



Thermal Imaging IP Camera User Manual

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Precautions

Precautions

Fully understand this document before using this device, and strictly observe rules in this document when using this device. If you install this device in public places, provide the tip "You have entered the area of electronic surveillance" in an eye-catching place. Failure to correctly use electrical products may cause fire and severe injuries. To prevent accidents, carefully read the following context:

Symbols

This document may contain the following symbols whose meanings are described accordingly.

Symbol	Description
 DANGER	It alerts you to fatal dangers which, if not avoided, may cause deaths or severe injuries.
 WARNING	It alerts you to moderate dangers which, if not avoided, may cause minor or moderate injuries.
 CAUTION	It alerts you to risks. Neglect of these risks may cause device damage, data loss, device performance deterioration, or unpredictable results.
 TIP	It provides a tip that may help you resolve problems or save time.
 NOTE	It provides additional information.

DANGER

To prevent electric shocks or other dangers, keep power plugs dry and clean.

WARNING

- Strictly observe installation requirements when installing the device. The manufacturer shall not be held responsible for device damage caused by users' non-conformance to these requirements.

- Strictly conform to local electrical safety standards and use power adapters that are marked with the LPS standard when installing and using this device. Otherwise, this device may be damaged.
- Use accessories delivered with this device. The voltage must meet input voltage requirements for this device.
- If this device is installed in places with unsteady voltage, ground this device to discharge high energy such as electrical surges in order to prevent the power supply from burning out.
- When this device is in use, ensure that no water or any liquid flows into the device. If water or liquid unexpectedly flows into the device, immediately power off the device and disconnect all cables (such as power cables and network cables) from this device.
- Do not expose the thermal imaging camera or unpacked product to extremely strong radiation sources, such as the sun, laser, or arc welding machine, regardless of whether the device is being electrified or not; do not put the camera close to high thermal objects such as the sunlight; otherwise, the precision of the camera may be affected and even the detector inside the camera may suffer a permanent damage.
- If this device is installed in places where thunder and lightning frequently occur, ground the device nearby to discharge high energy such as thunder strikes in order to prevent device damage.

**CAUTION**

- Unless otherwise specified, do not use the camera in a temperature lower than -10 °C (+14 °F) or higher than +50 °C (+122 °F). Too-high or too-low temperature may cause image display anomaly of the camera and the camera will be damaged if it is working under such a condition for a long time.
- If the camera is installed outdoors, avoid direct sunlight at dawn and dusk on the camera lens and install a sunshield with frontal and rear positions adjusted according to the sunlight angle.
- Avoid heavy loads, intensive shakes, and soaking to prevent damages during transportation and storage. The warranty does not cover any device damage that is caused during secondary packaging and transportation after the original packaging is taken apart.
- Protect this device from fall-down and intensive strikes, keep the device away from magnetic field interference, and do not install the device in places with shaking surfaces or under shocks.
- Clean the device with a soft dry cloth. For stubborn dirt, dip the cloth into slight neutral cleanser, gently wipe the dirt with the cloth, and then dry the device.
- Since the camera lens is painted with a durable coating material, it adapts to outdoor environment. The lens must be cleaned regularly. If the image quality is reduced or excessive dirt is deposited on the lens, clean the lens in a timely manner. In sandy (in desert) or corrosive (on sea) environment, use the camera with caution; improper use may cause the coating to peel off.

- Do not jam the ventilation opening. Follow the installation instructions provided in this document when installing the device.
- Keep the device away from heat sources such as radiators, electric heaters, or other heat equipment.
- Keep the device away from moist, dusty, extremely hot or cold places, or places with strong electric radiation.
- If the device is installed outdoors, take insect- and moisture-proof measures to avoid circuit board corrosion that can affect monitoring.
- Remove the power plug if the device is idle for a long time.
- Before unpacking, check whether the fragile sticker is damaged. If the fragile sticker is damaged, contact customer services or sales personnel. The manufacturer shall not be held responsible for any artificial damage of the fragile sticker.

Special Announcement

All complete products sold by the manufacturer are delivered along with nameplates, operation instructions, and accessories after strict inspection. The manufacturer shall not be held responsible for counterfeit products.

This manual may contain misprints, technology information that is not accurate enough, or product function and operation description that is slightly inconsistent with the actual product. The manufacturer will update this manual according to product function enhancement or changes and regularly update the software and hardware described in this manual. Update information will be added to new versions of this manual without prior notice.

This manual is only for reference and does not ensure that the information is totally consistent with the actual product. For consistency, see the actual product.

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1 Overview

1.1 Principle of Thermal Imaging and Advantages

Any object with temperature higher than the absolute zero (-273.15° F) will emit infrared (IR) ray, even though it does not emit light. The IR ray is also called thermal radiation. IR rays emitted by objects with different temperatures can be absorbed by the detector to reflect temperature change and thus generate an electric effect. The electric signal is amplified and processed to produce a thermal image that corresponds to the thermal distribution of the object surface. This is the process of thermal imaging.

- Adapt to any environment

Traditional cameras rely on natural or environmental light to shoot images, but this IR thermal imaging camera relies on the IR energy radiated by an object itself to form an image, not requiring any light. The IR thermal imaging camera is applicable to any environment and not affected by light strength. It can detect and identify any camouflage and concealed object both in daytime or nighttime, implementing round-the-clock monitoring.

- Monitor the temperature field with object energy distributed

The IR thermal imaging camera can show the temperature field of an object, converting the invisible surface temperature distribution situation to a visible thermal image that reflects the surface temperature distribution situation of the object. By this monitoring, users can discover temperature anomaly in a timely manner and take precautionary measures to avoid any risk that may be caused by the anomaly, for example, a fire.

- Boast cloud penetration capability

Visible light and near IR ray will be absorbed by the air, cloud and smoke, but they are transparent to IR ray of the 3~5 μm Medium Wavelength Infrared (MWIR)

region and 8~14 μm Long Wavelength Infrared (LWIR) region. Traditional cameras cannot shoot clear images under cloudy environment, but the IR thermal imaging camera can penetrate the cloud and smoke to shoot clear images.

1.2 Device Structure

Figure 1-1 shows the rear panel of the all-in-one thermal imaging IP camera and Table 1-1 describes interfaces.

Figure 1-1 Appearance and interfaces of the all-in-one thermal imaging IP camera

Table 1-1 Appearance and interface description

No.	Physical Interface	Description
1	RESET	Press and hold this button for three seconds to restore factory settings. Default value: 192.168.0.120
2	Network indicator	Network connection indicator
3	Video output (VOUT)	Output analog video signal and connect to a TV monitor to show analog video.
4	SD card indicator	SD indicator states: <ul style="list-style-type: none"> • Off: No SD card is inserted. • On: An SD card is inserted.
5	SD card slot	Connect with an SD card. Notes: <ul style="list-style-type: none"> • Before inserting the SD card into the slot, make sure the card is not in write protection state. • Before removing the SD card from the slot, make sure the card is not in read/write state; otherwise, data may be lost and the SD card may be damaged. Before hot swap, stop recording first.

1.3 Wiring Diagram

Figure 1-2 shows the multi-connector cable of the all-in-one thermal imaging IP camera and Table 1-2 describes the multi-connector cable.

Figure 1-2 Multi-connector cable

Table 1-2 Multi-connector cable description

ID	Core	Function	Description
1	Orange wire	Cathode of alarm output 1	Connect to the alarm output device.
	White & black	Cathode of alarm output 2	
	Yellow wire	Alarm output 1	
	White & blue	Alarm output 2	
	Gray wire	Cathode of alarm input	Connect to the alarm input device.
	Purple wire	Alarm input 1	
	Blue wire	Alarm input 2	
2		Network port	Connect with an Ethernet cable.
3	-	Audio input (line input)	Input audio signal and receive analog audio signal from audio pickup and other devices.
4	-	Audio output	Connect with sound box and other external audio devices.
5	Brown wire	RS485RS+	Connect with external PTZ and other devices through the RS485 interface.
	White wire	RS485RS-	
6	-	DC 12V (2A)	Connect with 12 V DC power supply through the power interface.

1.4 Functional Features

- Adopts non-cooling IR focal plane sensor.
- Detects 8~14μm LWIR.
- Achieves the resolution of 420*315 pixels.
- Provides a thermal sensitivity as high as 50 mK.
- Supports special lens with 8mm / 15mm / 25mm / 35mm / 50mm focal distance (optional).
- Supports Polarity /LUT switchover: black hot/white hot/rainbow/ironbow
- Allows users to set measuring point or area and show and detect temperature: point measuring (with mouse), area measuring (highest temperature), and full-screen measuring (highest temperature) (functioning as a temperature measuring and prewarning product).

- Provides overtemperature prewarning, overtemperature alarm, temperature change trend alarm, temperature difference alarm (functioning as a temperature measuring and prewarning product).
- Supports DVE image enhancement function.
- Supports digital noise reduction (DNR) and mirroring
- Supports four encoding algorithms (H.264 BP/MP/HP/MJPEG; optional) and boasts high compatibility.
- Adopts real-time three-stream output to meet the requirement of local storage and network transmission of videos.
- Supports one-channel audio input, one-channel audio output, and two-way intercom.
- Supports local storage using Micro SD (maximum capacity: 32 GB) to avoid video loss caused by network fault.
- Supports NAS storage.
- Adopts watchdog for hardware and software and supports automatic fault rectification.
- Adopts metal housing design that supports heat dissipation.
- Uses a three-shaft rotational structure that facilitates installation and adjustment.
- Uses DC 12 V/ POE power supply.

2 Device Dimensions

Figure 2-1 shows the dimensions of the all-in-one thermal imaging IP camera.

Figure 2-1 Dimensions (unit: mm)

3 Device Installation

3.1 Installation Preparation

When installing the camera, you may require the following tools and accessories listed in Table 3-1. You need to prepare only listed tools as accessories are delivered with the camera.

Table 3-1 Installation tools

Tool	Appearance
Cross screwdriver (self-provided)	
Claw hammer (self-provided)	
Impact drill (self-provided)	
Spirit level (self-provided)	
T15 plum blossom screwdriver (delivered with the camera)	
Inner hexagon steel screw (delivered with the camera)	
Self-tapping screws (delivered with the camera)	

Tool	Appearance
Swell plastic buttons (delivered with the camera)	

3.2 Installation Method

The all-in-one thermal imaging IP camera can be installed on ceiling/wall, based on user requirement. For cement wall, install expansion screws (the installation hole must be consistent with the bracket) and then install the bracket.



NOTE

The wall to support the camera must be able to bear weight of three times of the camera and bracket.

3.3 Installation Procedure

Step 1 Stick the locating sticker delivered with the camera to a proper position on the ceiling/wall where the camera is to be installed, as shown in Figure 3-1:



NOTE

- If the camera will be wired from rear side, drill a hole on the ceiling/wall, as shown in the red area in Figure 3-1. The following describes rear wiring method.
- If the camera will be wired from lateral side, lead out the multi-connector cable from the lateral hole at the bottom of the camera.

Figure 3-1 Installing the locating sticker

Step 2 Drill four 5 mm holes on the ceiling/wall at the positions marked by the sticker.

Step 3 Secure the bottom base onto the wall, as shown in Figure 3-2:

Figure 3-2 Bottom base

Step 4 Push the camera along to guiderail to the bottom base and rotate the camera to facilitate wiring, as shown in Figure 3-3:

Figure 3-3 Pushing the camera to the bottom base

Step 5 Wire the camera and hide the visible cables. After the wiring, rotate the camera to make the camera align with the bottom base, as shown in Figure 3-4:

Figure 3-4 Aligning with the bottom base

Step 6 Secure the camera to the bottom base, as shown in Figure 3-5:

Figure 3-5 Securing the camera to the bottom base

Step 7 Align the focus fixture with the lens slot to make sure they are clipped together. Hold the handle and make adjustment towards the direction indicated by the arrow, as shown in Figure 3-6:

Figure 3-6 Focusing

Step 8 Adjust the shooting angle, as shown in Figure 3-7, and then tighten the screws.

Figure 3-7 Adjusting the shooting angle

----End

4 Quick Configuration

4.1 Login and Logout



CAUTION

You must use Internet Explorer 6 or a later version to access the web management system; otherwise, some functions may be unavailable.

Login system

- Step 1 Open the Internet Explorer, enter the IP address of IP camera (default value: 192.168.0.120) in the address box, and press Enter. The login page is displayed as Figure 4-1 .

Figure 4-1 Login Page

Language: English

User Name: admin

Password: *****

Login

- Step 2 Input the User name and password.

NOTE

- The default name is admin. The default password is admin. Change the password when you log in the system for first time to ensure system security.
- You can change the system display language on the login page.

Step 3 Click Login. The main page is displayed.

logout

To logout of system, click **Sign out** in the upper right corner of the main page, the login page is display after you log out of the system.

4.2 Web Interface

The web interface of the camera is composed of different windows, including live video, parameter configuration, video parameter, video control, PTZ control, PTZ configuration, and exit interface.

Figure 4-2 shows the interface layout of the camera and Table 4-1 describes the interface layout.

Figure 4-2 Interface layout

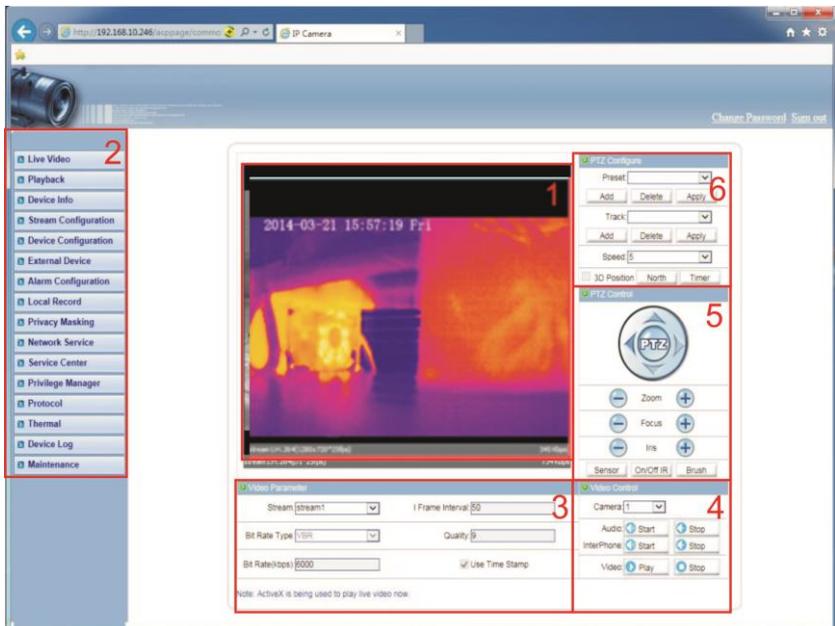


Table 4-1 Web interface description

SN	Name	Description
1	Live video	Show live video and allow users to configure frontend parameters.
2	Parameter configuration	Configure device parameters, including device information, audio/video stream, alarm, and privacy masking.
3	Video parameter	Set code stream of live video, frame I interval, code rate type, bit rate, and quality.
4	Video control	<p>This area provides the following functions:</p> <ul style="list-style-type: none"> • Switch the video channel • Play or stop a video • Turn on/off volume • Turn on/off intercom
5	PTZ control	<p>Configure external PTZ devices or devices with PTZ function, including direction, times, focal distance, and aperture.</p> <p>Note</p> <p>At present, this interface does not support automatic aperture adjustment.</p>
6	PTZ configuration	<p>Cameras with PTZ function or cameras connecting with PTZ device can be operated as follows through this area:</p> <ul style="list-style-type: none"> • Add/delete/invoke preset point and trace • Set PTZ speed • Enable/disable 3D locating • Set due north direction • Turn on/off the timer <p>Note</p> <ul style="list-style-type: none"> • PTZ timer: This is a time trigger. When it is activated, the camera invokes preset position and trace. • The timer uses internal time of the IP camera, so set the time accurately. • This area is available to high-speed dome cameras or cameras connecting with PTZ devices.

4.3 Browsing Video

User can browse the real-time video in the web management system.

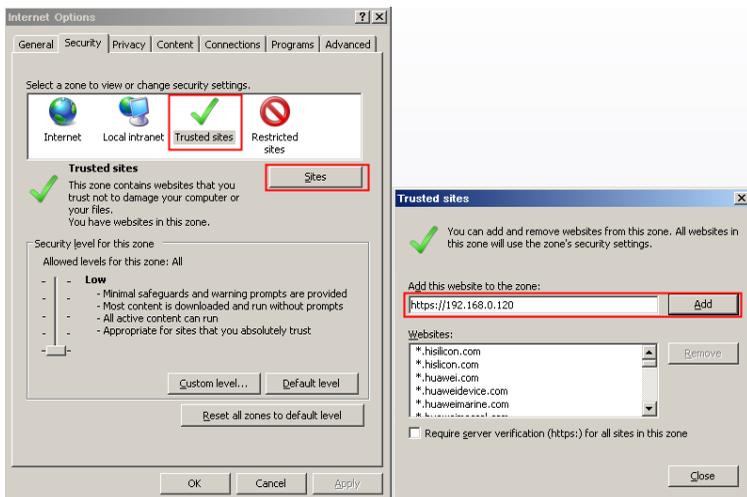
Preparation

To ensure the real-time video can be play properly, you must perform the following operation when you log in to the web for the first time:

1. Open the Internet Explorer. **Choose Tools > Internet options > Security > Trusted sites > Sites.**

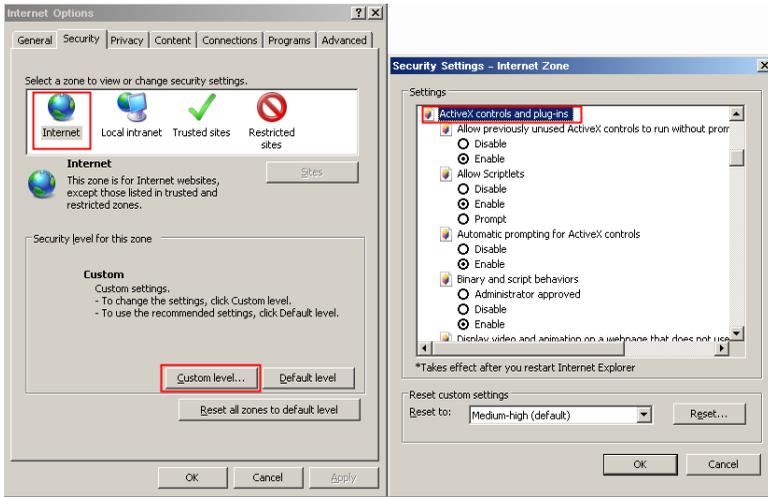
In the display dialog box, click **Add**, as shown in Figure 4-3.

Figure 4-3 Adding the a trusted site



2. In the Internet Explorer, choose **Tool > Internet Options > Security > Customer level**, and set **Download unsigned ActiveX control** and **initialize and script ActiveX controls not marked as safe for scripting under ActiveX controls and plug-ins** to **Enable**, as shown in Figure 4-4.

Figure 4-4 Configuring ActiveX control and plug-ins



3. Download and install the player control as prompted.



NOTE

The login page is display when the control is loaded.

4.3.1 Download the right control in the Internet Explorer

Real-time video page pop-ups the message **clicks to play live video with ActiveX control to reduce latency**.

Click the message, jump to download ActiveX control interface, once downloading is complete, you can watch more fluent video screen.

Unable to display video picture, and need to download and install the control

Real-time video page pop-up the message **click to download the latest version of Flash Play live video** and **click to play video with ActiveX control to reduce latency**.

Click the message **click to play live video with ActiveX control to reduce latency**, jump download Adobe Flash Player Plugin control interface, once downloading is complete, you can watch video screen.

Click the message **click to download the latest version of Flash Play live video**, jump to download ActiveX control interface, once downloading is complete, you can watch more fluent video screen.

4.3.2 In the Google, Firefox, or Safari browsers watch real-time video

Google, Firefox, and Safari browsers only support Adobe Flash Player Plugin to play video. When Adobe Flash Plugin control version is too low, browser will automatically clew you to download the latest control.

4.4 Setting Local Network Parameters

Description

Local network parameters include:

- IP protocol
- IP address
- Subnet mask
- Default gateway
- Dynamic Host Configuration Protocol (DHCP)
- Preferred Domain Name System (DNS) server
- Alternate DNS server
- MTU

Procedure

- Step 1 Choose **Device Configuration** > **Local Network**, the **Local Network** page is displayed.
- Step 2 Set the parameters according to Figure 4-2.

Table 4-2 Local network parameters

Parameter	Description	Setting
IP Protocol	IPv4 is the IP protocol that uses an address length of 32 bits.	[Setting method] Select a value from the drop-down list box. [Default value] IPv4
Obtain an IP address automatically	The device automatically obtains the IP address from the DHCP server.	[Setting method] Click the button on to enable obtain IP address automatically . NOTE To query the current IP address of the device, you must query it on the platform based on the device name.
DHCP IP	IP address that the DHCP server assigned to the device.	N/A
IP Address	Device IP address that can be set as required.	[Setting method] Enter a value manually. [Default value] 192.168.0.120

Parameter	Description	Setting
Subnet Mask	Subnet mask of the network adapter.	[Setting method] Enter a value manually. [Default value] 255.255.255.0
Default Gateway	This parameter must be set if the client accesses the device through a gateway.	[Setting method] Enter a value manually. [Default value] 192.168.0.1
Preferred DNS Server	IP address of a DNS server.	[Setting method] Enter a value manually. [Default value] 192.168.0.1
Alternate DNS Server	IP address of a domain server. If the preferred DNS server is faulty, the device uses the alternate DNS server to resolve domain names.	[Setting method] Enter a value manually. [Default value] 192.168.0.2

Step 3 Click **Apply**.

- If the message "Apply succeed!" is displayed, click **Confirm**. The system saves the settings. The message "Set network parameter success, Please login system again" is displayed. Use the new IP address to log in to the web management system.
- If the message "Invalid IP Address", "Invalid Subnet Mask", "Invalid default gateway", "Invalid primary DNS", or "Invalid space DNS" is displayed, set the parameters correctly.



NOTE

If you set only the Subnet Mask, Default Gateway, Preferred DNS Server, and Alternate DNS Server parameters, you do not need to log in to the system again.

----End

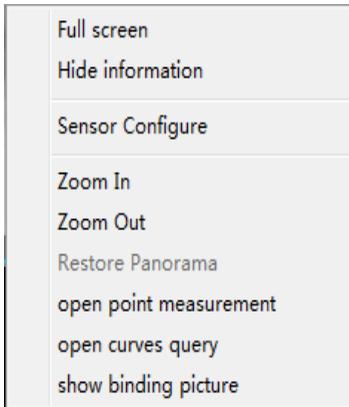
5 Parameter Configuration

5.1 Accessing the Sensor Setting Interface

Operation procedure:

Step 1 On the web interface or client interface, right-click a monitoring screen, as shown in Figure 5-1:

Figure 5-1 Sensor Setting



Step 2 Choose **Sensor Setting** and the **Sensor Setting** dialog box appears.

5.2 Image Setting

Figure 5-2 shows the image setting interface.

Figure 5-2 Image setting interface

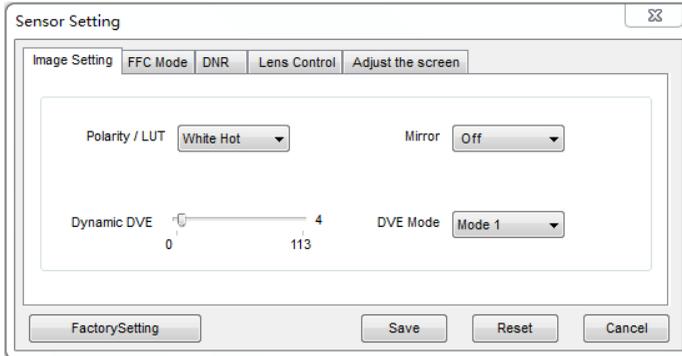


Table 5-1 describes the image setting parameters.

Table 5-1 Image setting parameter description

Parameter	Description	Configuration Method
Polarity /LUT	<p>The temperature field of a scenario detected by the thermal imaging camera will be mapped to the value range 0~255 by algorithm processing. In the black/white display mode, this range is converted into tones of grayscale, for example, 0 indicates fully black and 255 indicates fully white. By this grayscale, the temperature field of the scenario is converted into an image. Actually displayed images vary with specific polarity/LUT. The most frequently selected modes are white hot (hot objects are brighter than cold objects) or black hot (hot objects are darker than cold objects). The difference between these two modes is the reversal of relationship between brightness and temperature. Other optional modes include rainbow and ironbow.</p>	<p>[Configuration method] Select from the drop-down list [Default value] White Hot</p>

Parameter	Description	Configuration Method
DVE Mode	Select a proper DVE mode based on the contrast and detail characteristics of the image shown. Available DVE modes include: <ul style="list-style-type: none"> • Default • Mode 1 • Mode 2 	[Configuration method] Select from the drop-down list [Default value] Default
Dynamic DVE	Sharpness of thermal images is not as good as visible light, so the original image is difficult to identify. By the image enhancement and edge processing technologies, the image can be better identified. The value range of this parameter is 0~112 and users can adjust the value based on requirement.	[Configuration method] Drag the slide bar [Default value] 0
Mirror	Allow users to select image pixel position: <ul style="list-style-type: none"> • Off: images are not flipped. • Horizontal: image is turned left/right. • Vertical: image is turned up/down. • Horizontal + vertical: image is turned upside down. 	[Configuration method] Select from the drop-down list [Default value] Off

5.3 FFC Mode

Figure 5-3 shows the FFC mode interface.

Figure 5-3 FFC mode interface

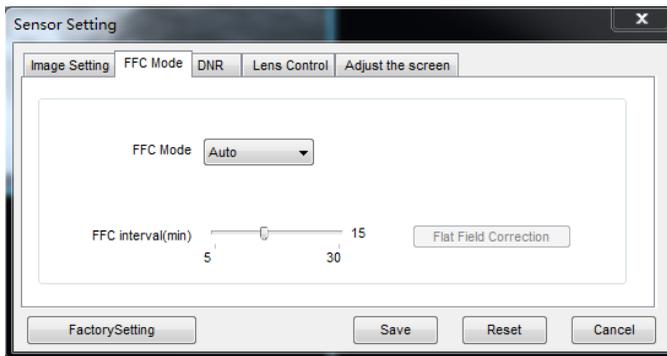


Table 5-2 describes the FFC mode parameters.

Table 5-2 FFC mode parameter description

Parameter	Description	Configuration Method
FFC Mode	<p>The thermal imaging camera contains a mechanical correction actuator to periodically improve image quality. This actuator is called flat field correction (FFC). During the control of FFC, the flat field shield blocks the sensor array, enabling each part of the sensor to collect consistent temperature field (flat field). Through FFC, the camera updates the revision coefficient and thus generates more consistent image. In the course of FFC, video image is frozen for two seconds to show a static frame screen and automatically restored after the correction. Repeating FFC will avoid image particulate-like sense and quality deterioration. When camera temperature changes, FFC is of particular importance. For example, when the camera is started up or ambient temperature changes, FFC must be executed immediately.</p> <p>Auto: In auto FFC mode, the camera will automatically execute FFC in case that temperature change exceeds specified amount or the specified time interval expires, whichever is earlier. FFC interval range: 5~30 min. The camera temperature change amount is subject to the set value for the detector collecting internal temperature. During camera startup, camera temperature changes dramatically, so FFC will be performed repeatedly, which is a normal phenomenon.</p> <p>Manual: In manual FFC mode, the camera will not automatically execute FFC in case of temperature change or the specified time interval is up. Select manual FFC and click Trigger Baffle Correction. If image quality is obviously deteriorated but FFC is not automatically executed, manually execute FFC to improve image quality.</p> <p>External: In external FFC mode, the mechanical correction actuator will stop and a unified source (black object) is set in front of the camera. The internal FFC will not resolve image deterioration that is caused by lens or lens base inconsistency. The external FFC function will be very useful. In actual operation, customers find that a hand palm or desk surface with constant temperature can be used as a substitute of the black object to perform external FFC.</p>	<p>[Configuration method] Select from the drop-down list [Default value] Auto</p>

Parameter	Description	Configuration Method
FFC interval (min)	In auto FFC mode, FFC interval range: 5~30 min	[Configuration method] Drag the slide bar [Default value] 15
Trigger baffle correction	In manual or external FFC mode, the camera will not automatically execute FFC in case of temperature change or the specified time interval is up. In this case, click Trigger Baffle Correction .	-

5.4 DNR

Figure 5-4 shows the DNR interface.

Figure 5-4 DNR interface

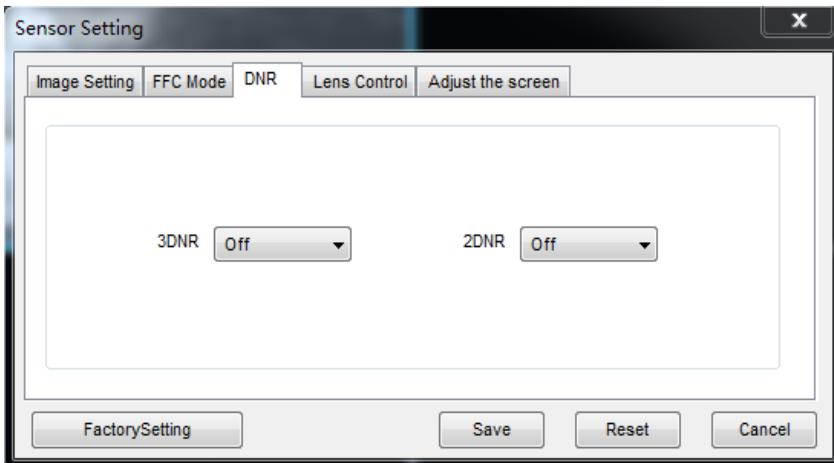


Table 5-3 describes DNR parameters.

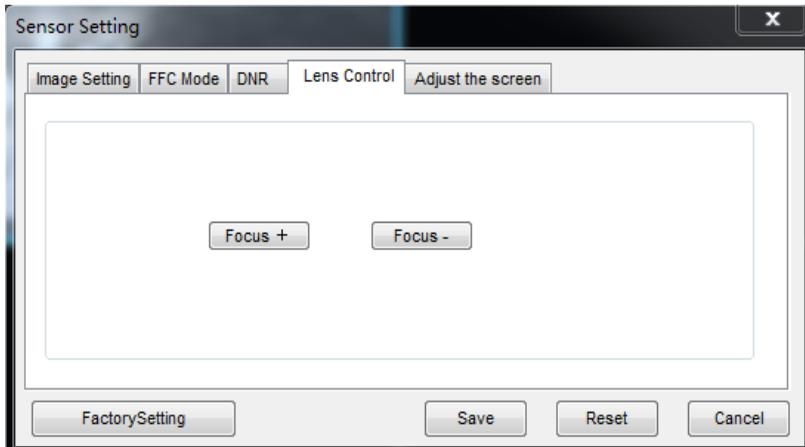
Table 5-3 DNR parameter description

Parameter	Meaning	Configuration Method
3D NR	Reduce noise of image.	[Configuration method] Select from the drop-down list [Default value] Off
2D NR	Reduce noise of image.	[Configuration method] Select from the drop-down list [Default value] On

5.5 Lens Control

Table 5-3 shows the lens control interface.

Figure 5-5 Lens control interface



This interface is used to control focal distance of electrically-controlled lens.

5.6 Adjust the Screen

Figure 5-5 shows the screen adjustment interface.

Figure 5-6 Screen adjustment interface

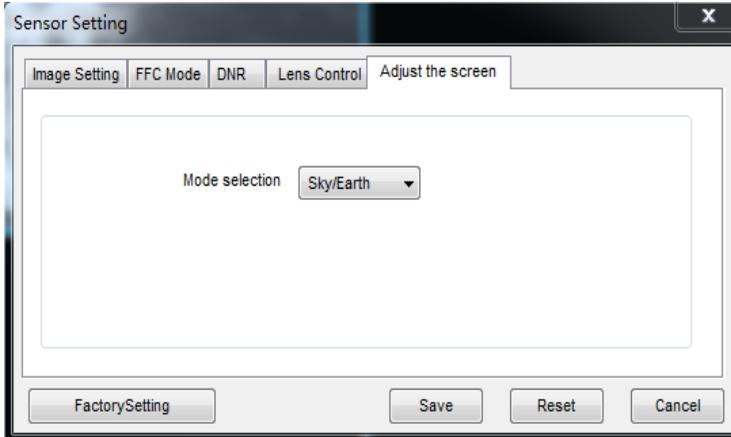


Table 5-4 Screen adjustment parameter description

Parameter	Meaning	Configura tion Method
Mode selection	<p>Compared with images generated based on visible light, IR images boast the features of high background and low contrast. In an IR image, background radiation occupies a big part of dynamic display scope and the target object occupies less dynamic display scope. If this object emits weak IR ray, it will be submerged among the dark background and difficult to be identified. To resolve the problem, the IR image must be enhanced and preprocessed. The thermal imaging camera allows an image mode to be preset according to the temperature distribution differences of a specific environment or scenario so as to highlight the object:</p> <ul style="list-style-type: none"> • Outdoor • Indoor • Sky/Earth • Sea/Sky • Linear • Universal • User-defined 	<p>[Configur ation method] Select from the drop- down list [Default value] Outdoor</p>

6 Technical Specifications

Table 6-1 describes the technical specifications of the all-in-one thermal imaging IP camera.

Table 6-1 Technical specification

Item	Parameter	Description
Detector	Detector type	Non-cooling IR focal plane sensor
	Sensing method	Microbolometer
	Pixel	420*315
	Pixel pitch	25um
	Response wavelength	8um~14um
	Thermal sensitivity NETD	50mK
	Frame frequency	50 Hz /60Hz
Video feature	Fixed-focus lens	8mm / 15mm / 25mm / 35mm / 50mm (optional)
	Focus adjustment method	Manual
	FOV	75.4o*54.4o/39.7o*29.8o/23.7o*17.9o/17o*12.8o/ 11.9o*9o
	F value	1.0
	Valid distance (body)	60m/110m/180m/250m/350m
	Valid distance (vehicle)	120m/200m/350m/500m/650m
Temperature measuring	Temperature measuring function	Allow users to set measuring point or area and show and detect temperature: point measuring (with mouse), area measuring (highest temperature), and full-screen measuring (highest temperature) (functioning as a temperature measuring and prewarning product).
	Temperature measuring alarm	Overtemperature prewarning, overtemperature alarm, temperature change trend alarm, and temperature difference alarm (functioning as a temperature measuring and prewarning product)

Item	Parameter	Description
Functional Feature	Polarity mode /LUT	Black hot/white hot/rainbow/ironbow
	DVE image enhancement	0~6 levels
	Correction	Manual/Auto/External
	Noise reduction	Support,2D/3D
	Contrast adjustment	1~4 levels
	Mirroring	Support
	OSD display	Support
Image feature	Output image resolution	D1/CIF
	Frame rate	30fps
Encoding feature	Video compression format	H.264BP/MP/HP/MJPEG
	Audio compression format	G71,AMR,RAW_PCM
	Multi-code stream	Support
	Code rate control	CBR/VBR
	Code stream scope adjustment	50Kb~4Mb
Network features	Network protocol	IPv4/IPv6 、 RTSP/RTP/RTCP 、 TCP/UDP 、 HTTP 、 DHCP 、 DNS 、 FTP 、 DDNS 、 PPPOE、 SMTP、 SIP
	Storage communication protocol	CIFS、 NFS
	Web management	Embedded Web service, which can be viewed and configured through the IE explorer
	Remote upgrade and maintenance	Support
	Integration feature	In support of ONVIF/third-party protocol

Item	Parameter	Description
	Maximum user access amount	10
Interface features	Network interface	RJ-45,10/100Base-T
	Audio interface	1 audio input and 1 audio output
	Alarm interface	2 alarm input and 2 alarm output
	Analog video output interface	BNC,750hm
	PTZ control interface	RS485
	SD card interface	Micro SD,HCS D card, MAX 32G
System function features	Intelligent alarm	Motion detection alarm, I/O alarm, disk alarm
	Heartbeat mechanism	Support
	Storage method	Local storage, NAS storage, SD card storage
	Privacy masking	Five areas can be set and the area size can be adjusted.
	Character display	Time, date, channel number, channel name, and user-defined content
	Security	Password protection; in support of multi-level user group management; permission customization; one-button reset
	Reliability	Watchdog for hardware and software; automatic fault rectification
physical features	Power supply	
	Power consumption	
	Operating temperature	
	Operating humidity	
	Protection level	
	Installation mode	Wall-mounting mode, ceiling mode
	Dimension	φ110mm*388mm
	Weight	1900g (25mmlens)

A Hazardous Substance Declaration

Component	Hazardous Substance or Element					
	Plumbum (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr6+)	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
Structural part	×	○	○	○	○	○
Board/circuit module	×	○	○	○	○	○
Cable connector	×	○	○	○	○	○
Accessories	×	○	○	○	○	○
<p>○: indicates that the concentration of the hazardous substance in all homogeneous substances of the component is within the limit specified in SJ/T 11363-2006 Requirements for Concentration Limits for Certain Hazardous Substances in Electronic Information Products.</p> <p>×: indicates that the concentration of the hazardous substance in at least one homogeneous substance of the component exceeds the limit specified in SJ/T 11363-2006 Requirements for Concentration Limits for Certain Hazardous Substances in Electronic Information Products.</p>						

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