Thermal Hybrid & Tribrid PTZ Camera

Quick Start Guide

Version 1.0.0

Table of Contents

Welcome

Thank you for purchasing our thermal PTZ camera!

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

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 dome 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.

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
- 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.
- Be sure to use all the accessories (such as power adapter) recommended by manufacturer.
- Do not connect several thermal hybrid domes 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 dome.
- 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 dome 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.

Laser Radiation

- Laser can cause damage to human eyes, it is prohibited to emit laser to the people within 50m from the ranging equipment.
- Laser can cause permanent damage to the device; it is prohibited to make laser ranging upon the targets within 50m.
- Laser radiation can cause permanent injury to skin and eyes, it can ignite flammable objects as well, therefore, it shall avoid exposing any stuff (scattering terminal and absorber excepted) to the laser beam directly, besides, it is not allowed to place volatile and flammable stuff (such as alcohol) in the working area of laser radiation product to avoid laser radiation or fire caused by high voltage.
- It should eliminate any objects which generate specular reflection in the working area of laser radiation product, because the laser reflection or scattering light still has quite high intensity, which will surely injure eyes. It should take necessary measures to control reflection and scattering range if it has to use this kind of object.
- It has to wait for 5 minutes after the laser ranging equipment finishes work if it needs to dismantle or displace the device, make sure its internal accumulated electric charge has been completely released in case of electric shock.
- It is prohibited to touch the circuit of ranging equipment under operation status, especially for the laser power which is equipped with high voltage of kilovolt.
- It is prohibited to plug the cable in the power-up status.

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

⚠ CAUTION

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 in the list. Please refer to Table 1-1 for more details about the list.

SN	Accessory Name	Quantity
1	PTZ Housing	1
	QSG	1
	RJ45 Waterproof Connector	1
	M8*20 Screw	4
2	PTZ Camera	1
	M10*35 Outer Hex Screw	7
	5mm Inner Hex Wrench	1
	6mm Inner Hex Wrench	1
	Power Adapter	1

Table 1-1

2 DEVICE STRUCTURE

2.1 Structural Component

Note

- The following figures are for reference only, which are only used to know the structure components and cable port functions.
- There may be difference between different device structure components, please refer to the real device for more details.

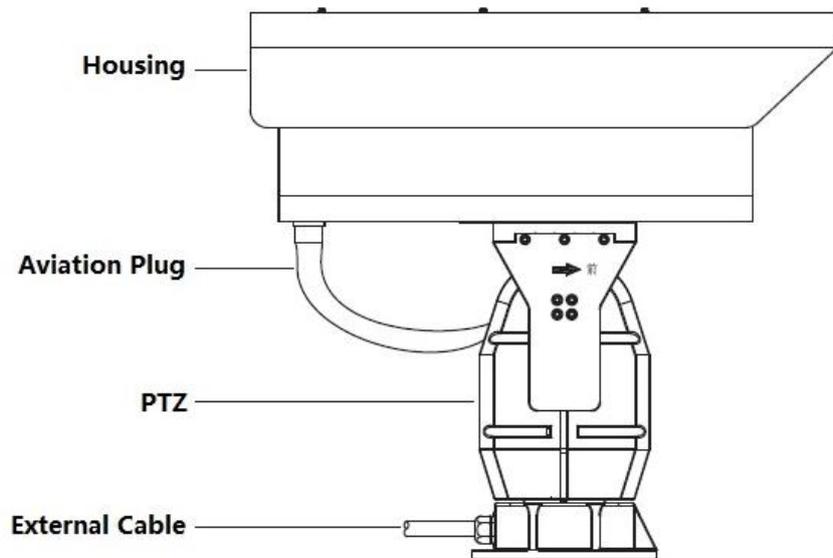Please refer to Figure 2-1 and Figure 2-2 for structural component and external cable respectively.
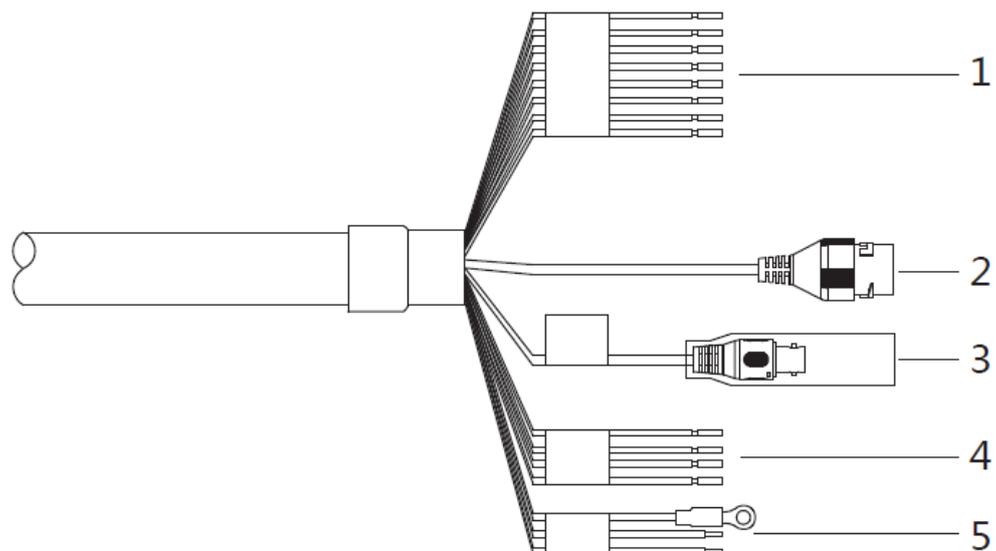

Figure 2-1

Figure 2-2

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

SN	Port	Port Name	Connector	Function Description
1	Alarm IN1 (Green)	Alarm input	Various external sirens, such as smoke detector and so on.	Alarm input port; it is to receive the on-off signal from external alarm source.
	Alarm IN2 (Blue)			
	Alarm OUT NO (Pink)	Alarm output		Alarm output port, output alarm signal to alarm device.
	Alarm OUT C (White)			
	Audio IN (White)	Audio input	RCA	Input audio signal, receive the analog audio signal from sound pick-up and so on.
	Audio OUT (Red)	Audio output		Output audio signal to speaker and other devices.
	GND (Black)	Ground terminal	-	Ground terminal
2	LAN	Network port	Ethernet port	Connect to standard Ethernet cable. **Note** Connector operation description: - Insert the connector into the network port before the device power on, then power up the device, at this moment, BNC outputs HDCVI signal. - 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).
3	VIDEO OUT	Analog video output	BNC	Output analog video signal, it can connect to TV monitor to check image.
4	RS485_A（RS422_A）(Orange)	RS485（RS422_Rx）	-	RS485 port and RS422 port are reused, there are two following connection modes: As RS485 port, it can connect to external keyboard and so on. As RS422_Rx port, it can be used together with RS422_Tx.
	RS485_B（RS422_B）(Yellow)			
	RS422_Y (Gray)	RS422_Tx	-	RS422_Tx and RS495 (As RS422_Rx) are used together.
	RS422_Z (Purple)			
5	POWER	Power input port	-	Power port, input DC 30V by default. **Attention** Please use default adapter, it needs to confirm with supplier if using other adapters. It may cause damage to the device if it fails to supply power to the device according to the label description.

Table 2-1

2.2 Device Dimension

Note

The following figures are for reference only, which are only used to know the device dimension. Please refer to the actual device for more details. The unit is mm (inch).
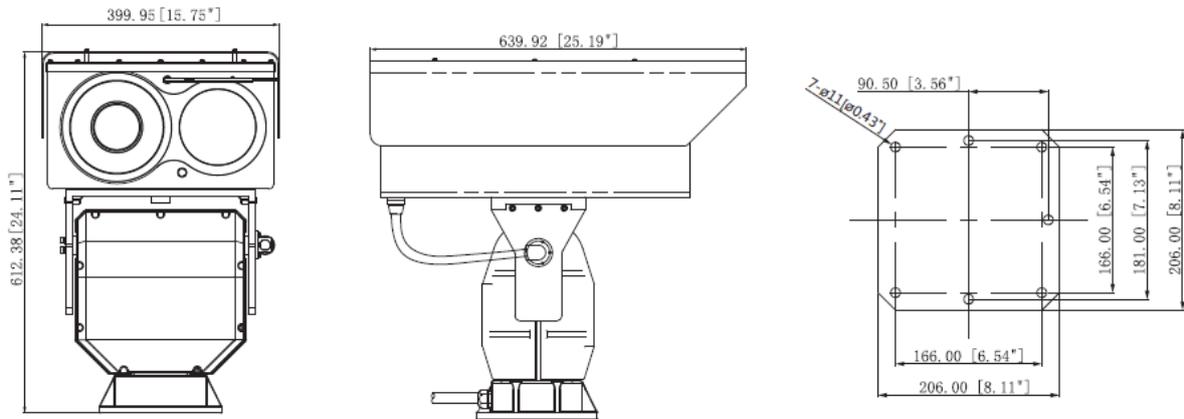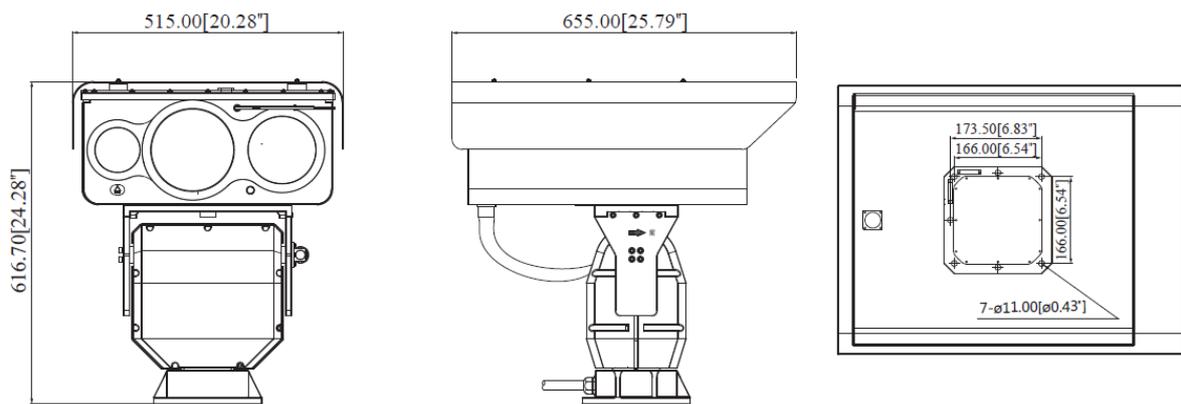
Figure 2-3

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 PTZ mounting platform can sustain the weight of PTZ and its mounting structural components. It is required to have 8 times of safety factor.

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 provided by default, 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 DC 30V 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 and so on) are recommended to use 0.56mm (24AWG) and above cable as lengthened signal cable.

3.2 Installation Steps

Note

It shall meet the following installation conditions during device installation:

- The hole site of the mounting platform should be matched with that of the PTZ pedestal.
- The device is advised to install on the mounting platform which can sustain the weight of more than 1T.
- The device can't be installed in the application environment which is not stable.
- Make sure all the mounting screws on the device are firmly tightened; otherwise it will influence the PTZ rotation accuracy, wind-resistance capability, waterproof performance, PTZ service life and etc.
- It needs more than 3 people to install the device, please protect the lens during installation.

- The device is not allowed to power up before it is fixed on the mounting platform; otherwise the device may turn over and cause damage to the lens during power on self test for the device.
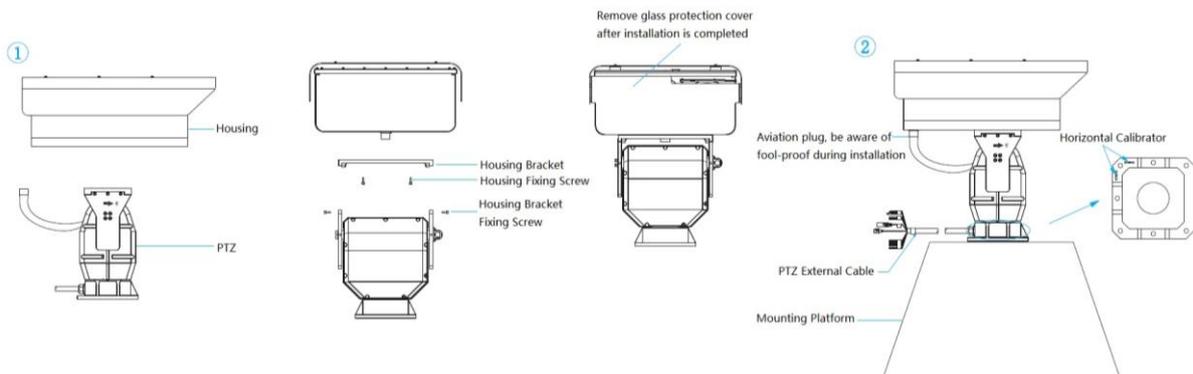

Figure 3-1

Step 1

Install the housing onto the PTZ.

1. Use the inner hex wrench from in the PTZ accessories bag to loosen the fixing screws on the housing bracket, and then demount the housing bracket.
2. Use the provided housing fixing screw to install the housing bracket on the housing bottom.

Attention

It has to use M8*20 inner hex combination screws here, it will be risky if using the screws of other specification.

3. Install the housing onto the PTZ according to the arrow direction, and use inner hex wrench to install the fixing screw back to the housing bracket and tighten them firmly.

Attention

Front sign is marked on the side of PTZ, the housing mounting direction needs to be in accordance with the arrow direction. Do not install it reversely.

4. Remove the glass protection cover after installation is completed.
5. Connect the PTZ aviation plug to the housing and tighten it firmly.

Step 2

Carry the device onto the mounting platform which is designated by users; use the provided screws to fix the PTZ on the mounting platform firmly. Please pay attention to the horizontal calibrator on the PTZ pedestal when fixing the device, make sure the bubble should stay in the middle of the horizontal calibrator after installation.

Step 3

Connect device cable.

1. Connect the device corresponding power, video output, RS485 control cable and alarm input and output ports etc. well according to requirements, and then use insulated rubber tape to twine the connection joint respectively 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 4.
3. It can properly lengthen device cable according to actual construction requirements.

Step 4

(Optional) Install waterproof cover for network port, which is shown in Figure 3-2.

Note

It needs to implement the step when the device is equipped with waterproof cover and it is used outdoors.
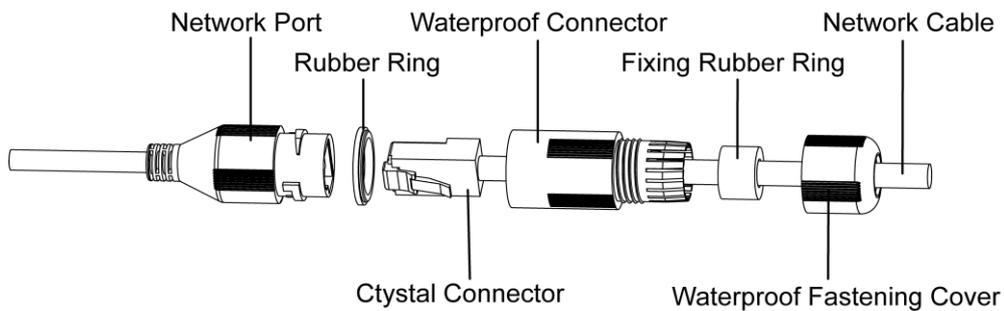
Figure 3-2

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.

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.

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
Confirm Password	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.
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.
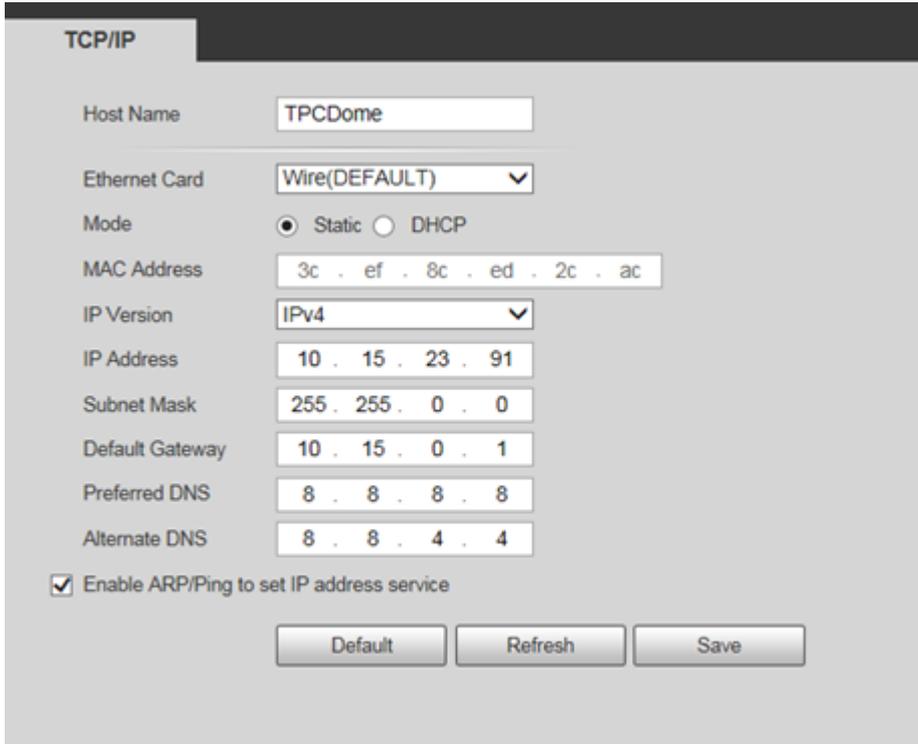
4.2 Modify IP Address

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.
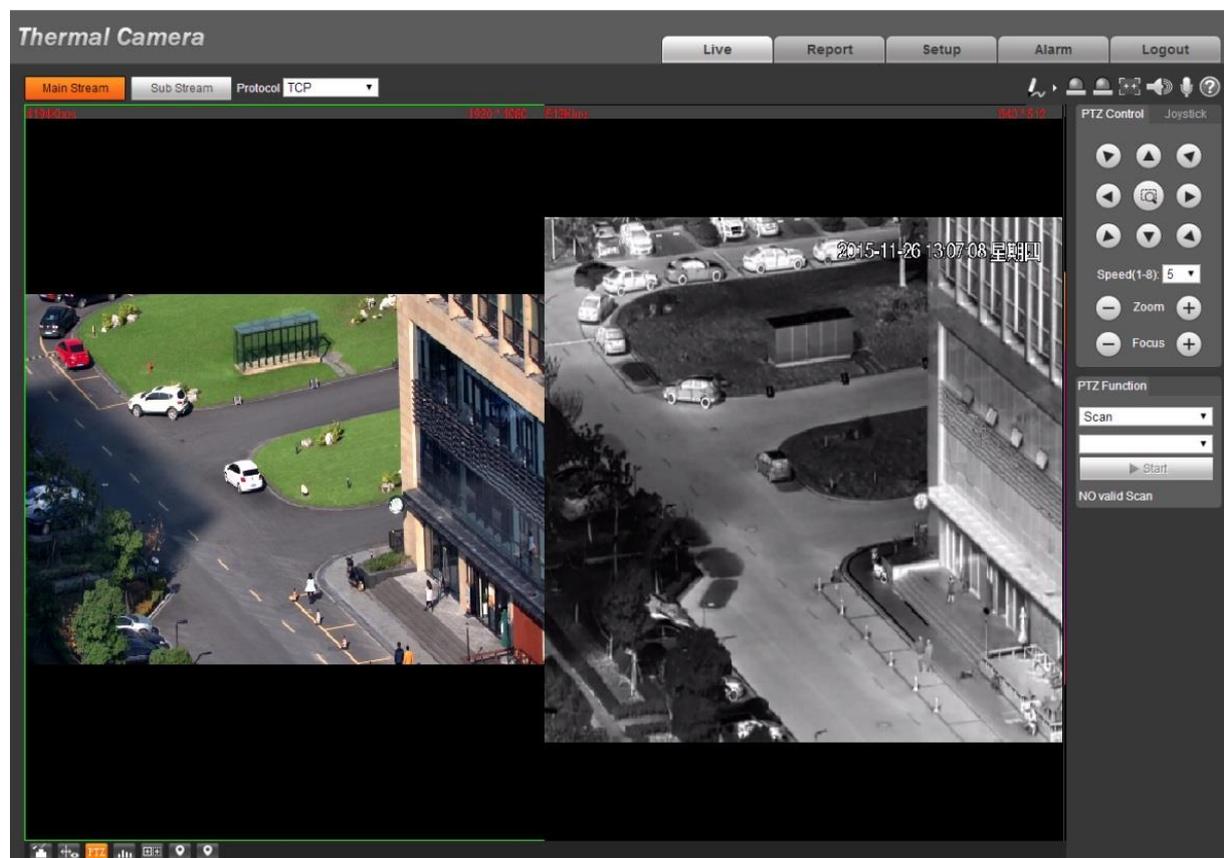

Figure 4-3

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.

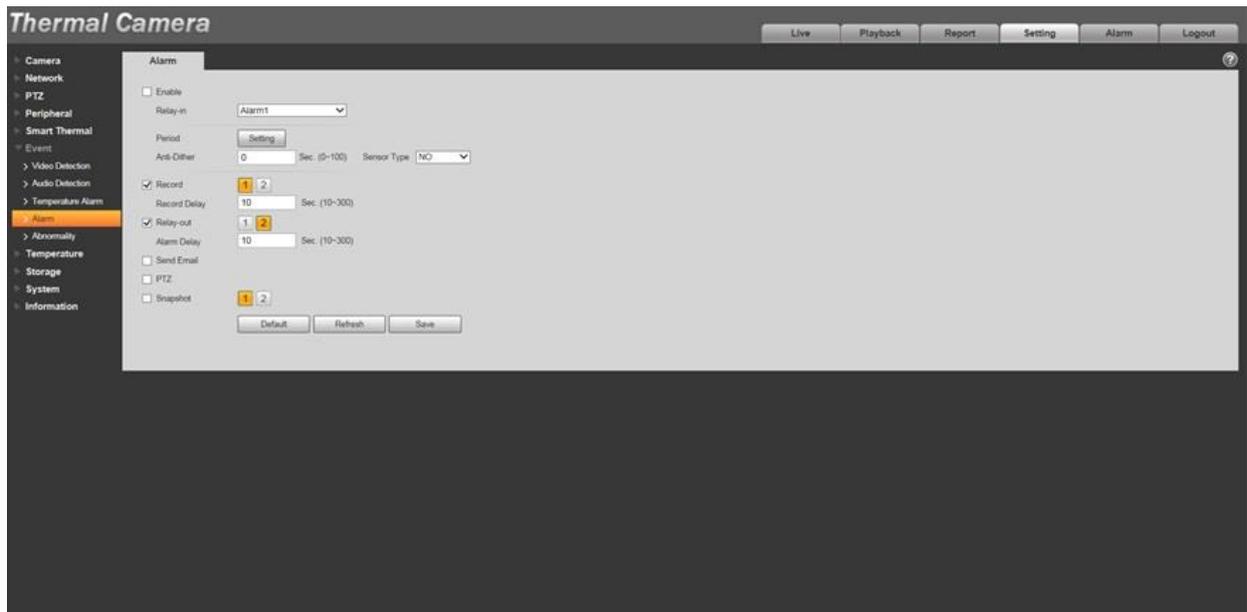● Alarm output is corresponding to the alarm output port of device I/O cable.

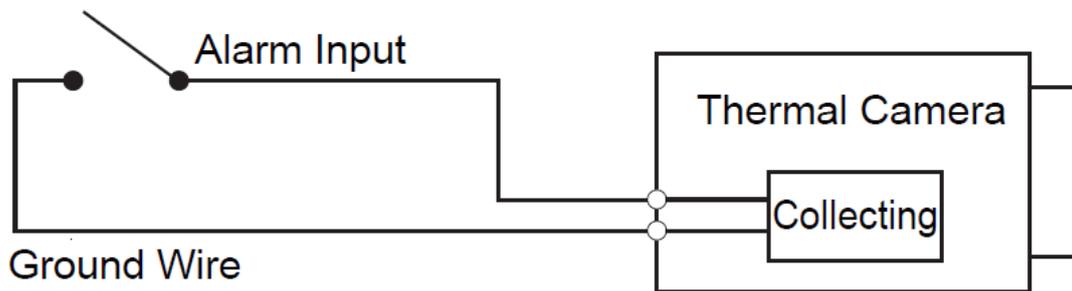Figure 4-4

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".
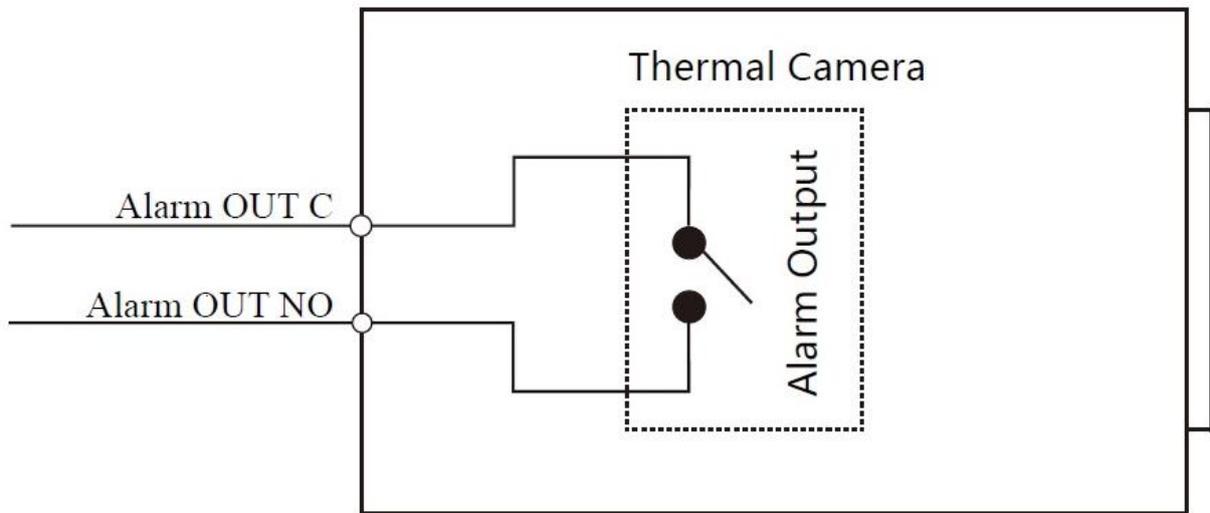
Figure 4-6

Alarm output: port ALARM OUT_C and ALARM OUT NO 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 speed dome adopts TVS lighting protection technology. It can effectively prevent damages from various pulse signals below 6000W, such as sudden lighting 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 mm^2. See Figure 5-1.
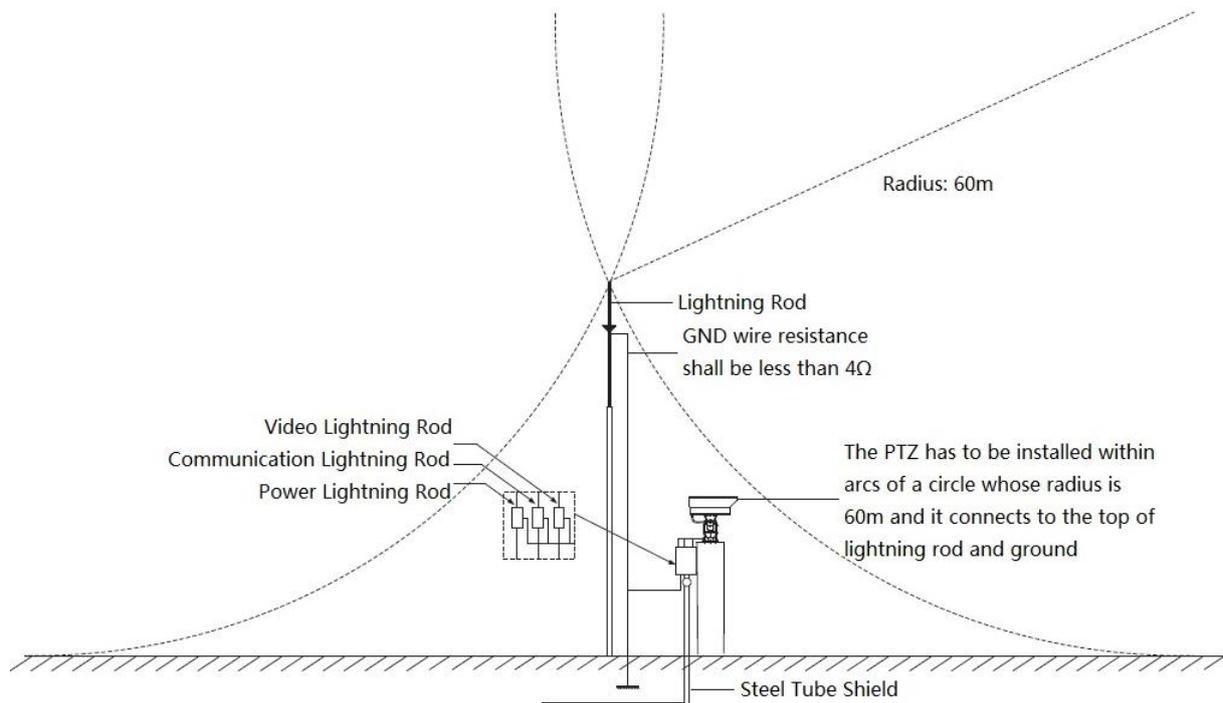

Figure 5-1

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 dome 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 domes' 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.

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.

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