



InfiRay FD2-T Dual Spectrum Turret Network Camera User Guide

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InfiRay FD2-T Dual Spectrum Turret Network Camera



Product Information

The Dual-spectrum Turret Network Camera is a surveillance camera designed for monitoring and recording activities in various environments. It is equipped with dual-spectrum technology to capture both visible light and thermal images. The camera is suitable for both indoor and outdoor use, providing high-quality video footage for security purposes.

Product Usage Instructions

Before using the Dual-spectrum Turret Network Camera, please read and follow the instructions below:

Safety Precautions:

- Follow the local electrical safety standards during installation and usage.
- Use a power adapter produced by regular companies.
- Check the power supply before starting the camera (refer to the product labels for power supply requirements).
- Install power-off equipment for emergency shutdown when necessary.
- Protect power lines from being treaded or pressed, especially at connecting points.
- Ensure the camera is fixed firmly when installing on walls or ceilings.
- If the camera malfunctions, contact the purchased shops or factories. Do not disassemble or modify the camera without authorization.

General Cautions:

- Avoid placing the camera in damp, dusty, extremely hot or cold places, or places with corrosive gas or unstable light.
- Transport, use, and store the camera within the allowable humidity and temperature range.
- Avoid aiming the lens at strong light sources to prevent damage to the imaging sensor.
- Do not block the vents near the camera to prevent heat accumulation.
- Use the original packaging or materials of the same quality when shipping the device.
- Avoid pressing, vibrating violently, or soaking the camera during transportation, storage, or installation.
- Consider using a lightning protector for added protection.

- Clean the camera using a soft dry cloth for removing dirt.

Installation and Maintenance:

- Use only the accessories or parts specified by the manufacturer.
- Have installation and repairs done by professional service personnel.
- Ensure safe lifting equipment is used for site and method of camera installation.
- The lifting equipment should reach the required installation height and have good safety performance.

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.

 Note	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

Warnings

- 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.
- 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.

Camera Introduction

Camera Description

Dual-spectrum turret network camera is a new-type thermal imaging net camera integrated with the functions of infrared imaging and high definition visible light. Equipped with advanced passive infrared imaging detectors, industrial thermographic analysis tools, smoke & fire detecting algorithm, dual spectrum behavior analysis algorithm and multi linkage alarm function, it can realize 24H safety surveillance monitoring and fire warning. It can also be widely used in gas station, charge station, substation, warehouse perimeter prevention, electricity monitoring, warehouse and five small industries.

Camera Appearance

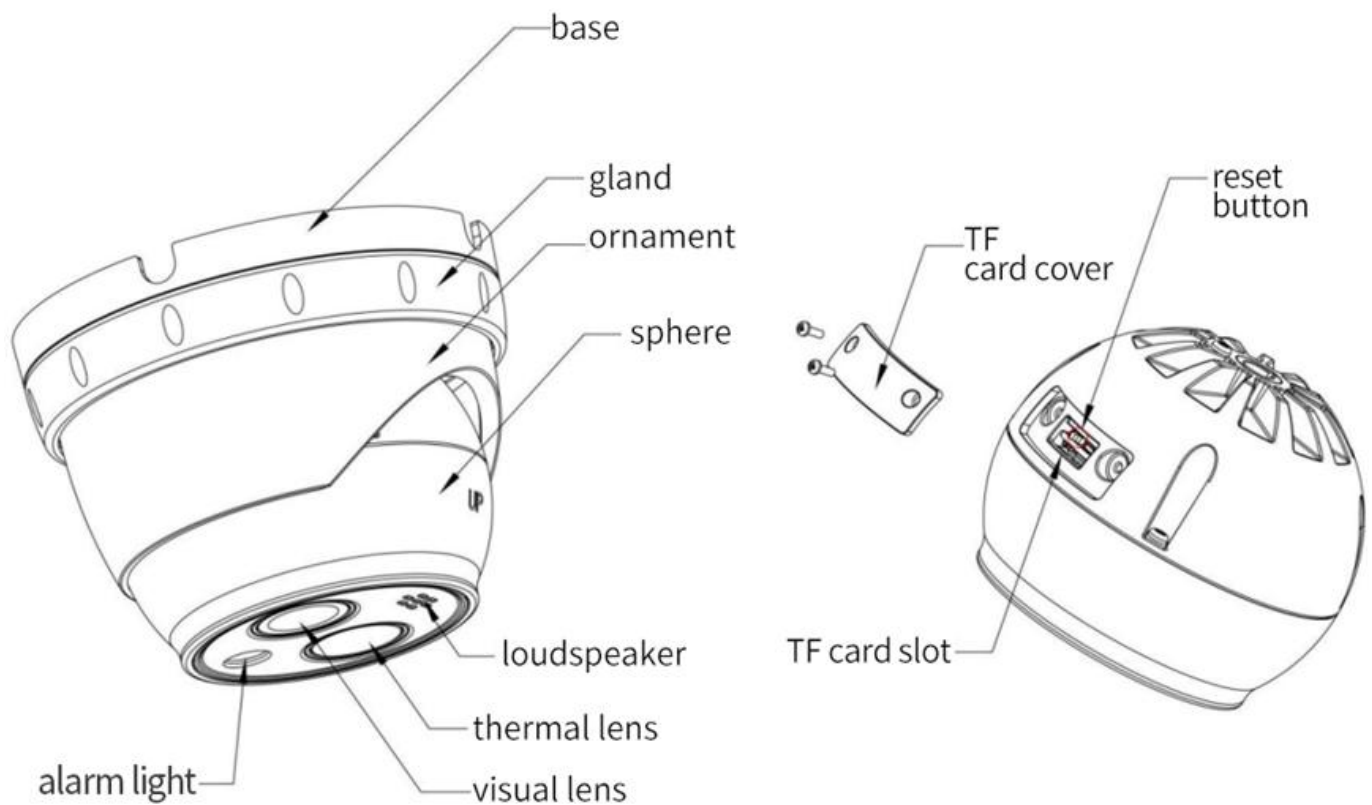


Figure 1.1 Appearance and Interface of Dual-spectrum Turret Network Thermal Camera

Cable Introductions

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

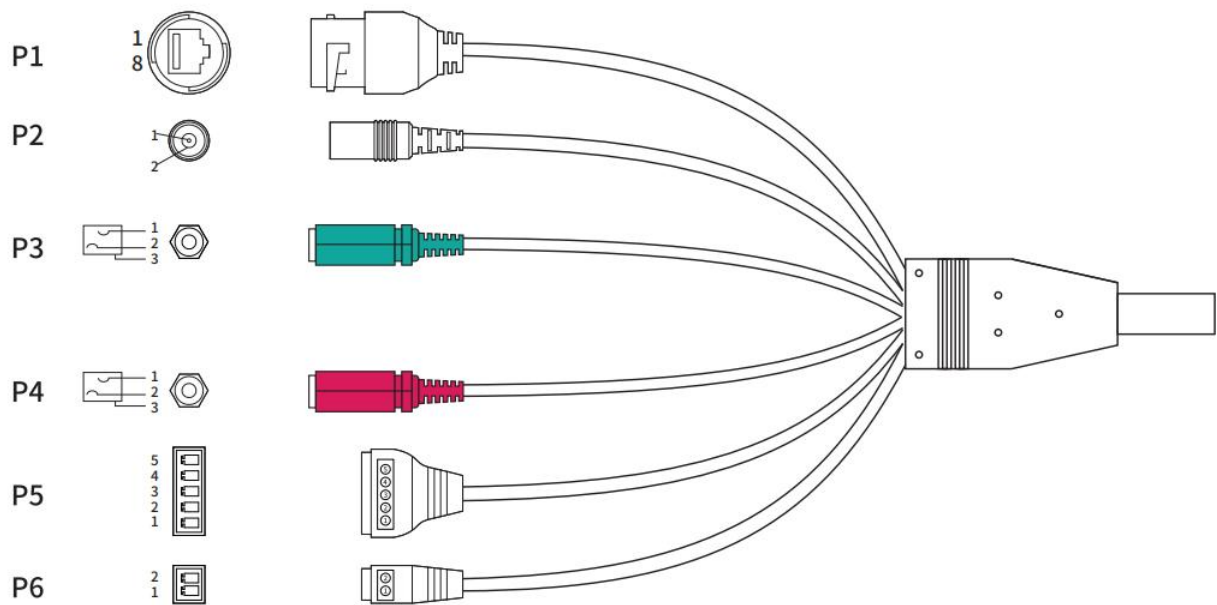


Figure 1.2 Cable Introductions

- P1 network interface (LAN): Output network signal and connect to standard Ethernet cable.
- P2 power interface (DC12V): Support DC 12V power supply and please connect the positive and negative poles of the power supply correctly.
- 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 Mike for receiving linear analog audio signal to collect sounds.
- P5 alarm input (ALARM IN)/ alarm output (ALARM OUT): Receive the switch signal from the external alarm source and output the alarm switch signal to the alarm device, among which pin_1 is alarm input, pin_2 is GND, pin_3 is NC, pin_4 and pin_5 are alarm output.
- P6 RS-485 interface (RS485): RS485 interface for peripherals.

Alarm Interface Connection

The camera can be connected with alarm switch signal (0~DC 5V) input and switch output (no voltage). An external power supply is required when connecting the alarm. The specific wiring method is shown in the figure below.

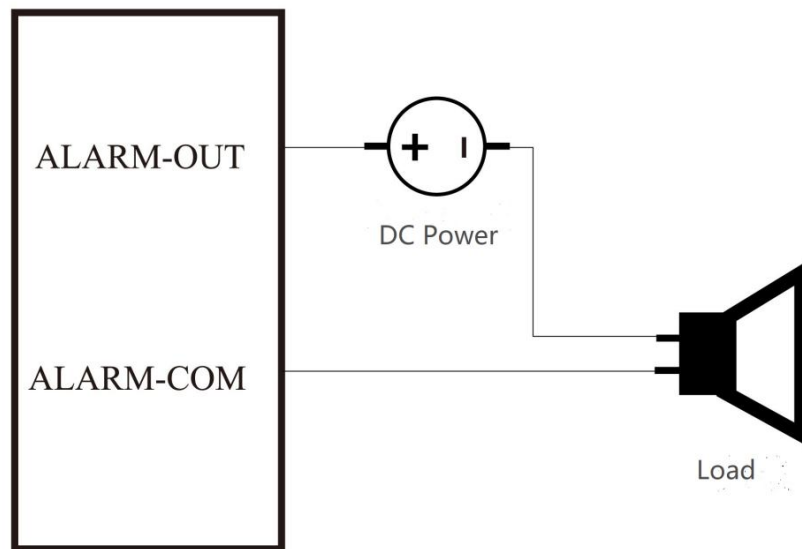


Figure 1.3 Alarm Output Wiring Method

Camera Installation

Instructions before Installation

Before installation, please confirm that the camera in the package is in good condition and all parts are complete.

- The installation wall should have a certain thickness, and can bear at least 4 times the weight of the camera and installation accessories.
- If it is a concrete wall or ceiling, first install the expansion screws (the installation holes of the expansion screws need to be the same with the bracket), and then install the bracket.
- If it is a wooden wall, use self-tapping screws to install the bracket directly.
- When transporting the camera, do not directly pull the cable at the end of the camera, otherwise it may affect the waterproof performance of the camera or cause wiring problems, as shown in the figure below.

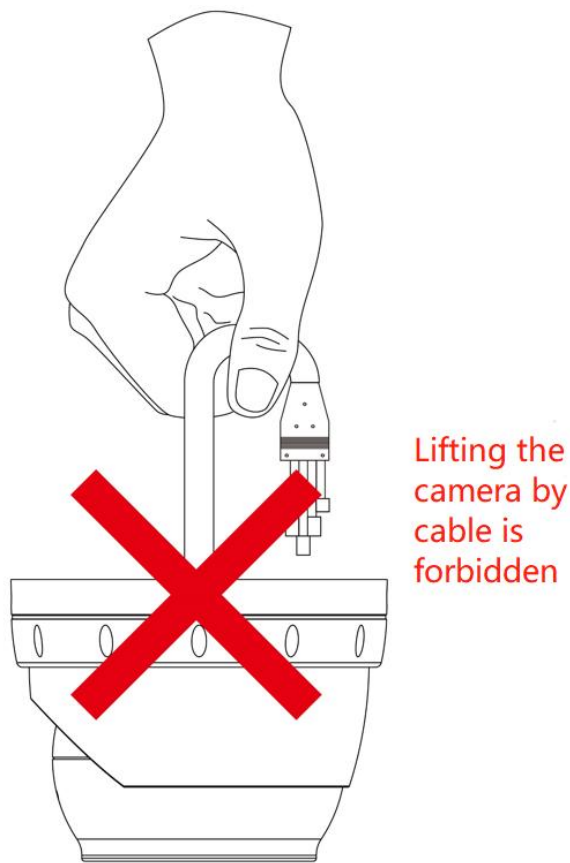


Figure 2.1 Incorrect Handling of the Camera

Recommended Monitoring Distance

- Since the thermal imaging channel of the camera adopts a fixed-focus athermalized lens, remote electric focusing can not be realized. Therefore, before installing the camera, please select the corresponding installation position and lens focal length according to the monitoring requirements to achieve the purpose of monitoring.
- The reference table of lens focal length and monitoring distance is shown in the following table.

Table 2.1 Recommended Monitoring Distance 12 μ m Pixel

Equipped Lens	DD (Vehicles)	DD (Human)	RD (Vehicles)	RD (Human)	ID (Vehicles)	ID (Human)
2mm	256m	83m	64m	21m	32m	10m
3.2mm	409m	133m	102m	33m	51m	17m
7mm	894m	292m	224m	73m	112m	36m

- If the weather is clear and the visibility is normal, without visible fog or haze, there is a 50% chance of reading the target at the specified distance.
- Assume that the width of the people is 0.5m, the height is 1.8m, and the critical distance is 0.75m. In case of the width of the vehicle is 4.0m, the height is 1.4m, and the critical distance is 2.3m.
- According to the Johnson criterion of infrared images, suppose:
 - The detection target needs to be imaged at least 1.5 pixels in the critical direction.

- Recognizing the target needs to image no less than 6 pixels in the critical direction.
- Recognizing the target requires imaging no less than 12 pixels in the critical direction.
- The actual detection distance varies with the settings of the thermal camera, environmental conditions, user experience, type of monitor or display.

Installation Guide

Either wall mounting or ceiling mounting is supported, and the camera can be installed in different ways according to different installation environment.

TF Card Installation

1. **Step 1:** The TF card slot is located below the device. Use the cross screwdriver to unscrew the TF card slot cover, as shown below.

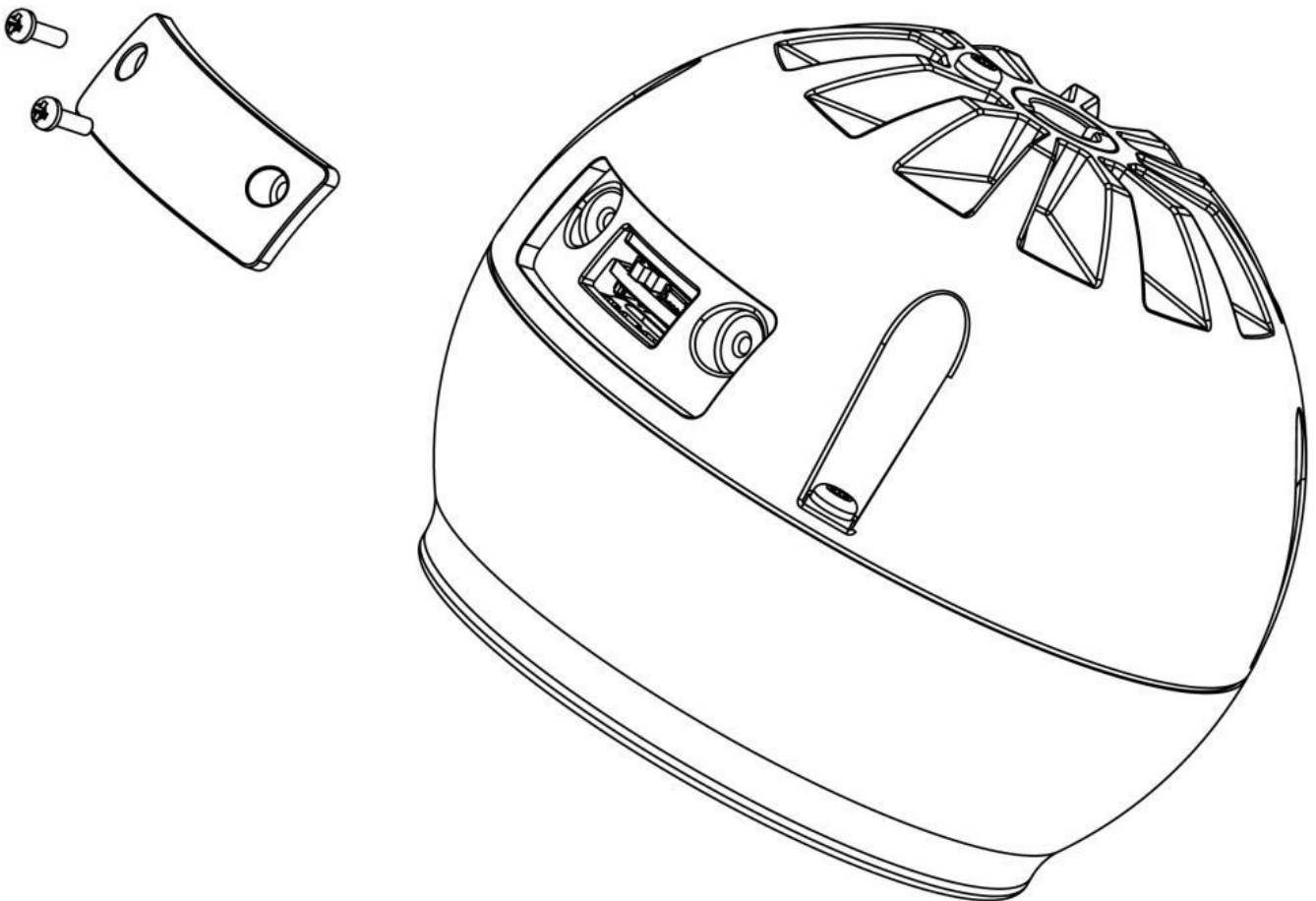


Figure 2.2 Unscrew TF Card Slot Cover

2. **Step 2:** Insert the TF card slowly into the card slot in the direction indicated by the arrow. After hearing a “click”, the installation is completed, as shown in the figure below.

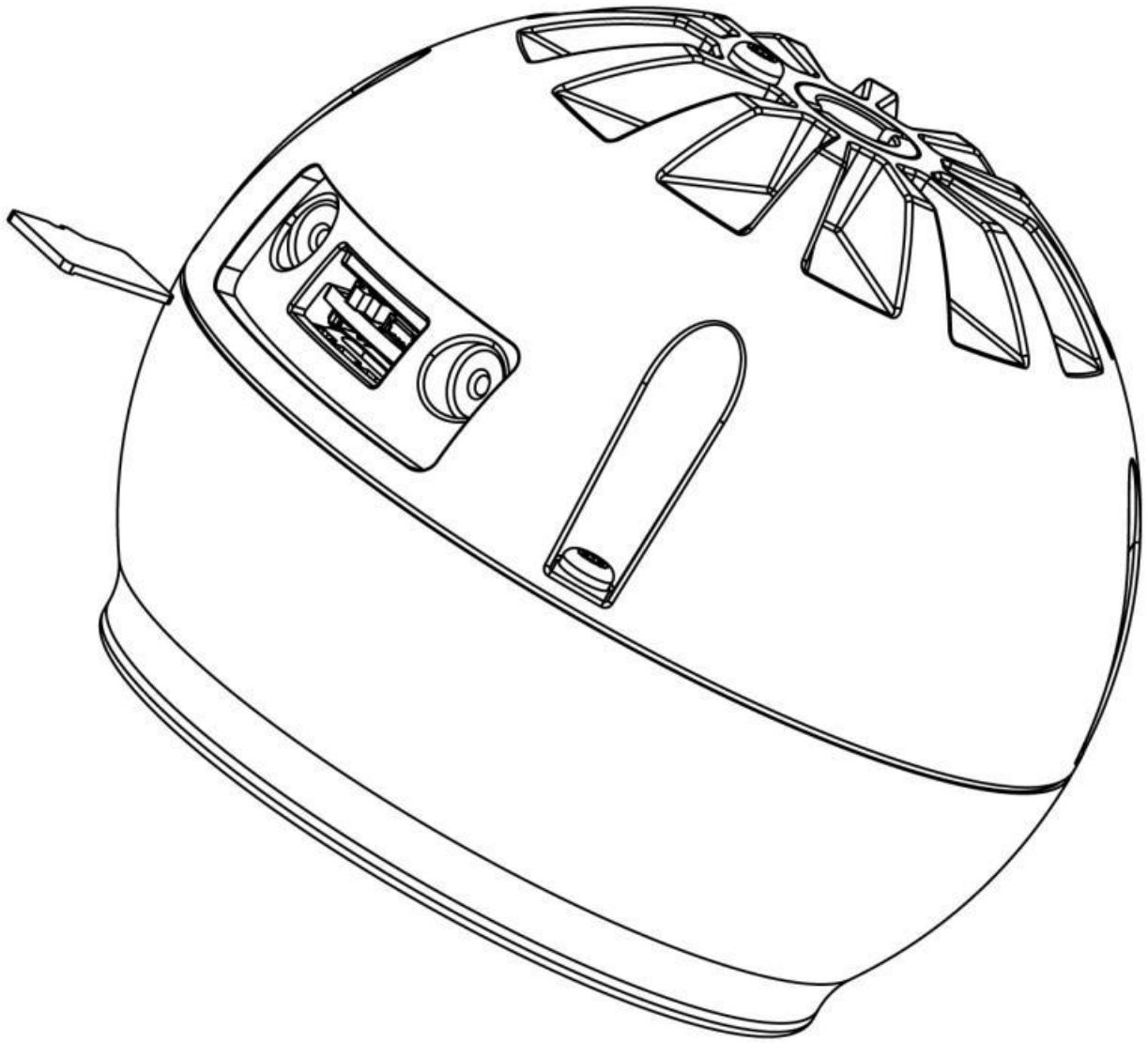


Figure 2.3 TF Card Installation

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

Wall Mounting/Ceiling Mounting

1. **Step 1** Mounting Alignment Guide Please paste the sticker attached on the selected installation wall, and then drill four $\Phi 5$ installation holes according to the markers on the alignment guide. The recommended depth is 35mm. The alignment guide is shown in Figure 2.4. After the installation hole is drilled, insert the expansion tube into the drilled hole.

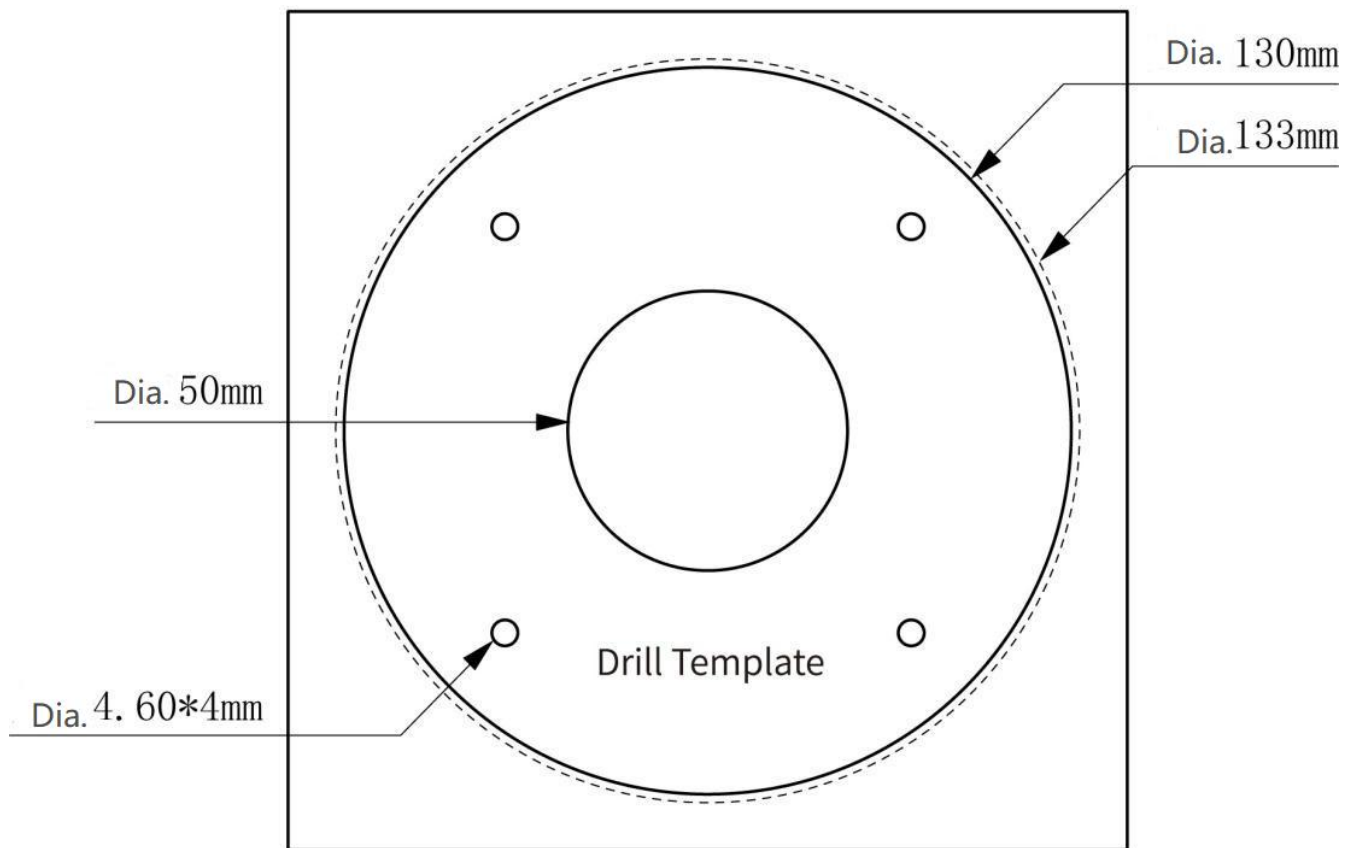


Figure 2.4 Mounting Alignment Guide

2. Step 2 Mounting Camera

1. Remove the gland and ornament from the device, pass the tail wire of the camera through the wire hole of the base as shown in Figure 2.5, and then use the attached self-tapping screws to fix the camera to the installation wall.
2. The wall mount is shown in Figure 2.6, and the ceiling mount is shown in Figure 2.7.

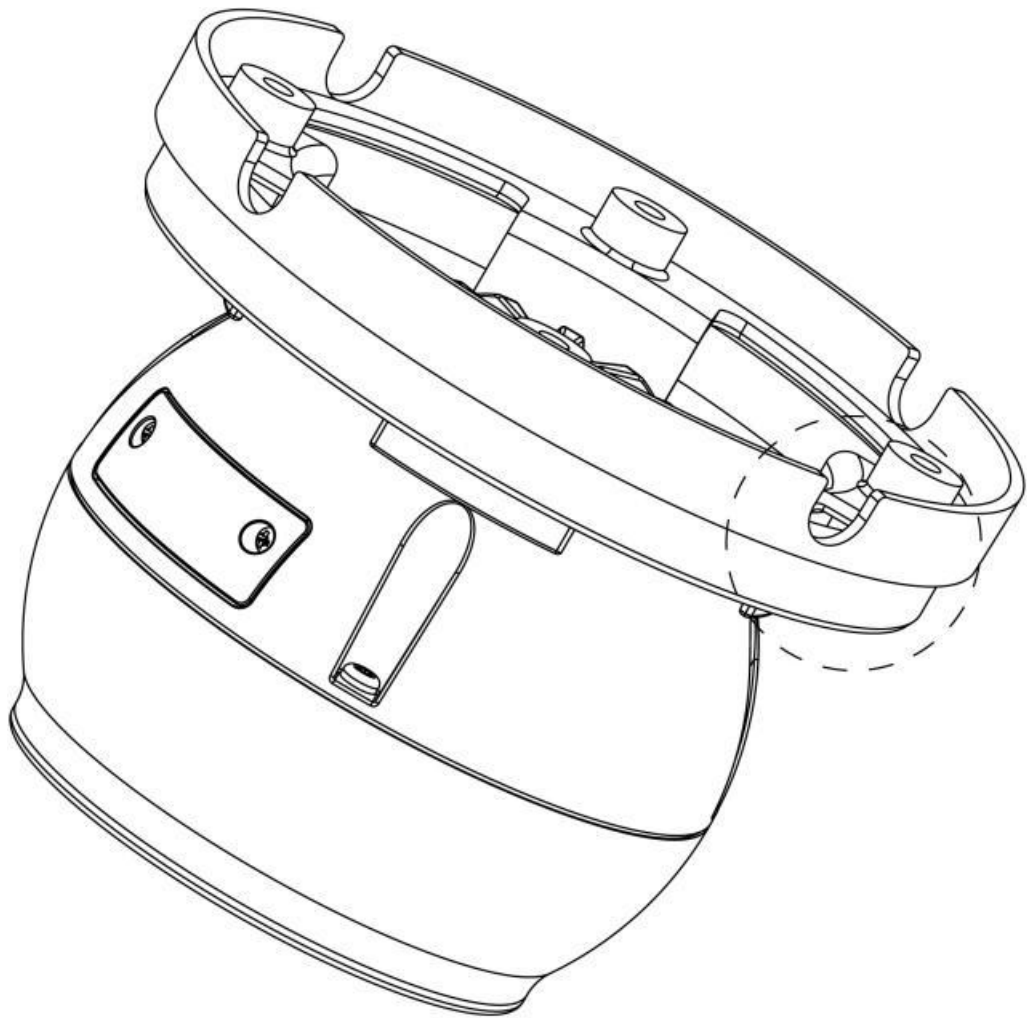


Figure 2.5 Wire Hole of the Base

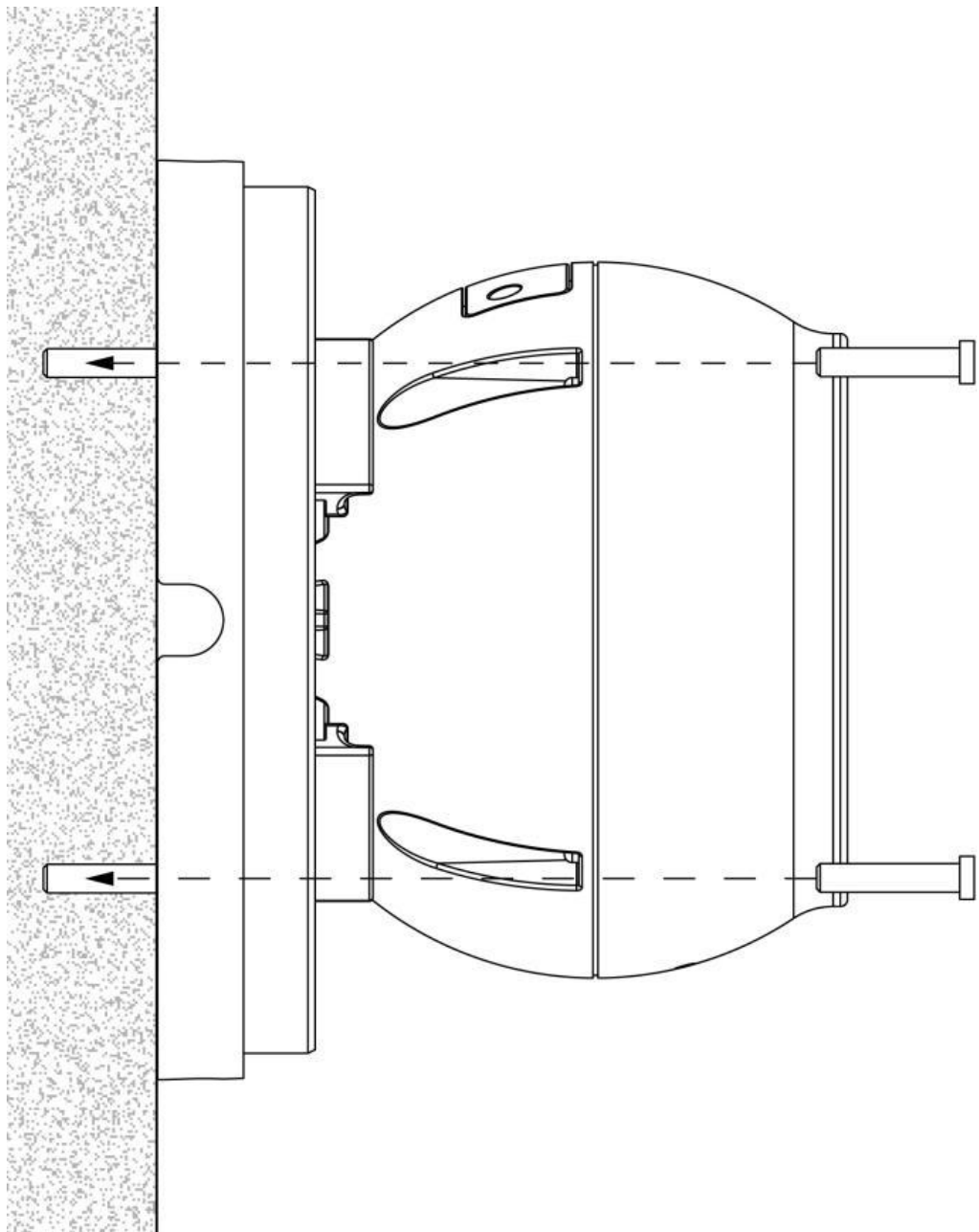


Figure2.6 Wall Mount

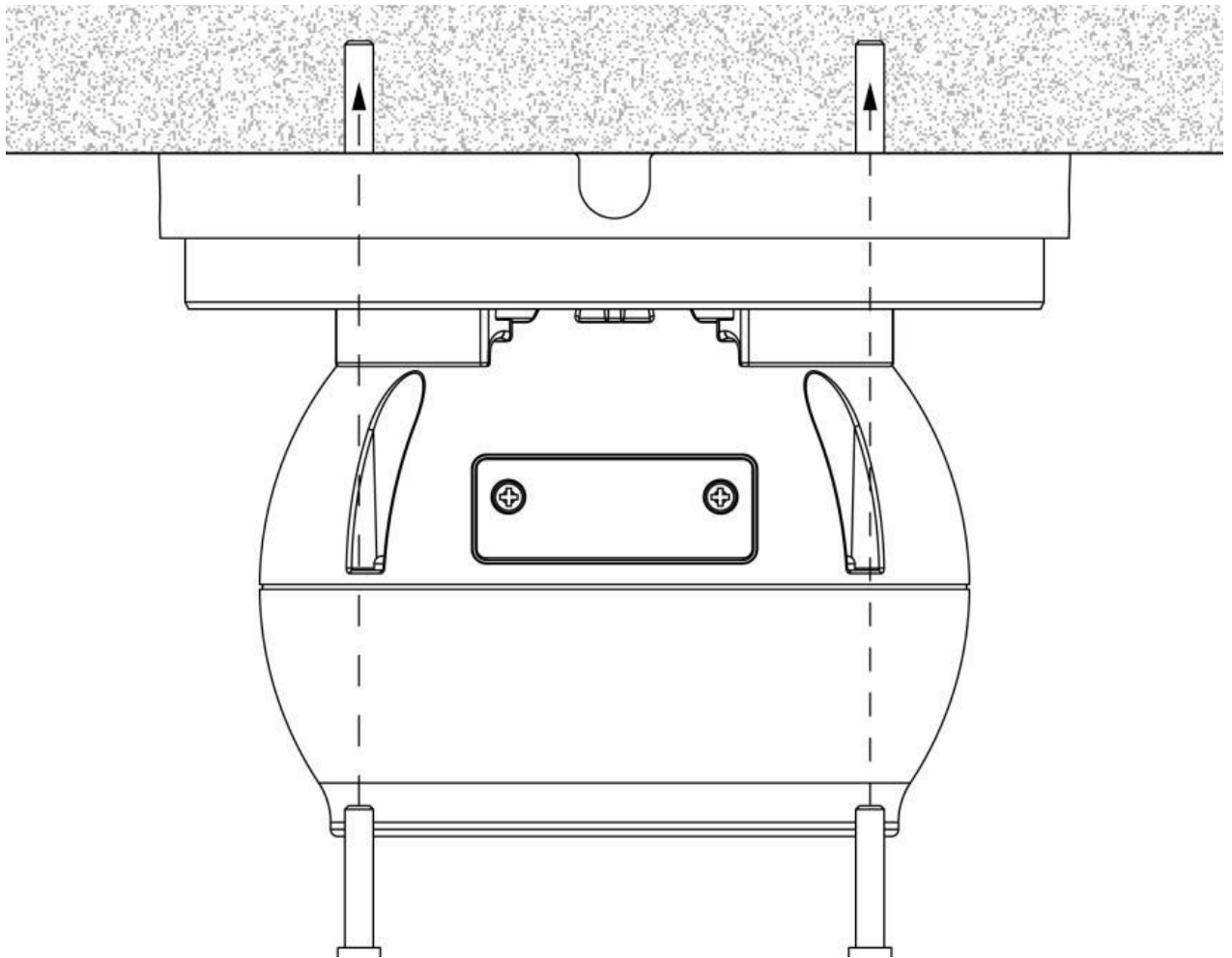


Figure 2.7 Ceiling Mount

3. **Step 3 Adjust Monitoring Angle:** Adjust the angle of the sphere by hands, adjust it to a predetermined position by turning or rotating it, and then tighten the lock nut, screw the gland with ornament to the base, as shown in figure 2.8.

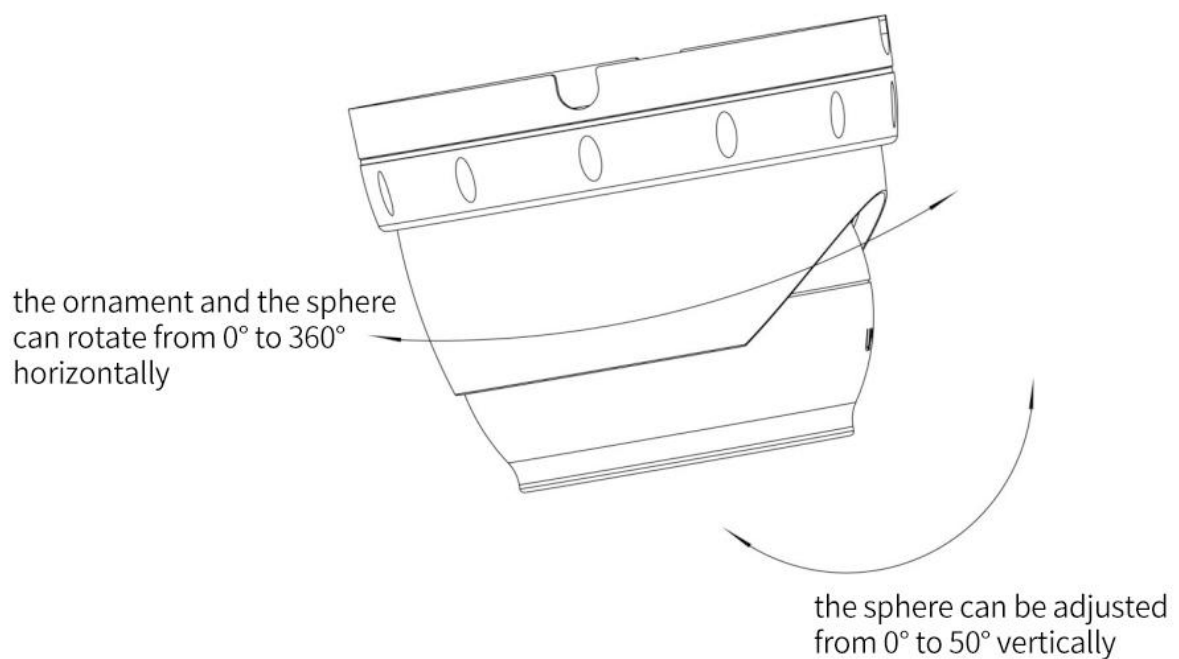


Figure 2.8 Three-axis Adjustment

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:

1. **Step 1** Pass the network cable through the fastening nut and the main body of the waterproof cover in turn.
2. **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.

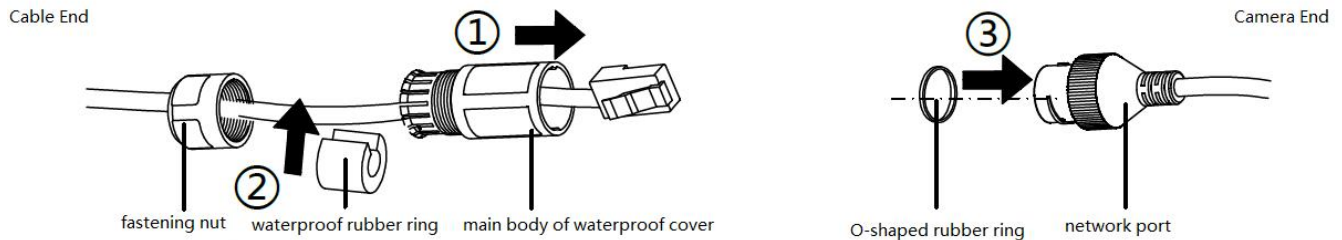


Figure 2.9 Network Cable Installation

3. **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.
4. **Step 5:** Insert the waterproof rubber ring into the main body of the waterproof cover.
5. **Step 6:** Turn the fastening nut clockwise and press the waterproof rubber ring tightly.

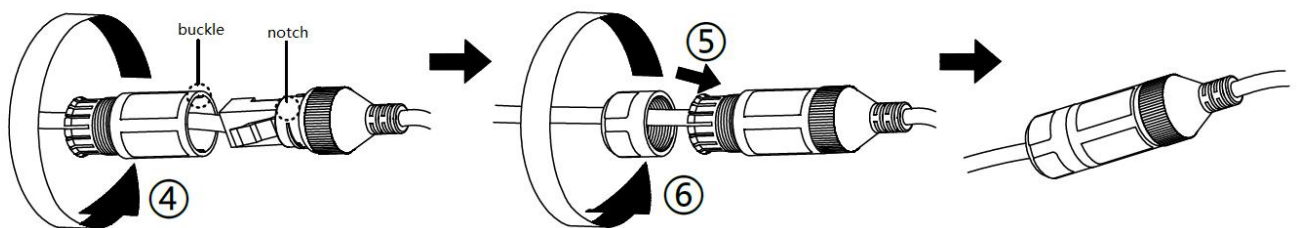


Figure 2.10 Finishing Installation

Operation Guide

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 camera 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 device starts 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.

Login System

1. Enter the IP address of the camera in the address bar of browser (Google, Firefox and Edge) to log in, and the login page is as shown below, you can change the language between simplified Chinese and English on this interface, or change on the main interface after login.

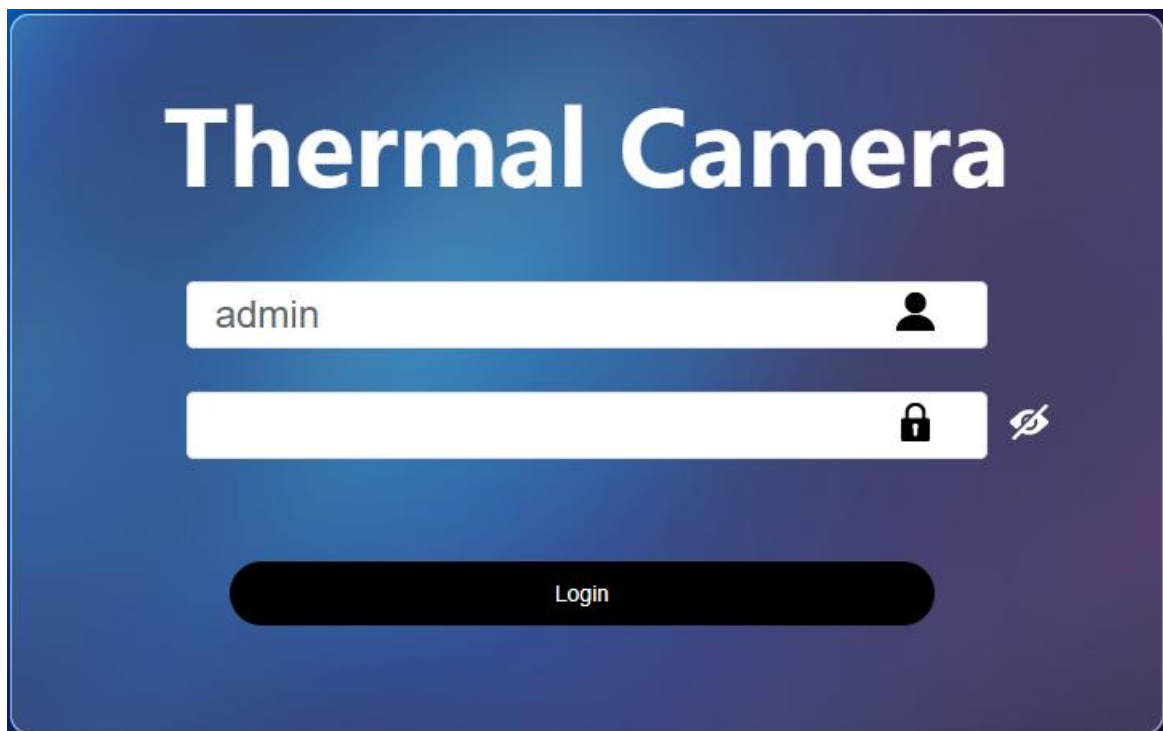


Figure 3.1 Login Interface

2. For the first login, the admin user/password by default: admin/admin , you can perform other operations only after the password is changed.
3. The third-level user login: admin (defaulted, administrator user) or operator (operator user) or user (ordinary user)), to login after typing in the password.
4. Click [OK] button to enter the Web preview interface. As shown below:

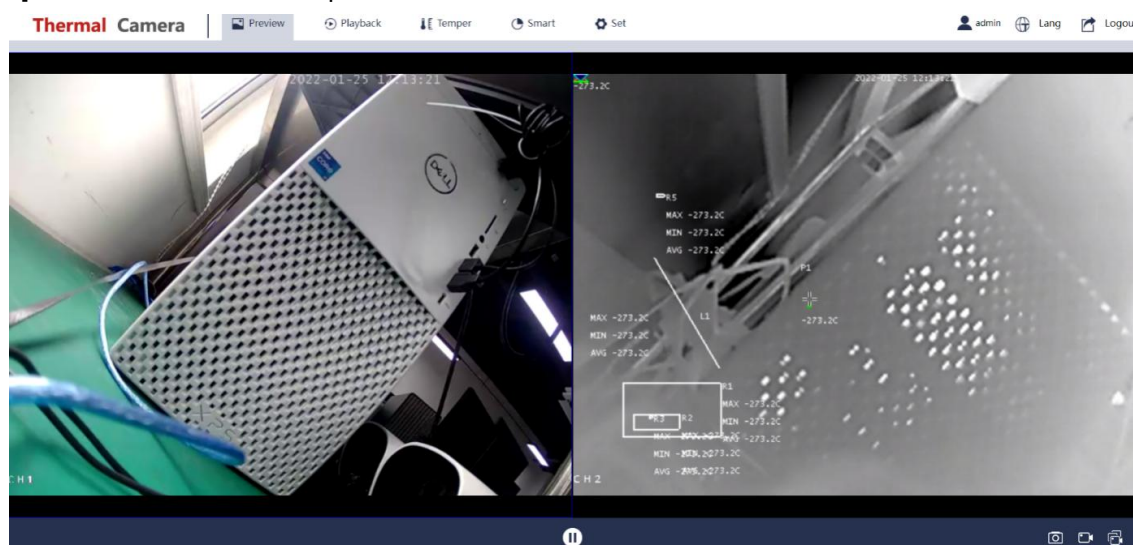


Figure 3.2 Preview Interface

Main Interface Description

On the Web interface of the camera, you can perform operations and configurations such as preview, video playback, temperature measurement analysis, intelligent analysis, and parameter setting.

1. **Preview:** Used for image preview and operation control.
2. **Playback:** Search, replay and download videos stored in TF card or locally by time.
3. **Temperature Measurement Analysis:** High and low temperature warning, supporting spot, line, area temperature measurement, linkage alarm, time defence setting, etc.
4. **Intelligent analysis:** General behavior analysis such as tripwire and regional intrusion, early warning, linkage,

and fire detection analysis.

5. **Parameter Setting:** Enter the camera configuration interface for system configuration and function configuration

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, therefore 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.

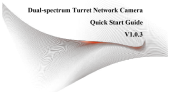
Network Safety Maintenance

In order to ensure the network security of the 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 Emissivity of Common Materials

Materials	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 china	20	0.92
Ceramic tile	17	0.94
Gypsum	17	0.86
Bricks	35	0.94
Hard rubber	0 100	0.89
Carbon	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

Documents / Resources

	<p>InfiRay FD2-T Dual Spectrum Turret Network Camera [pdf] User Guide FD2-T Dual Spectrum Turret Network Camera, FD2-T, Dual Spectrum Turret Network Camera, Turret Network Camera, Network Camera, Camera</p>
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