



**IRS-FB432A/ IRS-FB462A Series**

**Dual-spectrum Network**

**Bullet Camera**

**Quick Start Guide**

**V1.0.0**

**Yantai IRay Technology Co., Ltd.**

©IRay Technology Co.,Ltd. 2020 Reserve all the right. All in this manual including texts, pictures, diagrams and other contents belong to IRay Technology Co.,Ltd (Hereinafter referred to as “Our company”or “IRay Photoelectric”). Without the written permission, no one shall copy, photocopy, translate or disseminate all or part of this manual.

This manual is used as a guide. The photos, graphics, diagrams and illustrations provided in the manual are only used to explain, which may be different from the specific product. The actual product shall prevail. We try our best to make sure the contents in this manual are accurate. We do not provide any representations or warranties in this manual.

This manual may be updated by IRay Photoelectric due to version update or other purposes. If you need the latest version of this manual, please contact us. IRay Photoelectric recommends that you use this manual under the guidance of professionals.

### Version History

Version	Date	Description	Revised by	Checked by
V1.0.0	2020-08-13	Initial Version	Wang Yunqi Lin Wenjuan	Lu Fengjuan

## Important Safety Instructions

In order to avoid danger or property damage, the following right usage rules are for you to follow.

Please read the instructions carefully and rigorously follow the instructions before usage. The User Manual should be carefully kept after being read.

 Warning	<p>It indicates that low or medium potential risk is existing. The ignore of the instructions may lead to light or medium damage for people.</p>
 Cautions	<p>It indicates that potential risk is existing. The ignore of the instruction may lead to device damage, data loss, device performance degradation or other unpredictable results.</p>
 Explanations	<p>It indicates that this is the additional information which can emphasize and implement the main text content.</p>



- The local electrical safety standards should be rigorously followed in the process of installation and usage.
- Please use power adapter which is produced by regular companies. Please check whether the power is normal or not before the device is operated. (Power

supply requirements should comply with those on the device 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 if it's being installed on walls or ceilings.
- If the camera does not work normally, please contact shops or factories. Do not disassemble or revise the product in any way (Our company is not responsible for the problems which are caused by unauthorized modification or maintenance.)



- Please do not place the device in damp, dusty, extremely hot, extremely cold places or places with corrosive gas or unstable light.
- The camera should be transported, used and stored in allowable humidity and temperature range.
- Avoid making the lens aiming at strong light (e.g. sun or laser), or else the image sensor would be damaged.
- Please do not block the vents near the camera in case of heat accumulated.
- Please transport the devices with the factory packaging or the packaging

materials of the same quality.

- 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 device. 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, or else the camera coating would be damaged and also the camera performance could be reduced.
- 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 in case of being embezzled.
- Please use the accessories or parts which are confirmed by manufacturers and installed or maintained by the service professionals.

# Table of Contents

<b>Important Safety Instructions.....</b>	<b>II</b>
<b>1. Introduction .....</b>	<b>1</b>
1.1 Product Information .....	1
1.2 Product Features .....	1
1.3 Product Appearance .....	2
1.4 Cable Instructions.....	2
1.5 Alarm Interface Wiring Instructions .....	4
<b>2.Installation.....</b>	<b>5</b>
2.1 Pre-installation Instructions .....	5
2.2 Monitoring Distance Recommendations.....	6
2.3 Installation Guide .....	8
<b>3.Operation Guide.....</b>	<b>13</b>
3.1 Preparations .....	13
3.2 Login the System.....	13
3.3 Main Interface Description .....	15

# 1. Introduction

## 1.1 Product Information

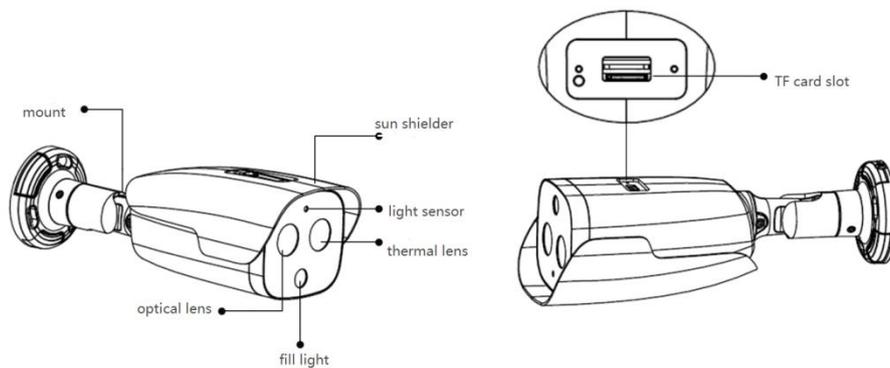
IRS-FB432A/ IRS-FB462A Series Dual-spectrum Bullet Camera is a new-type thermal imaging net camera integrated with the functions of Internet remote monitoring, video server and high definition camera. The high- definition optical camera and advanced IR thermal imaging detectors are installed in this product, so it can realize the function of dual-spectrum shooting, and at the same time comprehensively collect the characteristic information of the monitoring scenes. It can also be widely used in the intelligent safety surveillance fields of indoor and outdoor environmental monitoring, perimeter prevention, industrial temperature measuring and fire alarm.

## 1.2 Product Features

- The latest InfiRay® 12 $\mu$ m IR thermal imaging detector, advanced IR vision algorithm, more distant and clearer image.
- Function of front-end independent temperature measuring; installed with professional temperature measuring analysis tools and multiple linkage alarm rules; function of fire point detecting alarm.
- Function of intelligent behavior analysis, such as regional invasion detecting, boundary violation detecting, entering and leaving area detecting and left items detecting, etc.

- One-piece shell, with outdoor protection class IP66.
- ONVIF standard interface protocol supported, available SDK, secondary development and third-party platform connection supported.

### 1.3 Product Appearance

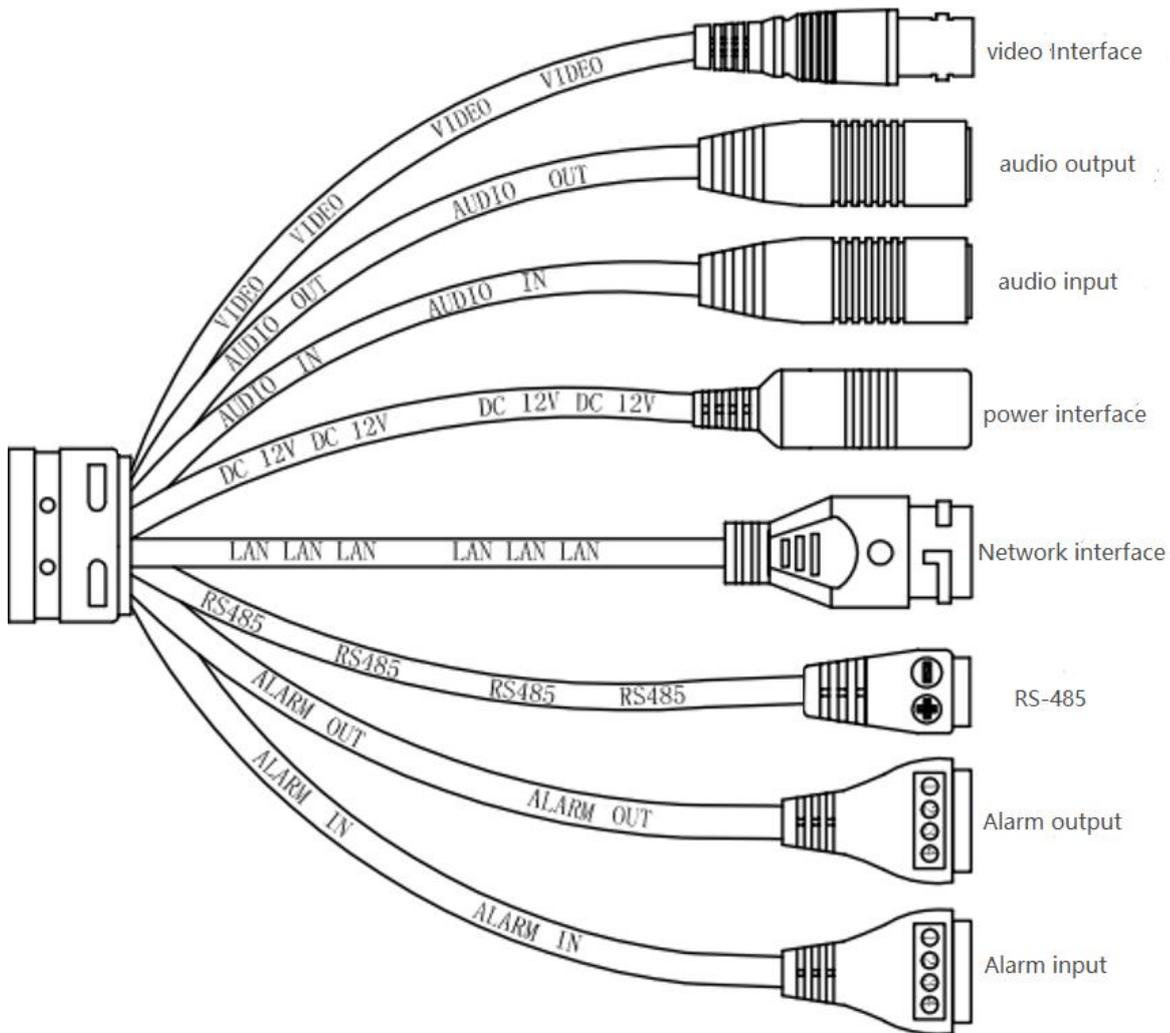


**Figure 1.1** Appearance and Interface for Dual-spectrum Bullet Camera

### 1.4 Cable Instructions

The cable includes interfaces for power, alarm, audio, RS-485, network, video, etc.

See the following figure for interface instructions.



**Figure1.2** Cable Instructions

- Video interface(VIDEO): output analog video signal. The device can output images if connected to TV monitor.
- Audio Output(AUDIO OUT): output audio signal to speakers and other equipment for sound output.
- Audio Input(AUDIO IN): input audio signal and receive linear analog audio signal for sound collection.

- Power connector(DC12V): support DC 12V DC power supply. Please connect the positive and negative poles of the power supply correctly.
- Network Interface(LAN): network signal output and connected with standard Ethernet cable.
- RS-485 Interface(RS485): RS485 interface can control PTZ
- ALARM OUT: 1 channel alarm output interface for outputting alarm switch signal to the alarm equipment, among which pin\_1 and pin\_2 are alarm output 1, pin\_3 and pin\_4 are reserved interfaces with no function.
- ALARM IN: 2 channels alarm input interface for receiving the switch signal of the external alarm source, among which pin\_1 is ground, pin\_2 is alarm input 1, pin\_3 is ground, pin\_4 is alarm input 2.

## 1.5 Alarm Interface Wiring Instructions

The equipment can be connected to alarm signal (0~DC5V) 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.

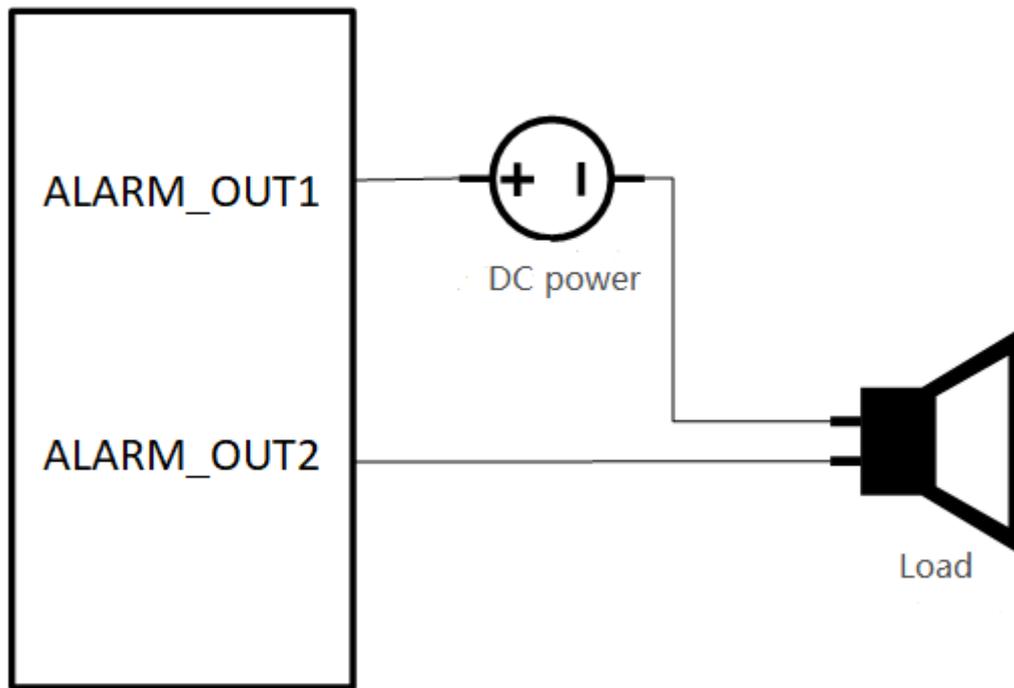


Figure 1.3 Alarm Output Wiring Diagram

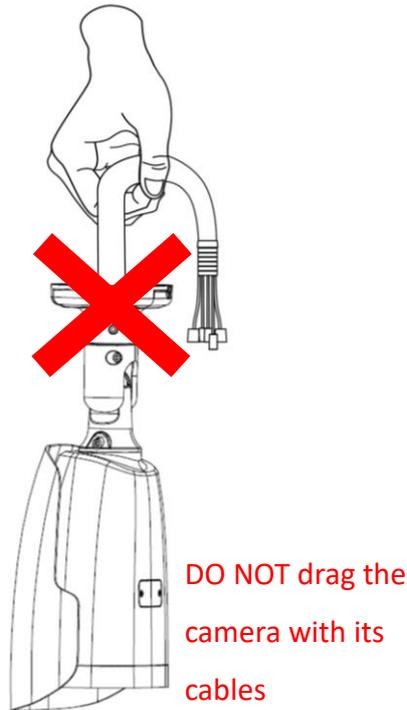
## 2. Installation

### 2.1 Pre-installation Instructions

Before installation, please make sure that the equipment in the package is intact with all complete parts.

- The wall for installation should be of a certain thickness, and can bear at least 4 times the weight of the camera and accessories.
- If the device is fixed on a concrete wall or ceiling, firstly install the expansion screws (the installation holes of the expansion screws should match that of the bracket), and then install the bracket.
- You can use self-tapping screws to install the bracket directly in case of wooden walls.

- Do not directly pull the cable at the back of the device when moving, otherwise it may affect the waterproof performance or cause wiring problems shown in the figure below.



**Figure 2.1** Wrong Handling

## 2.2 Monitoring Distance Recommendations

Since the thermal imaging channel of the bullet camera uses a fixed-focus athermal lens, remote electric focusing cannot be realized. Therefore, before installing the bullet camera, please select the corresponding installation position and lens focal length according to the monitoring requirements to realize the purpose of monitoring. The comparison of lens focal length and monitoring distance is shown in the following tables.

**Table 2.1 Monitoring Distance Recommendation (17 $\mu$ m Pixel)**

Focal length/mm	9.7	13	19	25	35
Resolution/mrad	1.753	1.308	0.895	0.680	0.486
Detection distance(Vehicle)/m	875	1173	1714	2255	3157
Detection distance(Human)/m	285	382	559	735	1029
Recognition distance(Vehicle)/m	219	293	428	564	789
Recognition distance(Human)/m	71	96	140	184	257
Identification distance(Vehicle)/m	109	147	214	282	395
Identification distance(Human)/m	36	48	70	92	129

**Table 2.2 Monitoring Distance Recommendation (12 $\mu$ m Pixel)**

Focal length/mm	9.1	13	19	25	35
Resolution/mrad	1.319	0.923	0.632	0.480	0.343
Detection distance(Vehicle)/m	1163	1661	2428	3194	4472
Detection distance(Human)/m	379	542	792	1042	1458
Recognition distance(Vehicle)/m	291	415	607	799	1118
Recognition distance(Human)/m	95	135	198	260	365
Identification distance(Vehicle)/m	145	208	303	399	559
Identification distance(Human)/m	47	68	99	130	182

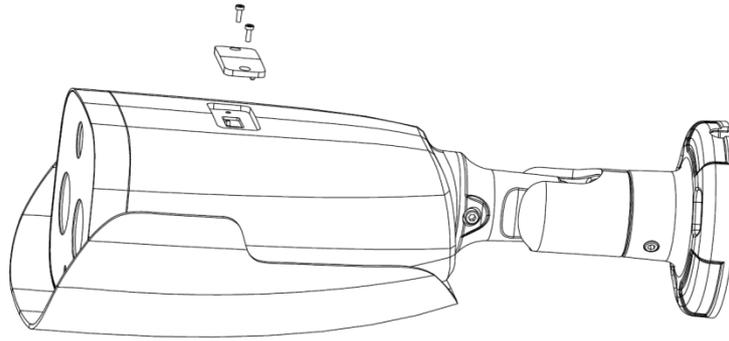
- Assuming that it is clear, the visibility of the atmosphere is at a normal level, and there is no obvious fog or haze, the probability of reading the target at the specified distance is 50%.
- Take human as 0.5m (width)×1.8m(height), and limit length is 0.75m. Take vehicle as 4.0m(width)×1.4m(height), and limit length is 2.3m.
- According to the Johnson criterion of infrared images, it is assumed that:  
Detect target: the target should be at least 1.5 pixels on the image.  
Recognize target: the target should be at least 6 pixels on the image.  
Identify target: the target should be at least 12 pixels on the image.  
The actual detection range may vary according to different camera settings, environmental conditions, user experience, monitor or display type and so on.

## 2.3 Installation Guide

Both wall or ceiling mounting of the equipment are available. Different installation methods can be selected according to different installation environments.

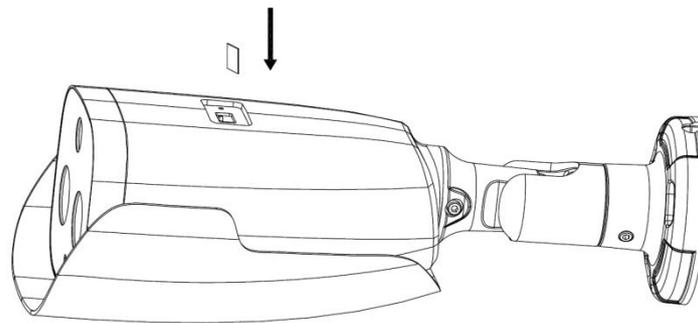
### 2.3.1 TF Card Installation

Step 1 The TF card slot is located under the device. Use the H1.5 hex key to unscrew the TF card slot cover, as shown in the figure below.



**Figure 2.2** Unscrew TF card Slot Cover

Step 2 Insert the TF card slowly into the TF card slot in the direction indicated by the arrow. After you hear a "click", the installation is completed, as shown in the figure below.



**Figure 2.3** Install TF Card

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

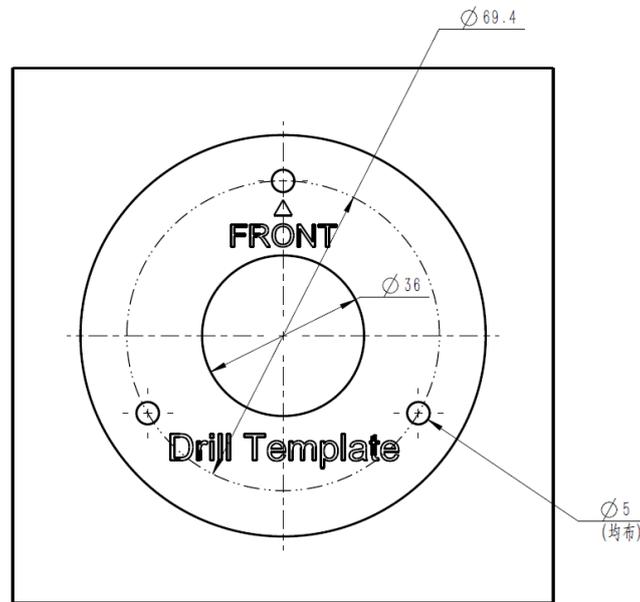
### 2.3.2 Wall/Ceiling Mounting

Step1 Install stickers

The installation sticker is attached with the device. Please stick the sticker to the selected wall, and then punch three installation holes  $\Phi 5$  according to the label on the sticker. The recommended depth is 25mm. The installation sticker is shown in Figure 2.4. After the installation hole is drilled, insert the expansion tube into the drilled

holes.

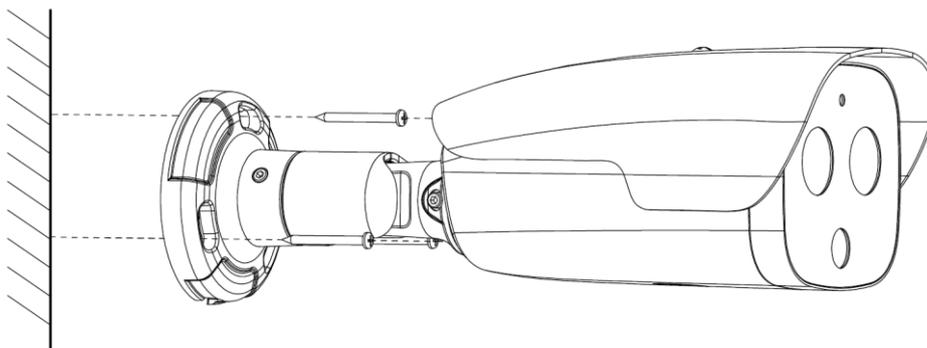
According to the "A" marked on the sticker, open a  $\Phi 36$  hole with "A" as the center of the circle for wiring.



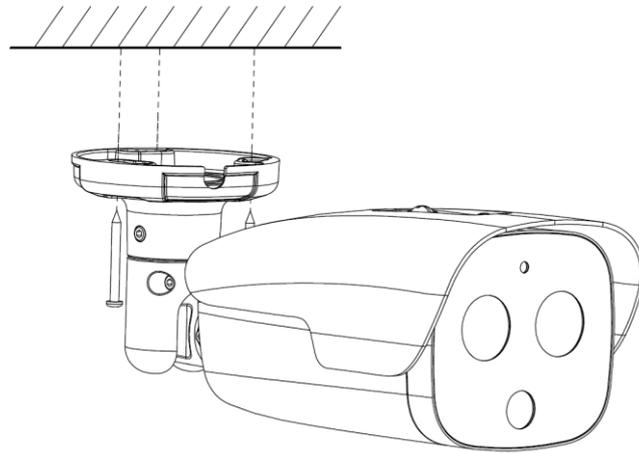
**Figure 2.4** Install Sticker

### Step 2 Fix bullet camera

Pass the tail wire of the device through the "A" hole, and then use the attached self-tapping screws to fix the tube camera to the installation wall. The wall mounting is shown in Figure 2.5, and the ceiling mounting is shown in Figure 2.6.



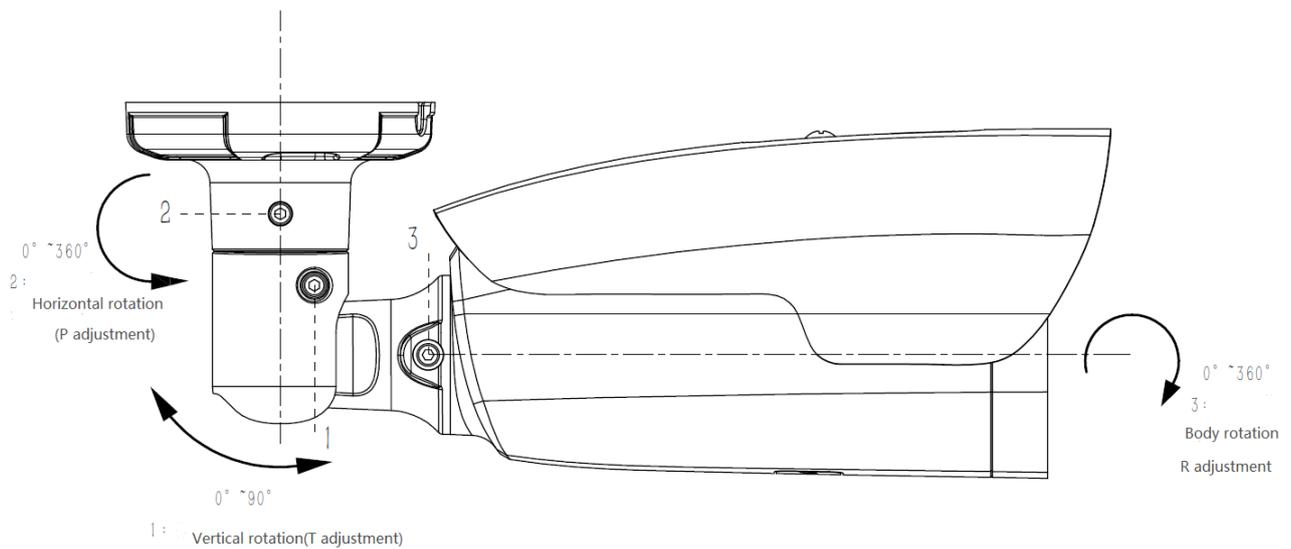
**Figure 2.5** Wall Mounting



**Figure 2.6** Ceiling Mounting

### Step 3 Adjust the Monitoring Angle

Use the equipped L-shaped hex key to loosen 1 lock nut near the device bracket respectively, adjust it to a predetermined position by turning or rotating, and tighten the lock nut, as shown in the figure below.



**Figure 2.7** Three-axis Adjustment

## 2.4 Install the waterproof set for the network port

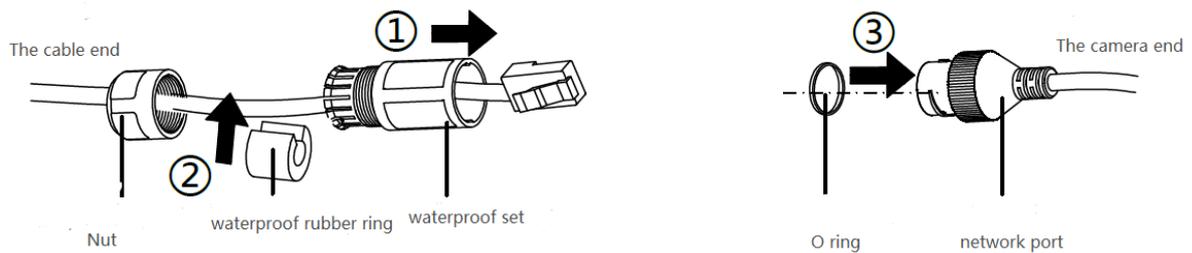
Install the matching network port waterproof set if necessary when using the device.

The installation steps of the waterproof set for the network port are as follows.

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

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

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

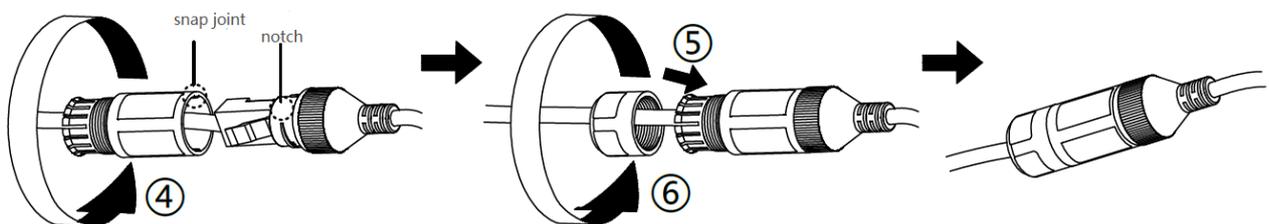


**Figure 2.8** Install Cable

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

Step 5 Put the rubber ring into the main body of the waterproof set.

Step 6 Turn the tightening nut clockwise to compress the waterproof glue.



**Figure 2.9** Finished Installation

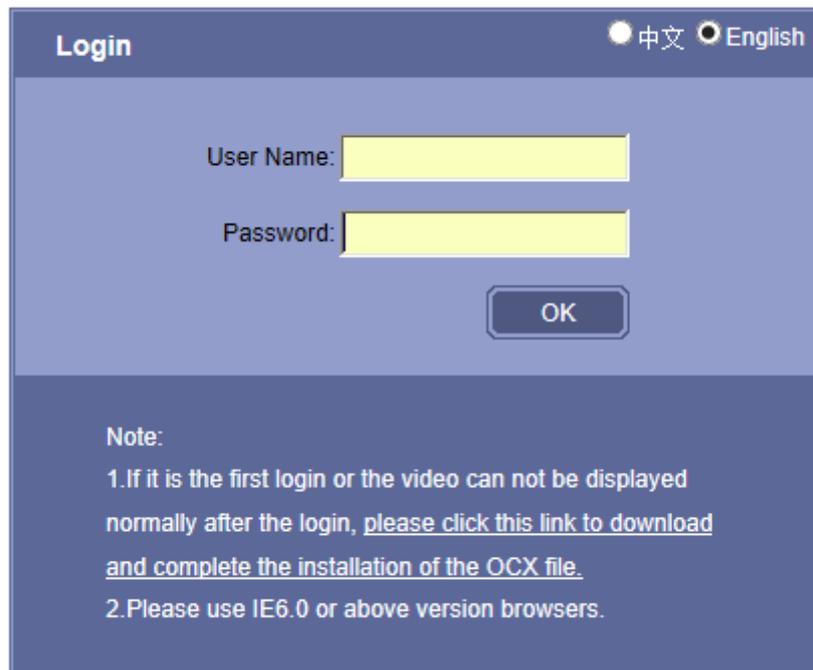
## 3. Operation Guide

### 3.1 Preparations

1. The default IP address of the device:192.168.1.19.
2. Subnet mask code is 255.255.255.0, The IP address of the device can be modified, for example, changing the device address to 192.168.1.194; Adjust your computer's IP address to the same network segment as the network video server with the same subnet mask. For example: 192.168.1.120.
3. Test whether the device can start normally. Under WINDOWS, run the <Start→run→cmd> operation, open the command line window, and enter Ping 192.168.1.19 in the command line window. If "Request time out" is not displayed, it means the startup is normal.
4. When using the browser (Internet Explore) to access the video server for the first time, the control must be installed.
5. Install the plug-in after exiting 360 and other anti-virus software.

### 3.2 Login the System

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



**Login**  中文  English

User Name:

Password:

**Note:**

- 1.If it is the first login or the video can not be displayed normally after the login, [please click this link to download and complete the installation of the OCX file.](#)
- 2.Please use IE6.0 or above version browsers.

**Figure 3.1** Login Interface

2. Read the prompts on the web page carefully. If you need to install the control, please click the "Download and install the control" button, and then follow the prompts to successfully complete the installation of the control.
3. Please upgrade the browser version to 6.0 and above if the IE browser version used is lower than 6.0.
4. Enter the user name: admin (default, administrator user) or operator (operator user) or user (ordinary user).
5. Enter the password: admin(default, administrator password)or operator(operator password)or user(ordinary user password);
6. Click **【OK】** button to enter the preview screen of the video server. As shown

below:



**Figure 3.2** Preview Interface

### 3.3 Main Interface Description

Operations and configurations such as preview, video playback, and parameter setting can be performed on the main interface of the device.

1. **Preview:** used for previewing monitoring screen and controlling operation control.
2. **Playback:** search, replay and download videos stored in TF card or local video by time.
3. **Parameter setting:** enter configuration interface for configuration of system and function.

## **Appendix A Installation and Maintenance**

### **Lens Maintenance**

The lens surface is coated with anti-reflective coating. When it is stained with dust, grease, fingerprints, etc., harmful substances will generate, which will degrade its performance or cause scratches, mildew, etc. Once dirt is found, please follow the methods below.

- Dust stained: use an oil-free soft brush or a blower ball to gently flick the dust off.
- Grease stained: gently wipe off the water droplets or oil with a soft cloth and let it dry, then use an oil-free cotton cloth or lens cleaning paper soaked in alcohol or lens cleaning liquid to wipe outwards from the center of the lens. If it is still not clean, you can change the cloth and wipe the lens several times.

### **Network Security Maintenance**

In order to ensure the network security of the camera, regular network security assessment and maintenance of the network bullet camera system are recommended.

We can provide corresponding professional technical services.

## Appendix B Emissivity for Common Substance

Substance	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 plastics	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
Sidewalk surface	5	0.974
Smooth porcelain	20	0.92
Ceramic tile	17	0.94
Gypsum	17	0.86
Bricks	35	0.94
Hard rubbers	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