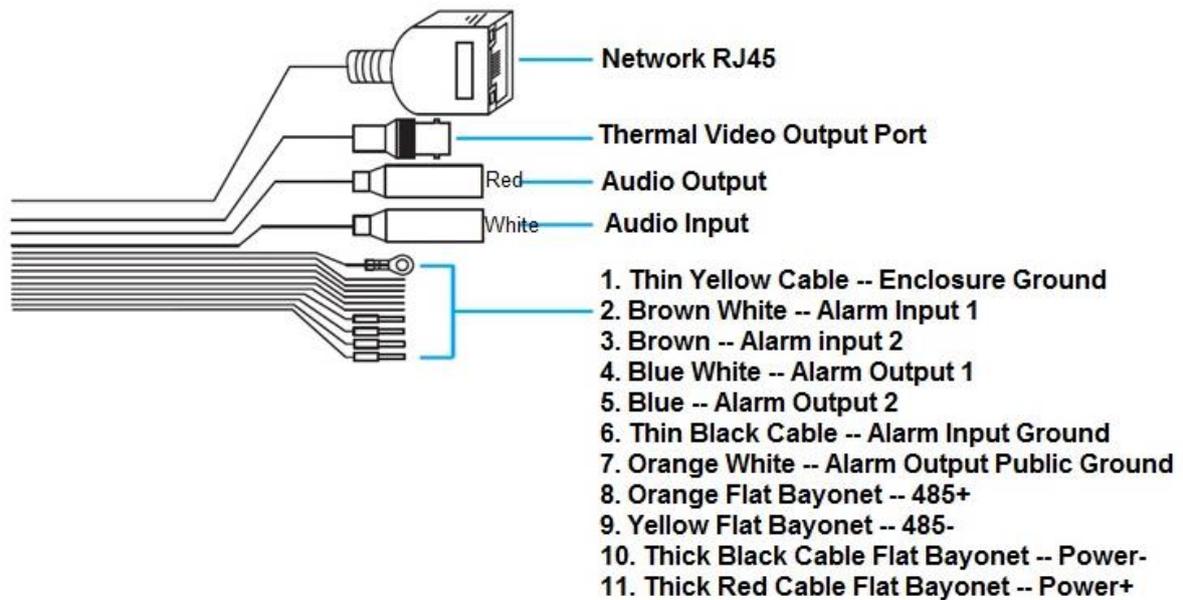
Figure 2-3

Note

Restore factory default parameters:

- After the device is powered on (the connector is not plugged into the network port), plug the connector into the network port when the device starts normally and it has access to visit WEB interface, plug out the connector after waiting for about 5 seconds, the device will reboot automatically and restore factory default setting (including IP, user password and etc.).
- Plug the connector into the network port before the device is powered on, then power on the device, then the video output port outputs HDCVI signal.

3 Device Installation

3.1 Preparation before Installation

3.1.1 Check Installation Space and Intensity

Please make sure the installation environment has enough space to install the PTZ and its corresponding bracket. Please make sure the wall and the bracket can support the total weight of PTZ and its corresponding mounting components, the total sustainable weight is required to be at least 64kg.

3.1.2 Cable Preparation

Select required video cable

- 75 ohm impedance
- 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)

Select required power cable

It is advised to refer to the following requirements when users need to extend the power cable. The recommended max transmission distance is shown in the following table when the wire diameter is fixed.

Wire diameter（mm)	Max distance（ft/m)
1.500	22ft（6m)
2.000	35ft（10m)
3.000	90ft（27m)

Select required signal cable

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

3.2 Install Device

Note

The device mounting platform is set up by users themselves; it shall meet the following installation conditions.

- The hole sites of the mounting platform have to match those of the device pedestal.
- The mounting platform has to sustain at least 64kg.

All the mounting screws have to be firmly tightened; otherwise, it will affect the rotation accuracy, anti-seismic level and service life of the PTZ.
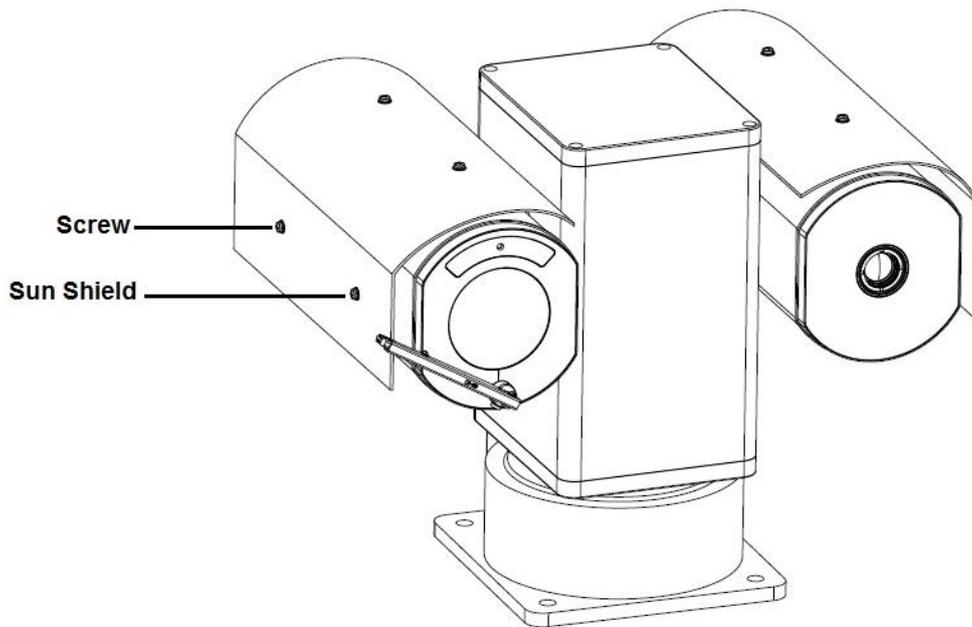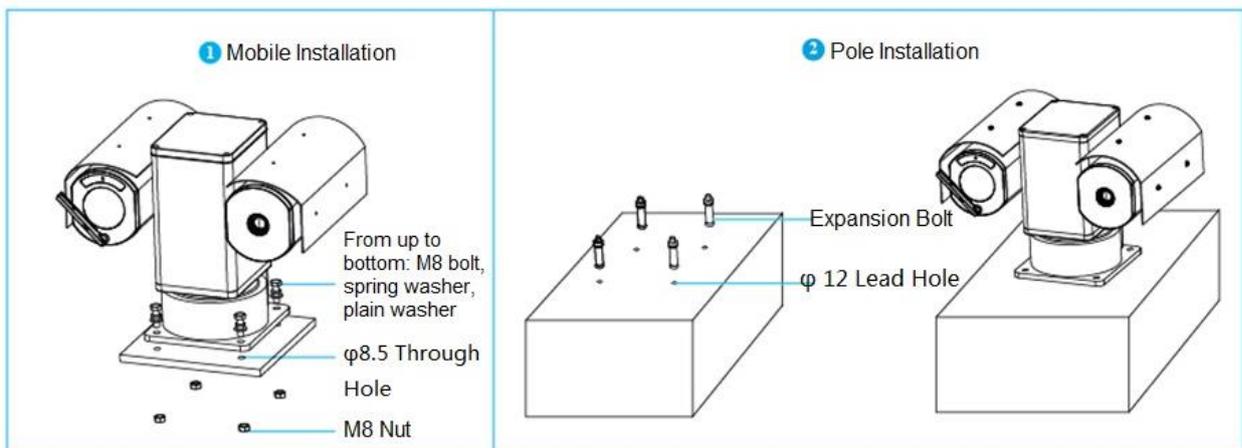
Figure 3-1

Figure 3-2

3.2.1 Mobile Installation

Step 1

Fix the device on the mounting surface.

1. Take out the camera, sun shield and screw package from the packing box, place them on the corresponding location respectively, and then insert the screws and use a screwdriver to tighten them firmly, which is shown in Figure 3-1.
2. Dig four Φ8.5 hole sites in advance on the mobile platform according to the baseboard size of 130mm×120mm.
3. Lay the hybrid PTZ on the corresponding hole sites, take out M8 bolt, spring washer and flat gasket from the accessory bag, put the spring washer and flat gasket into the bolt and make them pass through the holes of PTZ and mounting platform, twist M8 nut from the bottom, use wrench to tighten the nuts in sequence after four hole sites have been well installed, which is shown in Figure 3-2.

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Step 2

Plug the device external cable well according to the requirements.

1. Connect the corresponding power, video output and other 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.
- The grounding hole is recommended to be grounded, which is to enhance device reliability.

2. Please refer to "4.4 Alarm Setup" for alarm input and output wiring and config.
3. It can properly lengthen device cable according to actual construction requirements.

3.2.2 Pole Installation

Step 1

Fix the device on the mounting surface.

1. Take out the camera, sun shield and screw package from the packing box, place the sun shield on the corresponding location and make the arc surface face the front, insert the screws and tighten them firmly by a screwdriver, which is shown in Figure 3-1.
2. Dig Φ12 lead holes on the cement ground in advance, and then insert the M8 expansion bolt into the holes you just dug.
3. Place the PTZ into the hole sites which were dug in advance, fix the bolts firmly and make sure the device is really stable, which is shown in the right of Figure 3-2

Step 2

Plug the device external cable well according to the requirements. Please refer to step 2 of "3.2.1 Mobile Installation" for more 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.

Caution

● 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.

● It can implement device initialization only when the device IP address (192.168.1.108 by default) and the PC IP address are in the same network segment.

Step 1

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

Note

The factory default IP address is: 192.168.1.108.

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

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 **Save** to complete initialization.

4.2 Modify IP Address

In order to make the camera get access to network smoothly, please plan IP address reasonably according to the actual network environment.

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 **Save**.

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.

8

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.
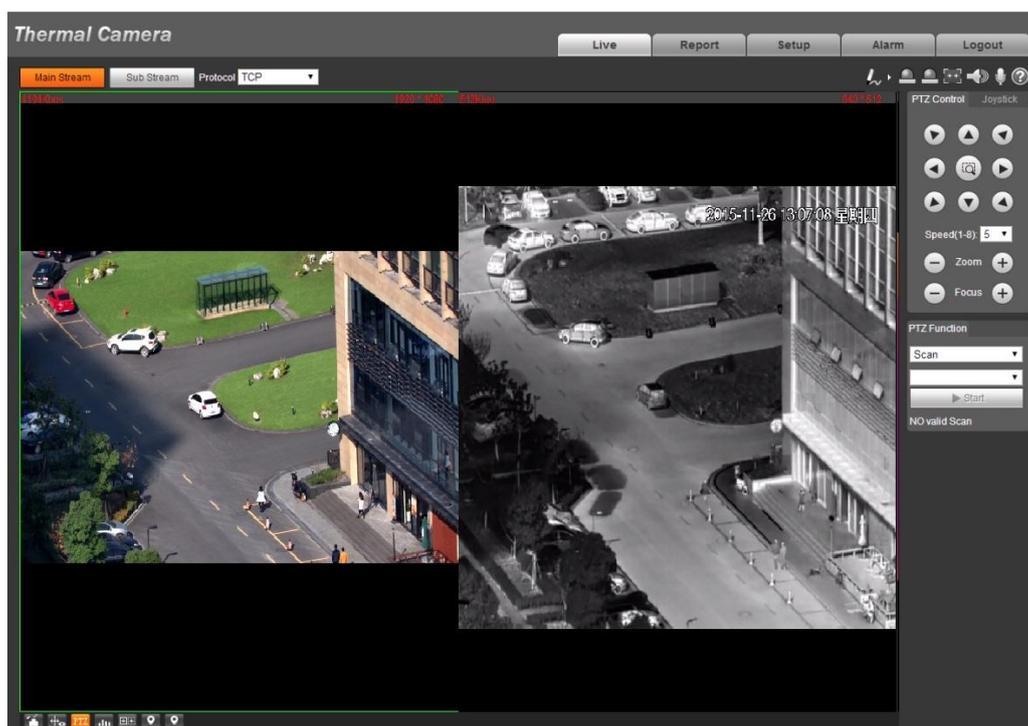

Figure 4-3

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 connecting 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, and then click **Save**.

The interface of alarm setup is shown in Figure 4-4.

● 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.

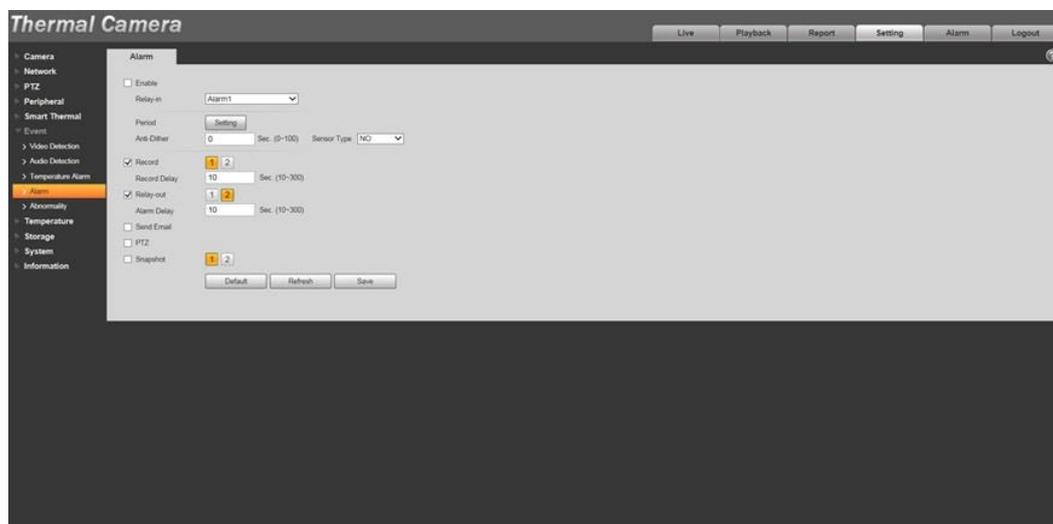● Alarm output is corresponding to the alarm output port of device I/O cable.

Figure 4-4
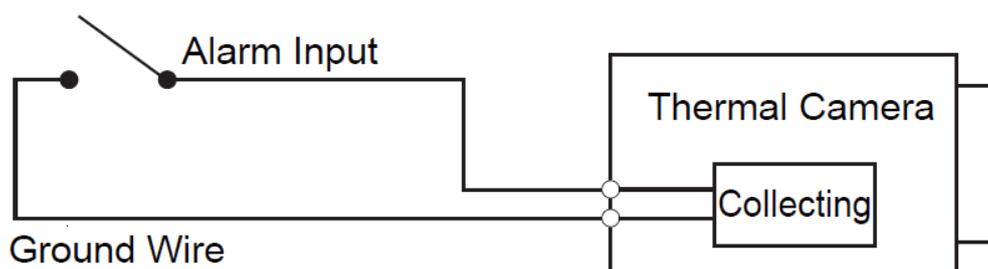
Alarm input and output figures

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".
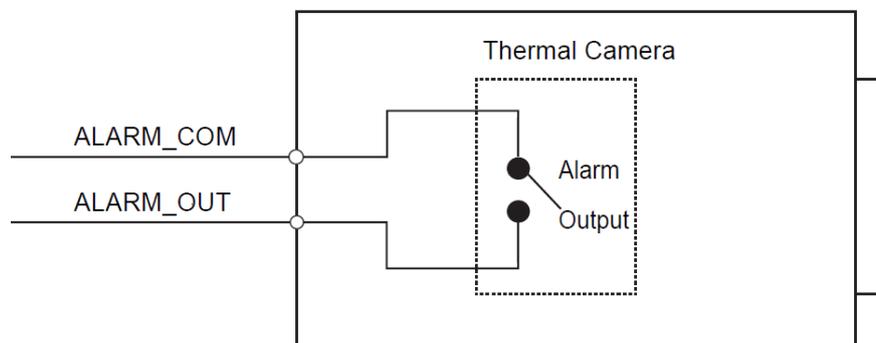

Figure 4-6

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.

5 APPENDIX I LIGHTENING PROTECTION AND SURGE PROTECTION

This series thermal hybrid PTZ adopts TVS lighting protection technology. It can effectively prevent damages from various pulse signals below 6000V, such as sudden lighting and surge. While maintaining your local electrical safety code, you still need to take necessary precaution measures when installing the thermal hybrid PTZ 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 4Ω and earth cable cross-sectional area shall be no less than 25 mm^2. See Figure 5-1.
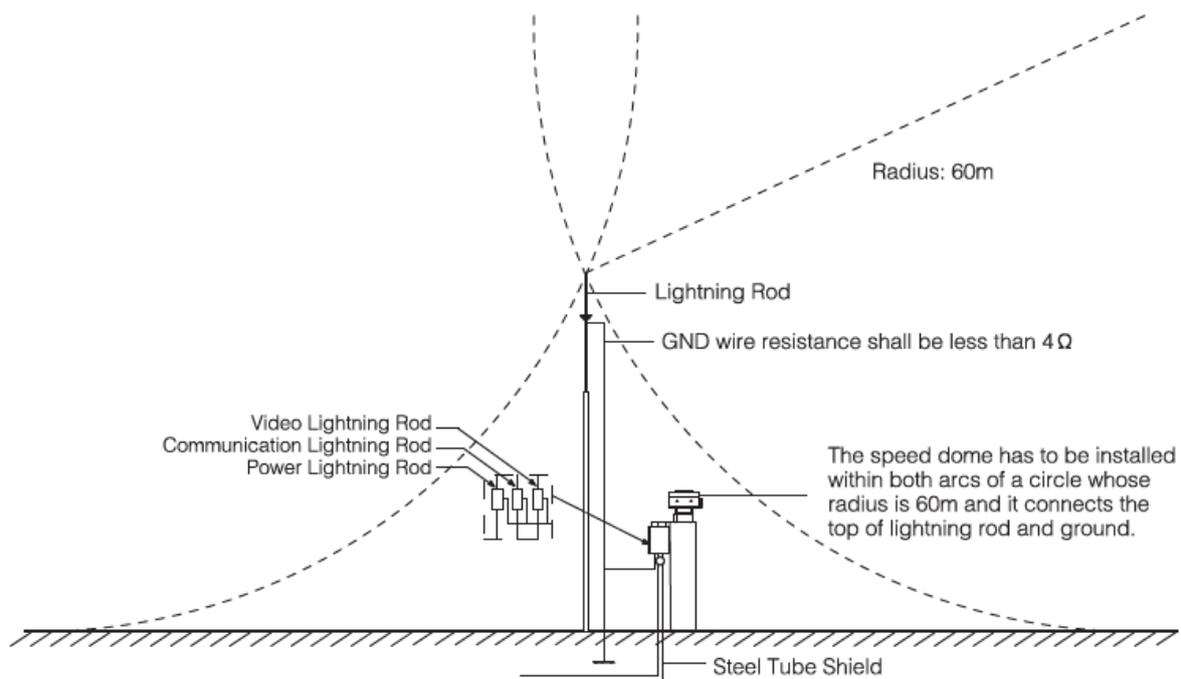

Figure 5-1

6 APPENDIX Ⅱ PROBLEMS AND SOLUTIONS

SYMPTOM	CAUSE	SOLUTION
1) No self-diagnosis, no video signal when I connect PTZ to power.	Red LED is not on. ● Your power supplying does not apply to the power. Or connection is too loose. ● Power off or transformer problem.	● Check power is connected or properly earthed. ● Check power supply condition or check transformer.
	Red LED light on the power board is on ● Power supplying is low ● Something wrong with power board.	● Use multimeter to check PTZ load. ● Please contact retailer to replace power board.
2) No self-diagnosis. There is a noise	Power supplying is inadequate.	Replace power supplying.
	Mechanical malfunction.	Need electrical engineer help.
3) Video signal loss occurs in high speed rotation.	Power supplying is not sufficient	Replace power supplying.
4)Video signal is not successive	Circuit connection is too loose.	Connect tightly.
	Video switch or power problem	Need electrical engineer help.
5) Video is not clear.	Focus is in manual mode.	Control manually.
	PTZ cover is dirty.	Wash PTZ cover
6) During PTZ switch, there is a tilt movement in the monitor.	Camera power is not in the same Phase.	When several PTZs are connected to one transformer, please connect the transformer output cable to the PTZ same side.
7) The PTZ keeps rotating and it is out of control	The supply voltage is too low or the power is insufficient.	Use multimeter to check the PTZ voltage and current, if it is too low, then it needs to improve supply voltage till the device runs normally.

Table 6-1

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.