The background of the page features a series of thin, red, wavy lines that create a sense of motion and depth. These lines are most prominent in the lower half of the page, where they form a broad, sweeping curve that tapers towards the bottom. The lines are closely spaced and vary in opacity, creating a gradient effect from light red to a slightly darker shade.

**PT2 Series
Dual-spectral PTZ Network Thermal
Camera
Quick Start Guide
V1.0.2**

Preface

The following is about the correct use of the camera. In order to prevent danger and loss of property, please read this manual carefully before using the camera and strictly follow it during use. Please keep the manual properly after reading.





Overviews

This manual is suitable for dual-spectral PT2 network thermal cameras.

This manual describes the installation steps, installation precautions and basic operations of dual-spectral PT2 network thermal cameras.

Symbol Description

The description of the symbols that appear in the document is as follows.

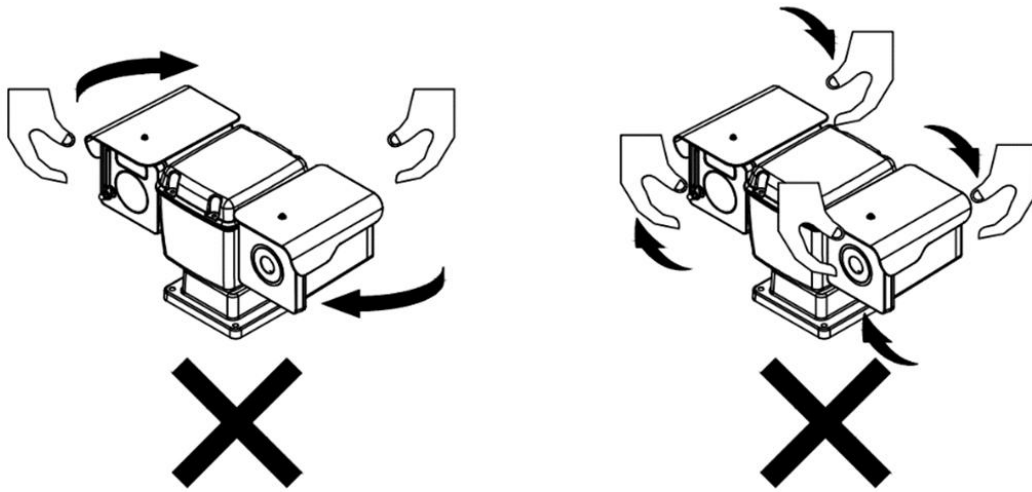
 Instruction	The instructions are an emphasis and supplement to the main text.
 Caution	Cautions indicates potential risks. If ignored, it may lead to product damage, data loss, product performance degradation, or unpredictable results.
 Warning	Warnings indicates that low or medium potential risk is existing. The ignorance of the warnings may lead to injury, equipment damage, or business interruption.
 Danger	Dangerous text indicates that there is a high potential risk. If it is not avoided, a major risk of personal injury or even death may be caused.

Important Safety Notice



The local electrical safety standards should be rigorously followed in the process of installation and usage.

In order to avoid device damage, do not rotate the PT with big strength from vertical or horizontal direction during power-off state. The PT position can be changed via control interface.



In order to avoid device damage, do not rotate the PT with big strength from vertical or horizontal direction during power-off state. The PT position can be changed via control interface.

- Please use power adapter which is produced by regular companies. Please check whether the power is normal or not before starting the camera. (Power supply requirements should comply with that on the product labels.)
- In order to make emergency power off when necessary, please install power-off equipment which is easy to use when installing the wires.
- Please protect power lines from being treaded or pressed, especially the connecting points which are led from the plug, power socket or other unit.
- Please make sure the camera is fixed firmly in case of being installed on walls or ceilings.
- If the camera does not work normally, please contact the purchased shops or factories. Do not disassemble or revise the camera in any way (The manufacturing company is not responsible for problems that are caused by unauthorized modification or maintenance.)



Cautions

- Please do not put the camera in damp, dusty, extremely hot or cold places, or places with corrosive gas or unstable light.

- Please transport, use and store the camera within the allowable humidity and temperature range.
- Avoid making the lens aiming at strong light (e.g. sun or laser), otherwise the imaging sensor would be damaged.
- Please do not block the vents near the camera in case of heat accumulated.
- Please use the factory packaging or materials of the same quality when shipping the device.
- Please do not press, vibrate violently or soak the camera during transportation, storage or installation.
- It is advised to use the camera with lighting protector.
- Soft dry cloth can be used to clean the camera. For the dirt difficult to clean, please use soft cloth with little neutral detergent and then wipe dry. Do not use volatile detergent like alcohol, benzene or diluent, or strong and abrasive detergent, otherwise the camera coating would be damaged and also the camera performance could be degraded.
- The lens cover is optical device, so please do not touch directly or wipe the cover. Soft brush or hairdryer can be used to blow the dust away. For the grease or fingerprint, soft cloth can be used to wipe it away. Cotton cloth or lens cleaning paper with cleaning solution can be used to wipe repeatedly until it's clean.
- Please revise the password promptly after logging in.



Instruction

- Please use the accessories or parts specified by the manufacturer and have them installed and repaired by professional service personnel.
- Quality requirements for installation and maintenance personnel:
Personnel should have the qualification certificate or experience to engage in the installation and maintenance of video surveillance systems, and have the qualification to engage in related jobs (such as high-altitude operations, etc.), in addition to the following knowledge and operating skills.

Equipped with basic knowledge and installation skills of video surveillance system and its components.

Equipped with basic knowledge and operating skills of low-voltage wiring and low-voltage electronic circuit wiring.

Equipped with basic network security knowledge and skills, and have good acknowledge of this manual.

- Requirements for lifting equipment:

Safe lifting equipment suitable for site and method of camera installation.

The lifting equipment is able to reach enough height of installation position.

The lifting equipment has good safety performance.

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1. Camera Introduction

1.1 Camera Description

The dual-spectral PT2 network camera is a thermal imaging network camera that integrates remote monitoring in all-weather conditions, video services and high-definition camera functions. In addition to the basic visible light imaging, the camera also comes with a thermal imaging channel, which can more comprehensively collect the characteristic information of the measured scene while realizing dual-light shooting. It can be widely used in indoor and outdoor scene monitoring, perimeter prevention, fire warning integration and other fields of smart security.

1.2 Camera Features

- With the latest InfiRay® 12μm IR thermal imaging detector, the thermal camera can make farther and clearer images.
- With a maximum thermal imaging resolution of 1.3 megapixels and a 20x 4 megapixel visible light camera , high-definition dual-spectrum imaging can be achieved.
- Support 9.1/13/19/25/35mm fixed-focus and 13/25mm fixed motorized infrared lens, which can meet various inspection needs.
- Support network high-definition transmission, which can transmit visible light videos and infrared videos at the same time.
- Combining multiple network monitoring methods, the camera also supports ONVIF protocol.
- With high-speed, high-precision pan-tilt, the network camera supports 5 scanning methods and 17 scanning tracks with speed memory;
- Support smart smoke & fire detection.

- Support intelligent infrared video analysis, including intelligent analysis functions such as regional intrusion, trip wire, etc.
- With IP66 encapsulation level
- Single IP
- With $\pm 2^{\circ}\text{C}$ high temperature measurement accuracy

1.3 Camera Appearance



Figure 1.1 Appearance of Dual-spectrum PT2 Network Thermal Camera

1.4 Cable Introductions

The cable includes interfaces for power, alarm, audio, RS-485, and network, etc. Please see the following figure for interface introductions.



Cautions

The cable interfaces may be different for different models. This illustrations show the overall cable interfaces, the actual product shall prevail.

- P1 network interface (LAN) : Output network signal and connect to standard Ethernet cable.
- P2 power interface (DC24V) : Support DC24V power supply.

- P3 audio output (AUDIO OUT) : Output audio signal to speakers and other equipment for sound output.
- P4 audio input (AUDIO IN) : Input audio signal and connect microphone for receiving linear analog audio signal to collect sounds.
- P5 alarm input (ALARM IN) : Receive the switch signal from the external alarm source.
- P6 alarm output (ALARM OUT) : Output alarm switch signal to alarm equipment.
- P7 RS-485 (485) : RS485 for PT control.
- P8 power interface (DC12V) : support DC12V power supply.
- P9 power interface (DC24V) : support DC24V power supply.

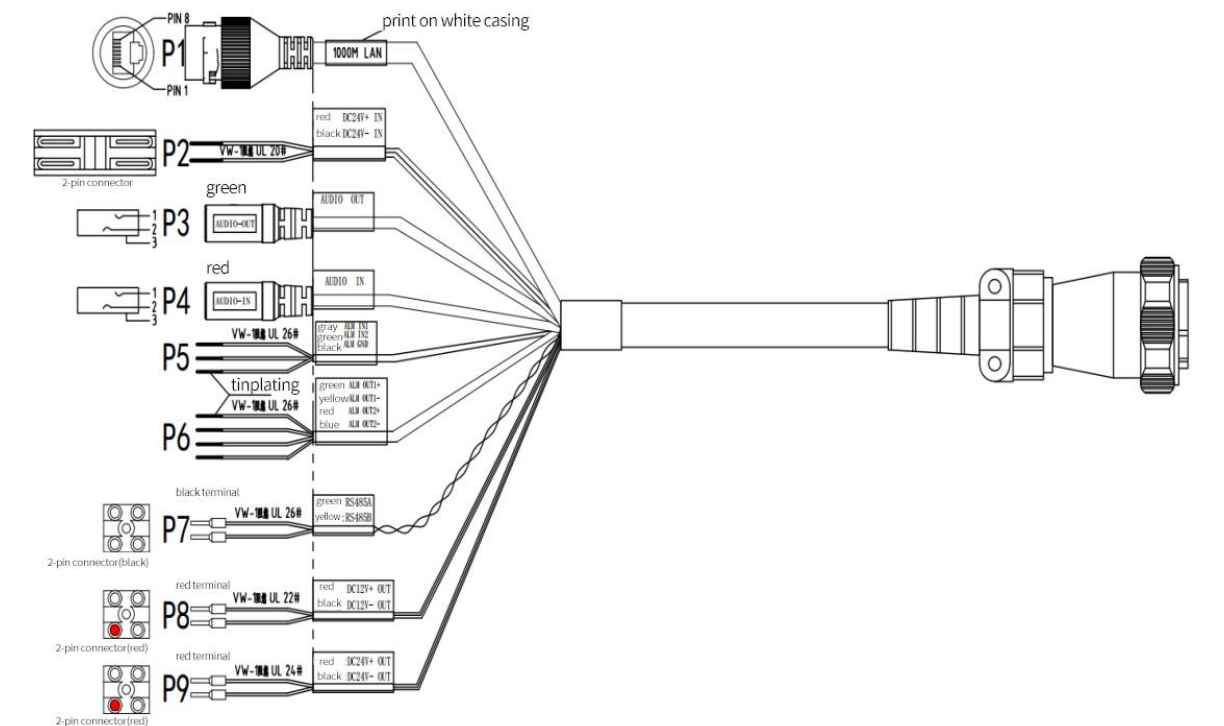


Figure 1.2 Cable Introductions

1.5 Alarm Interface Connection

The camera can be connected with alarm signal (0~DC5V) input and switch output (no voltage). An external power supply is required when connecting the alarm apparatus. The specific wiring method is shown in the figure below.

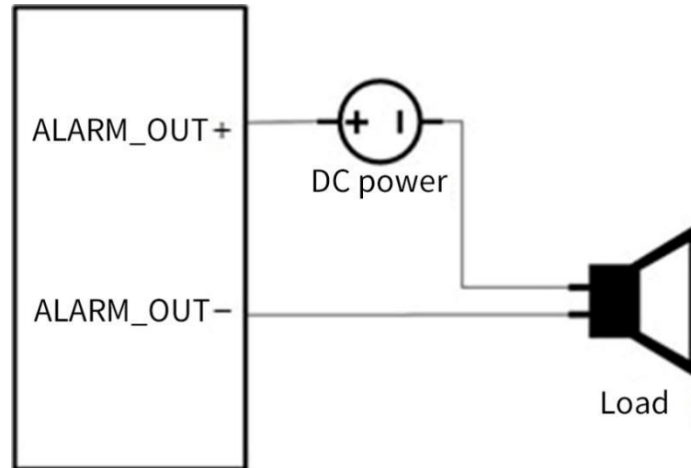


Figure 1.3 Alarm Output Wiring Method

2. Camera Installation

2.1 Instructions before Installation

- Before installation, please make sure that the camera in the package is in good condition and all parts are complete.
- Before installing the PT, please prepare in advance the tools and cables that may be required for installation.

2.2 Cable Planning and Wiring

It is necessary to survey and plan the lines in advance since the environment and location of the PT installation is different, and then to arrange the lines precisely so as to provide safe and stable power and wiring for the PT. In the process of cable planning and wiring, you need to follow the below suggestions:

- Before performing cable wiring operations, familiarize yourself with the

installation environment, including wiring distance, wiring environment, and whether it is far away from magnetic field interference and other factors.

- Please select a wire with a rated voltage greater than the actual line voltage for the PT to ensure the normal operation of the PT under the condition of unstable voltage.
- To avoid disconnection, the connection of the PT should be done independently with one wire; if the conditions are limited, it is also necessary to protect the connection and take reinforcement measures to prevent the equipment from malfunctioning due to circuit aging.
- Strengthen the protection for power lines and signal transmission lines. Pay special attention to the reinforcement and protection of the line during the wiring process, so as to avoid abnormal monitoring due to wiring damage.
- During the wire deployment process, do not make the wires too long or too short.

The cable wiring of the PT should be operated by personnel with professional skills. When the PT fails to work normally, you can investigate the cause in the above-mentioned aspects.

2.3 Mounting Bracket

The PT is different from other cameras. The overall quality is heavy, which has high requirements for the load-bearing and stability of the support. It is generally recommended to install it directly on the base to avoid potential safety hazards.

If mounting a bracket is necessary, you can design the corresponding bracket according to the base map of the PT. The bracket design must consider factors such as load-bearing and anti-shake to ensure the firmness of the bracket and the smoothness of the image.

2.4 TF Card Installation

Step 1: The TF card slot is located inside the device. Unfold the protection cover with the middle-sized cross screwdriver.

Step 2: After opening the shield, slowly insert the TF card into the TF card slot in the direction indicated by the arrow. After hearing a "click", the installation is complete.

Step 3: After installation, close the TF card slot cover and tighten the screws.

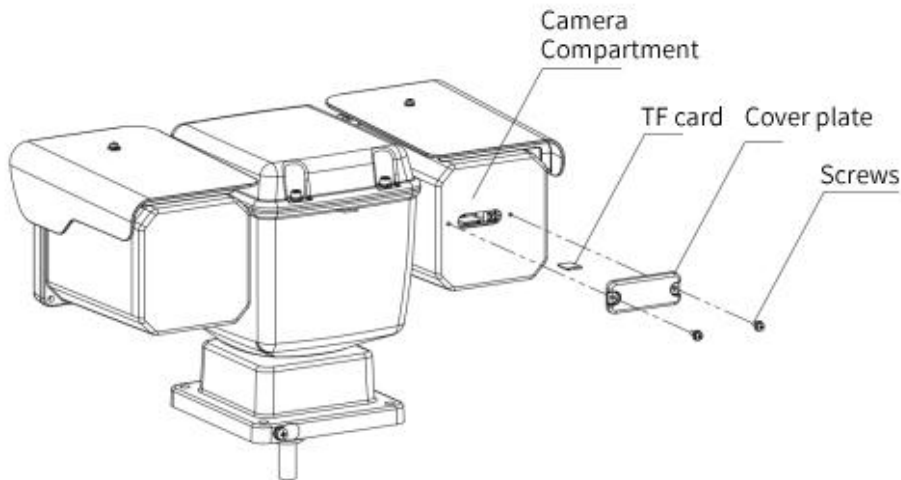


Figure 2.1 TF card installation illustrations

2.5 PT Installation

Step 1: Take out 4 screws with a diameter of 6mm and a length of 25mm from the accessory bag, and fix the PT on the base of the bracket.

Step 2: After connecting the cable to the PT, supply power to it. After completing the self-check, check whether the preview is normal. If the control of PT is normal, the installation is complete.

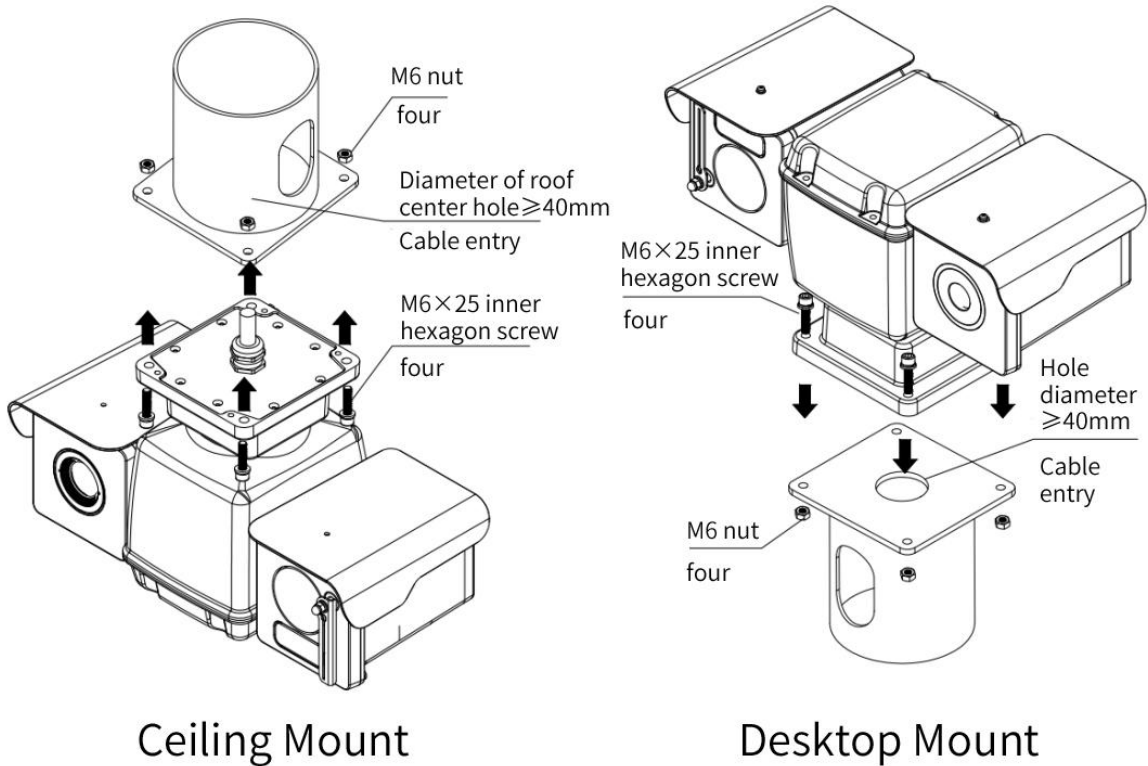


Figure 2.2 Installation Illustrations

2.6 Install Network Port Protective Cover

When using the camera, install the matching network port waterproof cover to prevent water from entering the network cable. Please install it if necessary. The installation steps are as follows:

Step 1: Pass the network cable through the fastening nut and the main body of the waterproof cover in turn.

Step 2: Break off the waterproof rubber ring and put it on the network cable between the main body of the waterproof cover and the fastening nut.

Step 3: Put the O-shaped rubber ring into the network port, and insert the network cable into the network port.

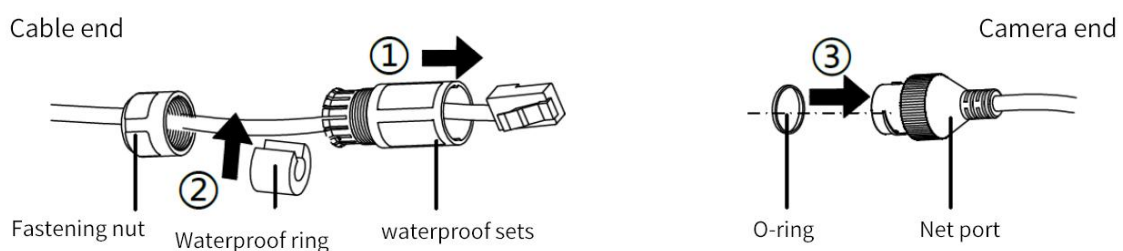


Figure 2.3 Network Cable Installation

Step 4: Align the notch of the network port with the buckle of the main body of the waterproof cover, put the main body of the waterproof cover into the end of the network port, and tighten it clockwise.

Step 5: Insert the waterproof rubber ring into the main body of the waterproof cover.

Step 6: Turn the fastening nut clockwise and press the waterproof rubber ring tightly.

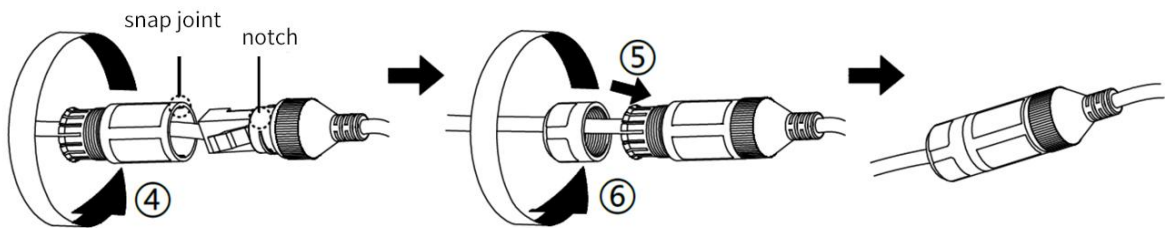


Figure 2.4 Finishing Installation

3. Operation Guide

3.1 Preparations

- 1.The default IP address of the device: 192.168.1.123.
2. The subnet mask is 255.255.255.0, and the IP address of the PT can be modified. If you change the device address to 192.168.1.194, change your computer's IP address to the same network segment with the network video server, and the same subnet mask. Such as: 192.168.1.120;
- 3.Test whether the PT can start normally. Under WINDOWS, follow the <Start→run→cmd> operation, open the command line window, and enter Ping 192.168.1.123 in the command line window. If "Request time out" is not displayed, it means the startup is normal;
- 4.Support browsers such as IE8+.

3.2 Login System

1. Enter the IP address of the PT in the address bar of IE browser to log in, and the login page is as shown below.

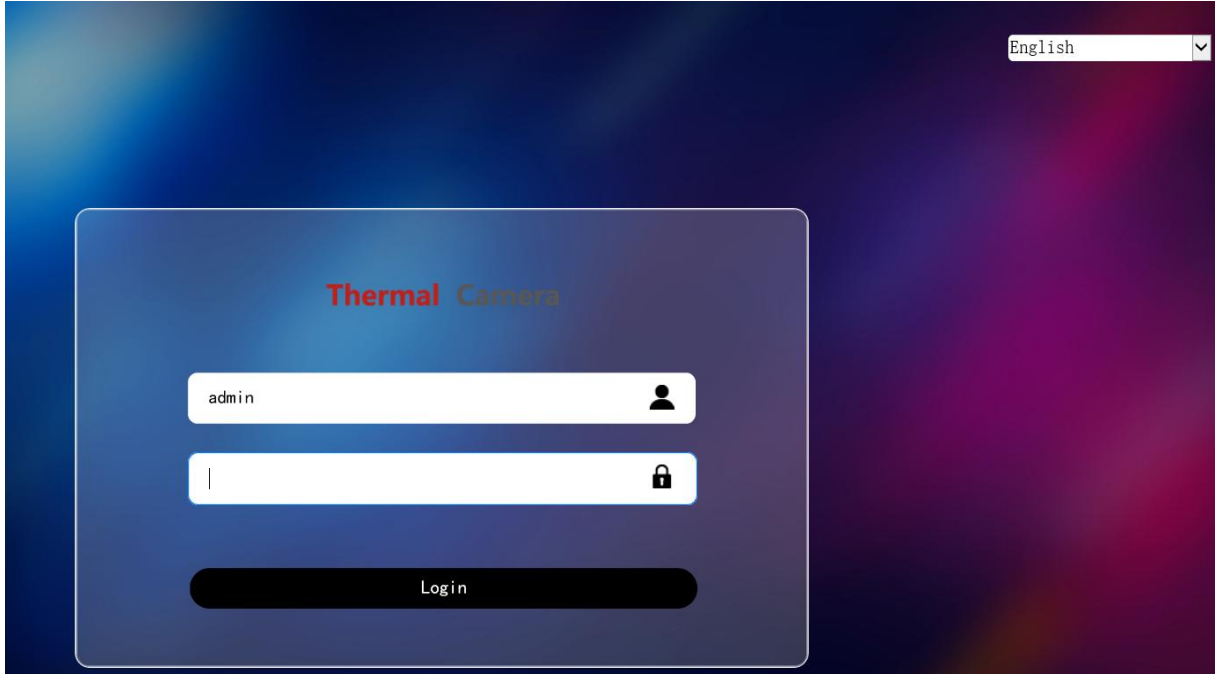


Figure 3.1 Login Interface

2. Enter the user name: admin (defaulted, administrator user).
3. Enter the password: admin (defaulted, administrator password).
4. Click login button to enter the preview screen of the video server. As shown below:

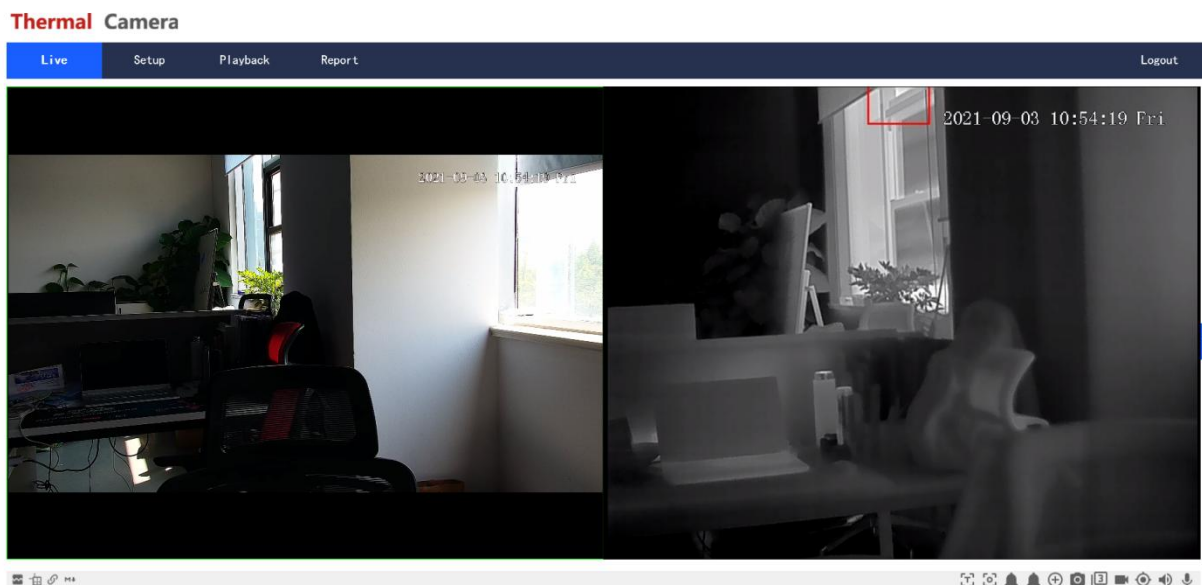


Figure 3.2 Image Preview Interface

3.3 Main Interface Description

The main interface of the PT camera is divided into system menu, video window adjustment, video window function options, PT configuration, PT settings, etc.

Please refer to the *web operation manual* for details.

Appendix A Camera Maintenance

Lens Maintenance

The lens surface is coated with anti-reflective coating. When contaminated with dust, grease, and fingerprints, harmful substances will be produced and the degraded performance, scratches, or mold will be caused. Once dirt is found, please follow the following methods.

Dust stained: Use an oil-free soft brush or a blower ball to gently flick the dust off.

Grease stained: Gently wipe away water or oil with a soft cloth and dry it, then rub it outward from the center of the lens using an oil-free cotton cloth or lens cleaner coated with alcohol or lens cleaner. If it is still not clean, you can change the cloth and wipe it several times.

Network Safety Maintenance

In order to ensure the network security of the PT camera, it is recommended that you conduct regular network security assessment and maintenance of the network system. Corresponding professional technical service can be offered.

Appendix B Operating Distance

The recommended distance of detecting, recognizing and identifying for man (1.8×0.5m) and vehicles (1.4×4.0m) are as follows:

Equipped Lens	DD	DD	RD	RD	ID	ID
	(Vehicles)	(Human)	(Vehicles)	(Human)	(Vehicles)	(Human)
9.1mm	1.16km	0.38km	0.29km	0.10km	0.15km	0.05km
13mm	1.66km	0.54km	0.42km	0.14km	0.21km	0.07km
19mm	2.43km	0.79km	0.61km	0.20km	0.30km	0.10km
25mm	3.19km	1.04km	0.80km	0.26km	0.40km	0.13km
35mm	4.47km	1.46km	1.12km	0.37km	0.56km	0.18km

Appendix C Emissivity of Common Materials

Material	Temperature (°C)	Emissivity
Water	0~100	0.95~0.98
Soil(dry)	20	0.92
Soil(wet)	20	0.95
Woods	17	0.962
Sand	20	0.9
Sandstone	19	0.909~0.935
PVC plastic	70	0.93
Asphalt	20	0.967
Paint	70	0.92~0.94
Wallpaper	20	0.85~0.90
Cloth	20	0.98
Concrete	20	0.92
Pavement surface	5	0.974
Smooth porcelain	20	0.92
Ceramic tile	17	0.94
Gypsum	17	0.86
Bricks	35	0.94
Hard rubber	0~100	0.89
Charcoal	20~400	0.95~0.97
Granite(rough)	20	0.879
Cold rolled steel	70	0.09
Oxidized steel	50	0.88
Copper	20	0.07
Oxidized copper	50	0.6~0.7