USER MANUAL

Thank you for choosing our product. Please thoroughly go through user manual befor operation and keep it well for future reference. All photoes here are for reference only, and specifications are subject to the phisycal product.

感谢您购买本产品，请在使用前阅读此说明书，阅读后请小心收藏，以备日后查阅。图片仅供参考，产品以实物为准。

PRODUCT INTRODUCTION

This product is a tool-like handheld thermographic IR camera. It has 110,592/27,648 effective infrared pixels, laser, illuminator and 500W-pixel visible lens. It can be connected to the PC, TF card, mobile devices (IPHONE or Android devices) and HDMI display, meeting the demands of use in different occasions.

IMPORTANT EXPLANATION

This Manual is a universal manual covering a variety of thermal cameras in a product line, which means that certain functions and instructions are not applicable to your particular module of IR camera.

FCC Caution

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct

the interference by one or more of the following measures:

-Reorient or relocate the receiving antenna.
-Increase the separation between the equipment and receiver.
-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-Consult the dealer or an experienced radio/TV technician for help.
The device has been evaluated to meet general RF exposure requirement. The device can be used in portable(<5mm) exposure condition without restriction.

PRECAUTIONS

Please always follow the following precautions strictly:

• When using the device, please try to keep stable and avoid violent shaking.

• Don't use or store the device beyond the allowable operating temperature or storage temperature.

• Don't directly expose the device to very-high-intensity thermal radiation sources, such as the sun, laser, spot welder, etc.

• Don't expose the device to dust or humid environment. When the device is used in the environment with water, attention shall be paid to avoid splashing the water onto the device. Cover the lens cover when the device is not used.

• When the device is not used, please place it and all the accessories to the special packing box.

• Don't plug the hole on the device.

• Don't beat, throw or shake the device and accessories to avoid damage.

• Don't disassemble the device by yourself, which may cause device damage and loss of warranty rights.

• Avoid using TF card for other purposes.

• Don't use the device at the temperature exceeding the working temperature, which may cause damage to the device.

• Don't use dissolved or similar liquids to the device and cable, which may cause damage to the device.

• This device uses Li-ion battery. In order to use battery safely, the following must be strictly observed:

• Don't try to open or disassemble the battery at any time.

• Don't put the battery in a high temperature environment or near the high temperature object.

• Don't short-circuit the anode and cathode of the battery.

• Don't put the battery in humid environment or water.

• Once the battery leaks, resulting in the liquid into the eyes, immediately rinse eyes with clear water, and take medical care.

• Charge the battery according to the method described in this Manual, and comply with the charging steps and precautions. Wrong charging causes the battery to become hot, damaged, and even causes human injuries.

• Pull out the battery if the device is not used for a long time.

• Please follow the measures when wiping the device:

• Non optical surface: if necessary, wipe the non optical surface of the thermal imager with clean and soft cloth.

• Optical surface: When using the thermal imager, please avoid staining the optical surface of the lens, especially avoid touching the lens with hand, because the sweat on the hand will leave traces on the lens glass, and may corrode the optical coating layer on the glass surface. When the optical lens surface is contaminated, use professional lens paper to wipe carefully.

Precautions for use of batteries:

• The battery can be recharged repeatedly, but it is vulnerable to wear and tear. If the standby time of the device is found to be greatly reduced, replace the original battery provided by our company.

• After long-time operation, especially in high temperature environment, the device surface might be hot, which is normal. When it is overheating, please stop charging and move the device to the shade.

Please avoid long-time contact to the overheating device.

• For the charging of the device, it is recommended that you only use the original battery and charging wire provided by our company.

• Battery charging time varies with temperature and battery usage.

• When the battery power is low, the system will pop up the low power prompt.

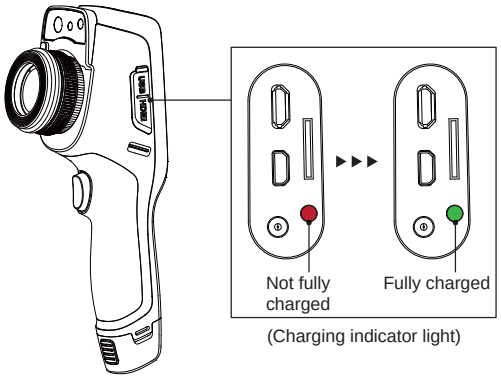
• When the battery power is too low, the system will be automatically shut down.

• If the device gives no response when pressing the power button , it indicates that the battery has been run out. The device can be launched only after being charged with an original charger for more than 10 minutes.

• When the battery is charged, the indicator light on the side of the device will always be red.

• Boot charging is not supported.

• When the battery is fully charged, the indicator light on the side of the device will change from red to green and there is no need to continue charging.



(Charging indicator light)

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Chapter 1

List of Items

Standard Items:

Thermal imager, Lithium battery×2, Adapter (including the adapter plug), USB cable, Hand strap, HDMI cable, Capacitive screen gloves, Quick Start Guide, User Manual, Product CD, TF card (16GB), Charging Dock, Tripod interface

Optional Accessories:

Lithium battery, Camera Pouch, Charging Dock, Optional lens, Tripod interface, Sun shade, Bluetooth headset

List of Items

Standard Items:

Thermal imager

Lithium battery × 2

Adapter
(including the adapter plug)

USB cable

Hand strap

HDMI cable

Capacitive screen gloves

Quick Start Guide

User Manual

Product CD

TF card (16GB)

Charging Dock

Tripod interface

★ (Only some designated D models include the external battery changer and the tripod mount interface as part of the standard package)

List of Items

Optional items:

Lithium battery

Camera Pouch

Charging dock

Optional lens

Tripod interface

Sun shade

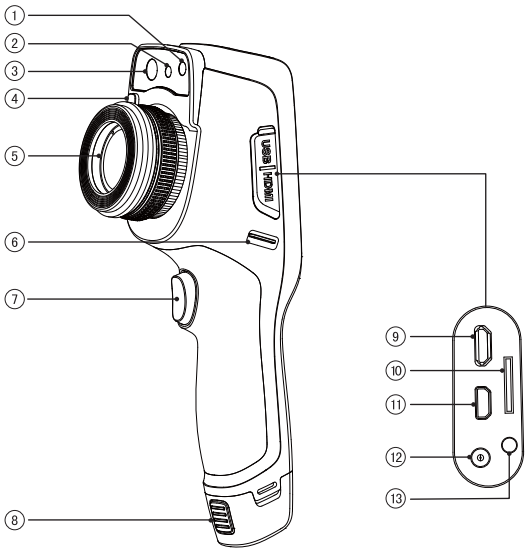
Bluetooth headset

★ (For partial models, there are no optional lens and Bluetooth headset.)

Chapter 2

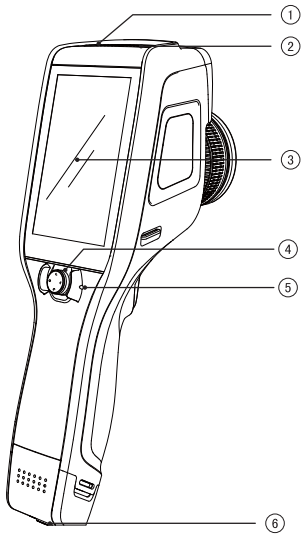
Overview of Components

Overview of Components



1	Illuminator
2	Laser
3	Visible lens
4	Lens quick–release button
5	Lens
6	Wrist strap buckle
7	Photographing button
8	Battery–removal button
9	Micro USB terminal
10	TF card slot
11	Micro HDMI output terminal
12	Power terminal
13	Indicator light

Overview of Components



1	On/off button
2	Loudspeaker
3	LCD display
4	Five–way joystick
5	Microphone
6	Battery lock

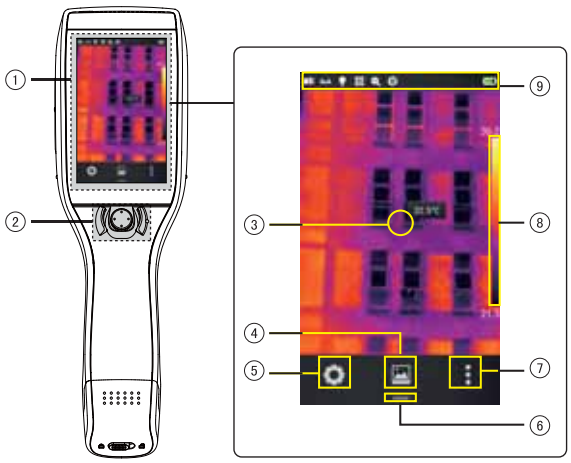
Chapter 3

A Glance at Functional Areas of the Device

A glance at functional areas
Gallery
Shortcut menu

Overview of Mainframe

A A glance at functional areas

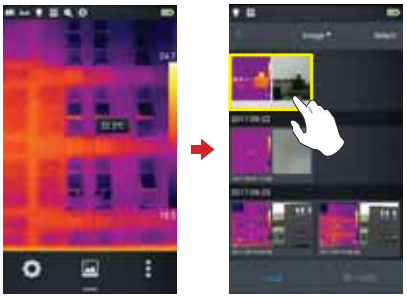


1	Display area	4	Gallery	7	Enter “Real-time editing”
2	Control area	5	System setting	8	Color palette
3	Center cursor	6	Shortcut menu button	9	Status identification area

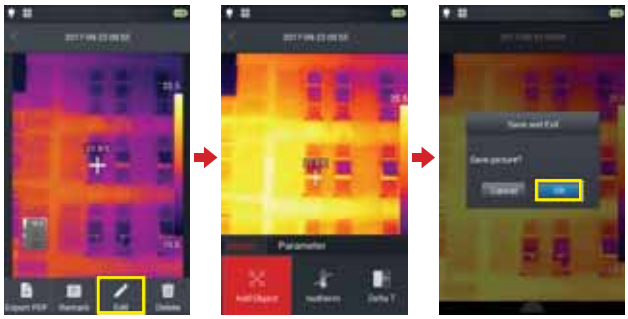
Overview of Mainframe

B Gallery:

1. Click the [ ] button at the bottom of the main interface to enter the file browsing interface. Then click the selected image to enter the image editing interface.



2. Click the [Edit] button at the bottom to enter the editing area of analysis object. After the temperature measurement image is modified, the system will pop out a dialog box on the interface to prompt “Save modifications or not” before exiting the interface, and then click [Save] button to save modifications.



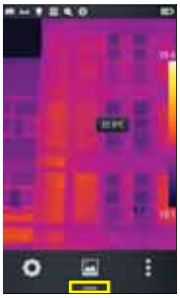
Overview of Mainframe

C Shortcut menu:

Provide shortcut operations in real-time image, mainly including IR mode switching, camera mode switching, illuminator switching, laser switching, wireless AP hotspot switching, zoom adjustment, USB real-time video;

How to enter shortcut menu

1. Under real-time image state, slide up the shortcut icon [▬] at the bottom of the interface, the system would pop out the shortcut menu interface.

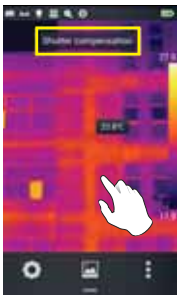


2. Contents of the shortcut menu are as follows::

Camera mode: switch between the photo shooting mode and video recording mode;
Infrared mode: switch among the IR mode, visible light mode, fusion mode and picture-in-picture mode;
Illuminator: turn on/off the illuminator module;
Laser: turn on/ off the laser module;
Hotspot: turn on/ off the wireless AP;

Overview of Mainframe

Shutter compensation: double click the real-time image area, the system will automatically conduct shutter compensation operation, and pop up a prompt message.



Electronic zooming: provide 4-time electronic zooming function.
USB real-time video: turn on/off the USB real-time video connections

Chapter 4

Observation

Electronic zooming
Temperature measurement
Image mode switching

Observation

Image mode switching

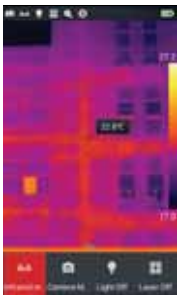
Enter the real-time video, click - IR mode, click the infrared mode button in shortcut menu several times so as to conduct multi-mode switch operations to the current image.

Images can be switched among the following four modes:

A. Picture-in-picture

B. Fusion mode

C. Visible light

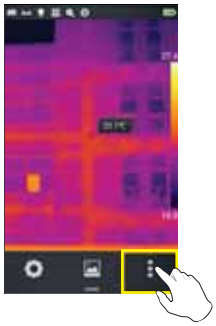


D. IR mode

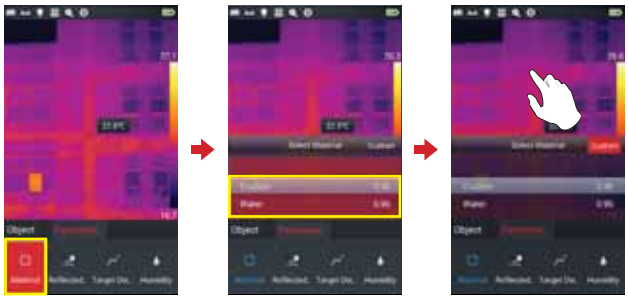
Observation

Temperature measurement

1. Under the real-time image state, click the shortcut menu [⋮] at the bottom right of the screen;

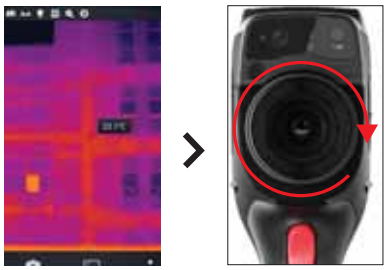


2. Click the “Material” button in the parameter menu, select the corresponding emissivity parameter based on the measured target, and then click the “Target distance” button in the parameter menu, set the target distance parameter according to the target distance. After completing the settings, click blank area of the screen to return to the real-time image interface



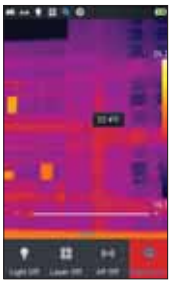
Observation

3. Align the center cursor with the measured object. Then manually rotate the lens focusing ring counterclockwise or clockwise to adjust the focal length (The electric focusing model can automatically focus via the left or right button of the five-way joystick. When focusing automaticly, please keep the target in the center of the screen as much as possible, and keep the target relatively static). When the measured object is clearly imaged, temperature measurement can be carried out.



Electronic zooming

Under the real–time image state, click the bottom button [▬] to call out the shortcut menu, and then slide backwards to the electronic zooming option [🔍]. When this function is enabled, slide the status bar to carry out 4–time zoom in/out operation.



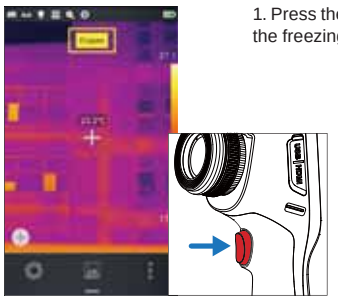
Chapter 5

Shooting

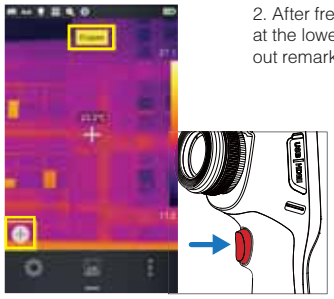
Photo shooting
Video Recording
Real-time analysis
File browsing
Picture analysis
Isotherm
LEVEL and SPN functions
Customized emissivity

Photo shooting

Under the real-time image state, press the [Shoot] button on the device to freeze or shoot the current scene, and save the image.
Enter system settings –shooting setting to directly set key function to shooting, then you can achieve one-click photo shooting.



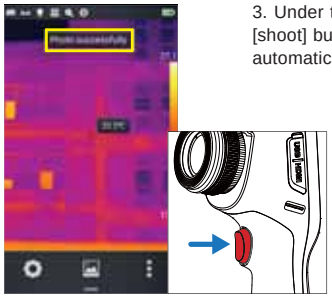
1. Press the [Shoot] button to freeze the screen, the freezing dialog box will be popped up.



2. After freezing, press the [⊕] editing button at the lower left corner of the interface to carry out remarking, editing, etc.

★(Please make sure the device is under photo shooting mode before shooting)

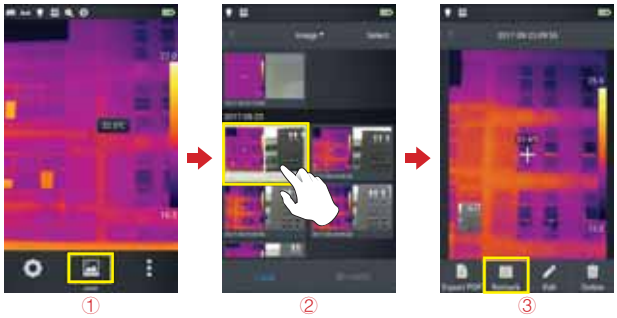
Photo shooting



3. Under the interface frozen state, press the [shoot] button again to save the frozen image automatically.

Adding annotation

1. Click the [Gallery] button in the middle of the main interface to enter the file browsing directory.
2. Double click the touch screen to select the original image that needs to be annotated, and preview a single file.
3. After entering the single image browsing interface successfully, select the remark icon [ ] at the bottom of the interface, and then enter the remarked operation menu.

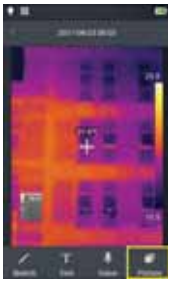


① ② ③

Photo shooting

Adding shooting annotation

1. Click the image annotation [ ] button on the bottom toolbar to enter the main interface of the image annotation.



2. Click the entity shooting button, you can take up to two visible images and save annotation, as shown below.
3. Click the right upper corner [Delete] button on the visible image remove it.

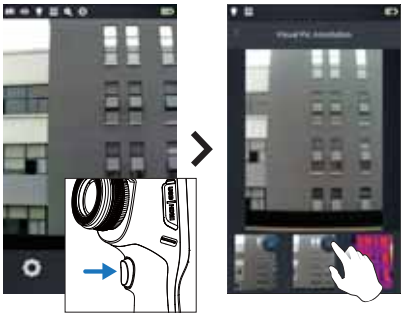
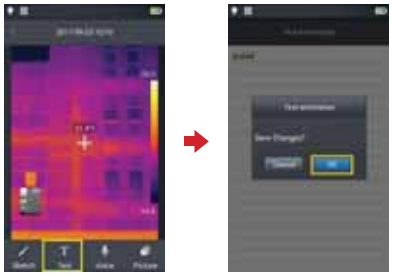


Photo shooting

Adding text annotation

1. Select the adding text annotation [T] button.
2. Enter the input area of the annotation text and enter valid annotation information, such as XXXX.
3. After text information input is completed, press [Return] button. The system will pop up the text annotation saving dialog box, click [OK] to save it.



Adding audio annotation

1. Select the adding audio annotation [ ] button to enter the audio annotation interface.
2. Click the recording [ ] button and start recording.
3. Click the stop button to stop and save the recording file. The system recording time is up to 60 seconds, as shown below.

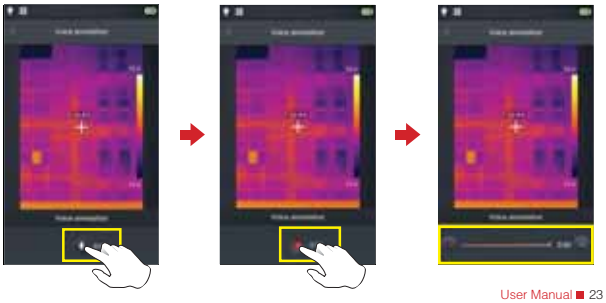
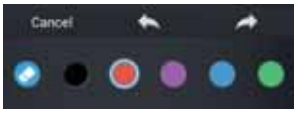


Photo shooting

Adding graffiti annotation

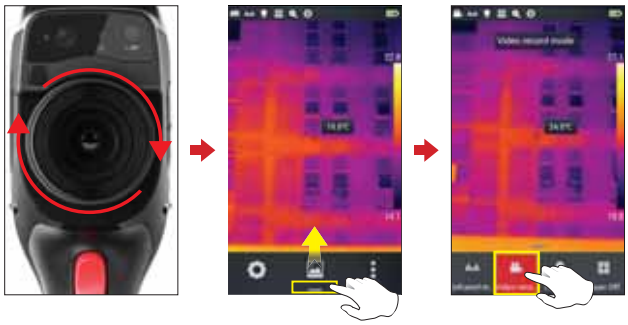
1. Select the adding graffiti annotation button [ ] to enter graffiti interface;
2. The bottom button function as brush, eraser and color selector, the user can select any kind of function for graffiti;

3. From left to right, the four function buttons are undo, last step, restore and save. The user can conduct operations to the image with these buttons;

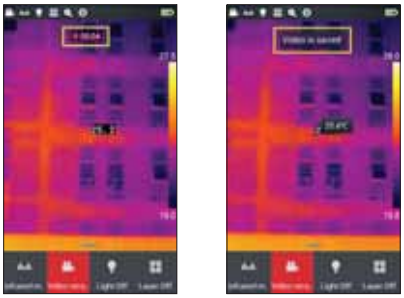


Video Recording

1. Before shooting, aim at the target, and make the target image clearly manually or automatically (only some models support automatic focusing) ;
2. Click shortcut menu button at the bottom, the current interface will immediately switch to recording mode after clicking the camera mode;



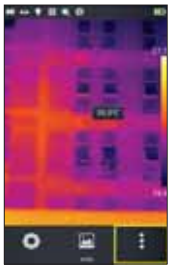
3. Press the entity shoot button to start recording, timing information will be on the top of the screen;
4. Press the recording button again to end and store the recording. You can view and play it in the gallery.



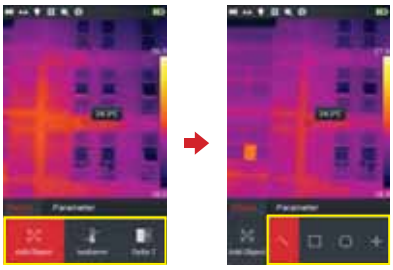
Real-time analysis

Adding /removing analysis object

1. In the real-time image state, click the rightmost button [⋮] of the shortcut menu, you can enter the adding analysis object menu interface, as shown below;



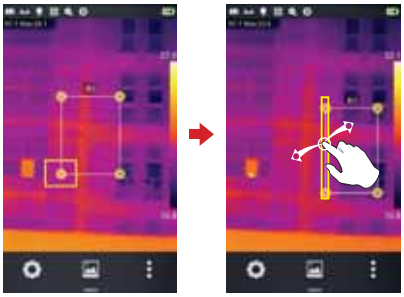
2. It provides temperature measurement of various analysis object, such as lines, rectangles, circles and spots. Customized display of the highest temperature, the lowest temperature, the average temperature is available, as well as center display function.
Long press any analysis object on the touch screen, the system automatically pops up object menu, function as follows:
Tag: switch the temperature tag (the highest temperature, the lowest temperature, the average temperature) of the analysis object area.
Tag content: show the highest temperature, the lowest temperature or the average temperature tag in the analysis object area.
Centered: the analysis object will be automatically displayed in the center after clicking.
Delete button: delete the current analysis object.



Real-time analysis

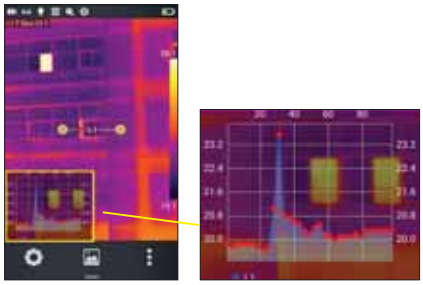
Resizing analysis object

1. Select any analysis object: all nodes thereof are selected and marked yellow [■];
2. Move any node to change the area coverage of the analysis object.



Real-time temperature curve of object

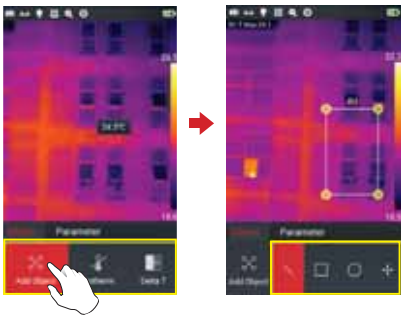
Add linetype analysis objects or select existing linetype analysis objects. Synchronous real-time display of temperature information from 30 points is supported;



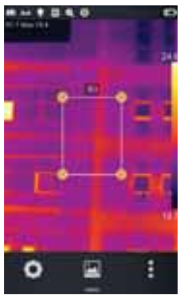
Real-time analysis

Function analysis of moving object

1. Click button [⋮] to enter the interface for adding analysis objects;



2. Select the analysis objects to be added (such as a rectangular analysis object);

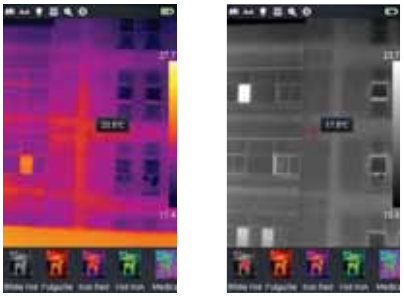


Real-time analysis

3. When the analysis objects are selected, move the objects by the “up”, “down”, “left” and “right” buttons of five-way joystick. The temperature information will be refreshed synchronously;

Color palette switching

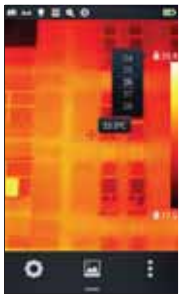
1. Enter the main interface, and click the area of color ring at right of the screen. The system will pop out the options of color ring, including white heat, lava, iron red, rainbow 1, arctic, hot iron, medical, tint and black hot;
2. The user can switch color palettes at will as shown below.



Real-time analysis

Manual adjustment of brightness/contrast

1. Under real-time menu state, double-click the maximum temperature or the minimum temperature at the right side of the screen directly;
2. The maximum and the minimum temperature of the color palette on real-time video frame are locked.

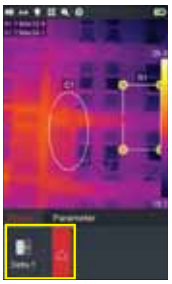


3. By clicking the maximum temperature or the minimum temperature, the system will automatically pop up corresponding value menu;
4. After selecting proper high temperature or low temperature, click any position on the image to save the temperature value and re-display the latest results;

Real-time analysis

Analysis on temperature difference

After adding at least two analysis objects, click the button for temperature difference mode [△]. It is required to manually select two analysis objects so as to calculate the temperature difference.



Before analysis on temperature difference

After analysis on temperature difference

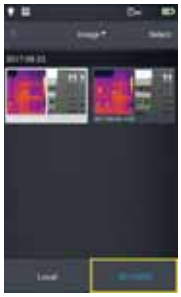
2. Exit analysis on temperature difference: enter shortcut menu-temperature difference, click the activated temperature difference button [△] again to exit the temperature difference state.

Exit analysis on temperature difference

File browsing

1. **Local pictures and videos**: under real-time menu state, click the gallery button [ ] at middle of bottom to enter the main interface for file browsing. Select “picture”-“all”, the system will automatically display all files in the storage.

2. **Pictures and videos in TF card**: under real-time menu state, click the gallery button at middle of bottom to enter the main interface for file browsing, and select the SD card tag at lower right corner. The system will automatically display all files in the TF card.



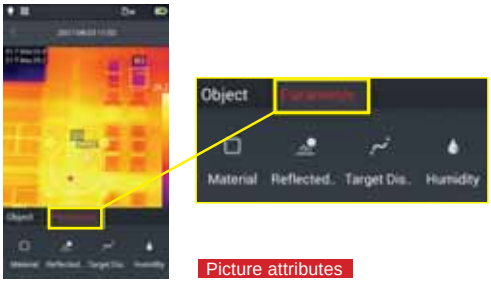
Picture analysis

Picture editing

1. On the picture preview interface, click any picture to enter the interface for picture editing.
2. Click the button [ ], the system will enter the editing mode automatically. Adding/modification of analysis objects, modification of isotherm and modification of temperature difference can be conducted on the picture;

Editing of analysis object

3. Click the [parameter] button to modify other attributes and save settings when exiting as shown below.



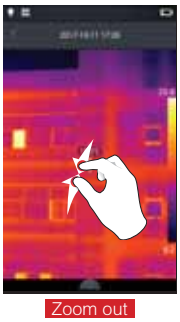
Picture attributes

Picture analysis

Picture zoom in/out

・Under the picture editing mode, touch the screen by two fingers, and then stretch the fingers.
The picture is zoomed in by stretching the fingers, for 10 times at most.
・The picture is zoomed out by gathering the fingers.

Zoom in



Zoom out

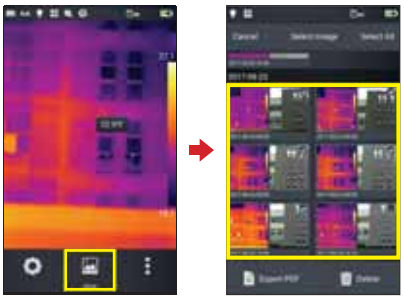
・Use a single finger to slide on the touch screen, so as to move the picture zoomed in.

Move picture

Picture analysis

PDF generation

1. In the real-time image state, click the gallery button [🖼] at middle of shortcut menu;
2. By clicking the [select] button, at most five pictures can be selected at will. As shown below.

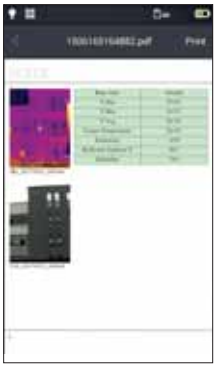


3. Click the [export PDF] button at lower left to generate a PDF preview file.

Picture analysis

PDF printing

1. Connect to the wireless printing network (wireless printing) by system settings-connection settings interface;
2. Enter the gallery interface, select one picture, and carry out printout of a PDF file. Go to the PDF generation section for details.
3. Touch and press the [printing] button at upper right of the preview interface;
4. Prepare printing. Wireless printing can be realized by pressing the printing button.



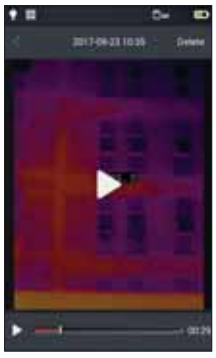
Printing of a PDF file

Preview of wireless printing

Picture analysis

Video playback

1. Enter the gallery interface, click “picture”-“local video” to successfully enter the local video interface. Select an video file;

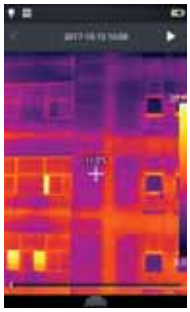


2. **Playback of video:**
Steps:
・Click the “play” button at the middle of the screen to start playing the video
・Click the screen to arouse the video playback interface;
・Click the pause button at lower part of the screen to pause the video.

Picture analysis

Video analysis

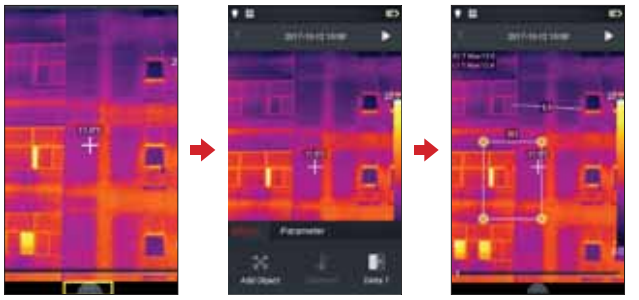
1. Enter the settings-system settings interface, switch the video format to “irgd” format, as shown below:



2. Enter the shortcut menu, click “camera mode” button, switch the camera mode into “recording mode”, and start recording;
3. Enter the gallery, select the recorded video files in the format of “ irgd ”, click “ ” button to enter the interface for video file preview;

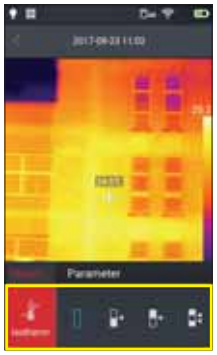
Picture analysis

4. Click the “ ” button at top left corner to play the video, and click the “ ” button to pause.
5. After clicking the shortcut menu button, the system will pop up a tool menu for “objects” and “parameters”, where objects can be added for real-time analysis;

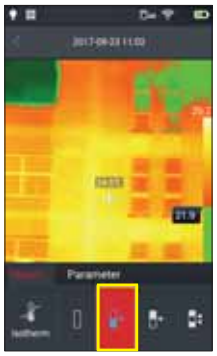


Shortcut menu button　Analysis tool menu　Adding analysis objects

Isotherm



1. Under real-time menu state, click the gallery button [🖼] at bottom to enter the file browsing interface;
2. On the picture browsing interface, select one IR picture for editing;
3. After calling out the editing menu from the bottom, select the object-isotherm;



Below isotherm

1. Call out the main editing menu, and enter the object-isotherm;
2. In the isotherm column, click the icon [🌡] to turn the target scene into the below isotherm mode;

Isotherm

Above isotherm

1. Call out the main editing menu, and enter the object-isotherm;
2. Click the icon [🌡] to enter the above isotherm mode;

External isotherm

1. Call out the main editing menu, and enter the object–isotherm;
2. Click the icon [🌡] to enter the external isotherm mode;

LEVEL and SPN functions

1. On the real-time imaging interface, click the temperature data area at top or bottom of the color palette (the yellow box area as shown in Fig. 1), to enter the “manual dimming mode”, and lock the dimming parameters (as shown in Fig. 2).

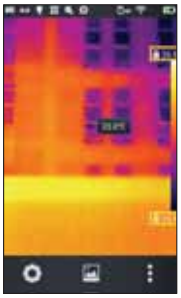


Fig.1

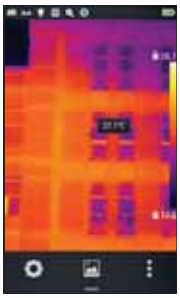


Fig.2

2. LEVEL adjustment: adjust “LEVEL” by the “up” or “down” button in the “five–way joystick” button; the “up” button is used to increase the dimming parameters of TMax and TMin at the same time, the “down” button is used to reduce the dimming parameters of TMax and TMin at the same time. The picture dimming varies synchronously during adjustment.

3.SPAN adjustment:

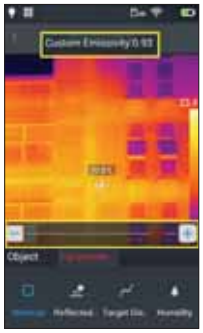
(1) Press the “left” button in the “five–way joystick” button to adjust SPAN, in the way of reducing TMax and increasing TMin; the picture dimming varies synchronously during adjustment.

(2) Press the “right” button in the “five–way joystick” button to adjust SPAN, in the way of increasing TMax and reducing TMin; the picture dimming varies synchronously during adjustment.

4. Double–click the blank area on the screen to return to the automatic dimming mode;

Customized emissivity

1. Enter the main editing menu, and select the option of parameter-[material]; Multiple preset values are provided at present, as shown in the figure;



2. Select your own value to modify the parameters with the range controlled in 0.01-1.00; slide related values to conduct modification. As shown below:

Introduction to customized parameters:

Reflected temperature: user can modify the parameters based on actual conditions, in the range of 0-100.

Object distance: user can modify the parameters based on actual conditions, in the range of 0-100.

Relative temperature setting: user can modify the parameters based on actual conditions, in the range of 0-100%.

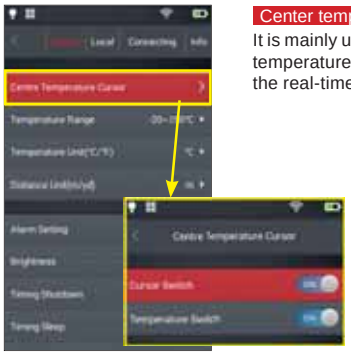
Chapter 6

System Settings

System settings
Local settings
Connection settings
About upgrade

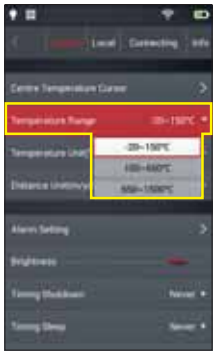
System settings

On the real-time video interface, click the setting button at bottom of the screen to enter the interface of system settings. The setting interface is used to modify the main parameters of the system, including temperature unit, distance unit, brightness, network connection, dateand language.



Center temperature cursor

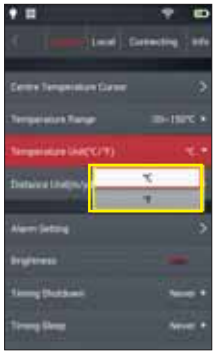
It is mainly used to control the display of center temperature cursor and temperature data on the real-time image.



Temperature measurement range

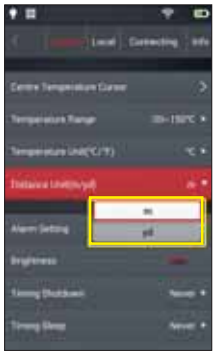
It is mainly used to set the target temperature range of the device.

System settings



Switch of temperature unit

It can be used to switch the degree between centigrade ℃ and Fahrenheit ˚F shown in the system.
(The defaulted temperature unit is degree centigrade ℃)



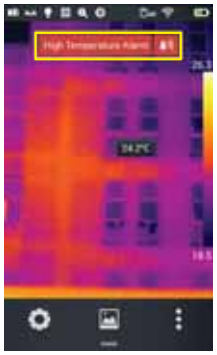
Switch of distance unit

Switch the distance units between meter and yard. The defaulted distance unit in the system is meter.

System settings

Alarm setting

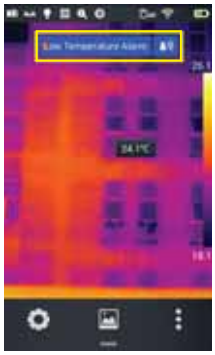
Control the alarm temperature and range. The defaulted state of alarm is off state.
The alarm temperature range shall be obtained from the temperature measurement range. If the temperature range is set as -20℃~150℃, the alarm temperature range shall be selected from that range.
The alarm temperature range includes high temperature and low temperature option.



High temperature alarm

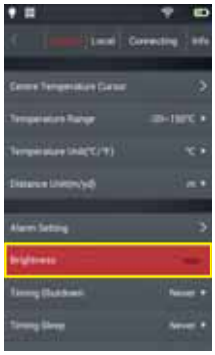
1. Turn on the temperature alarm switch, set the alarm temperature range into high temperature and the alarm temperature to -20℃.
2. After returning to the real-time temperature measurement interface, the device will give an audio alarm immediately.
3. Click the [] icon to turn off the high temperature alarm sound immediately.

System settings



Low temperature alarm

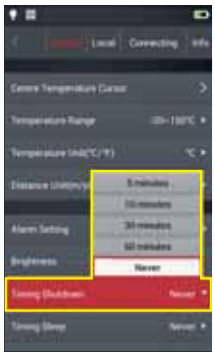
1. Turn on the temperature alarm switch, set the alarm temperature range into low temperature and the alarm temperature to 30℃.
2. After returning to the real-time temperature measurement interface, the device will give an audio alarm immediately.
3. Click the [] icon to turn off the low temperature alarm sound.



Brightness

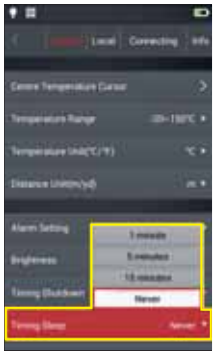
User can adjust the brightness of touch screen manually.

System settings



Scheduled shutdown

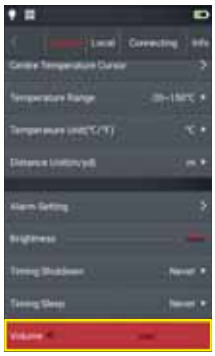
Set the option of schedule shutdown; the default value is “never”. Options of shutdown after 5min, 10min, 30min or 60min and “never” are provided.



Scheduled sleep

Set the option of schedule sleep. The default value is “never”. Options of sleep after 1min, 5min, or 15 min and “never” are provided.

System settings

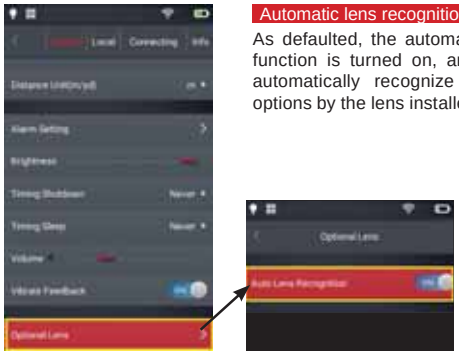


Volume

Adjust the volume of device, or turn it into silent mode.

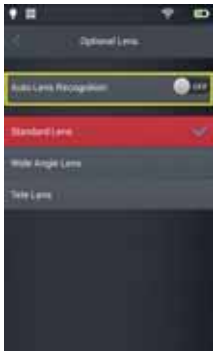
Vibration feedback

Start/stop the vibration feedback function.



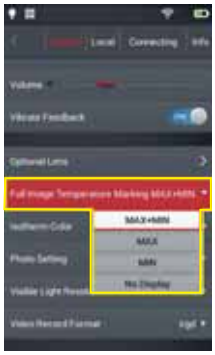
Automatic lens recognition

As defaulted, the automatic lens recognition function is turned on, and the program will automatically recognize the corresponding options by the lens installed in the device.



Disabling of automatic lens recognition

Turn off the lens recognition function. User can manually select from standard lens, telephoto lens or wide-angle lens based his own lens.



Temperature marker on full screen

Control the high/low temperature tracking mode on the real-time image. The defaulted value is “no display” (turn off the high/low temperature tracking).

Color of isotherms

Provide customized color display of high-temperature isotherm, low-temperature isotherm and external isotherm.

Local settings

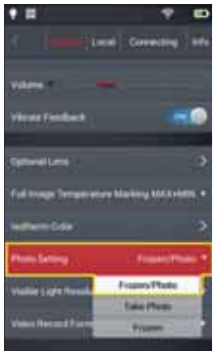


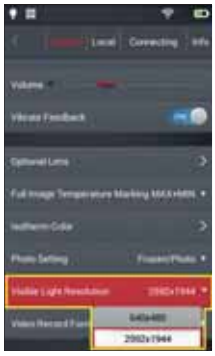
Photo shooting setting

Photo shooting mode, including three modes of “freezing / photographing”, “photographing” and “freezing”.

Freezing / shooting mode: press the shoot button to freeze the photo, and press the shoot button again to save the photo;

Shooting mode: press the shoot button to take a photo and save the photo directly;

Freezing mode: press the shoot button to freeze a photo, press the shoot button again to cancel freezing. No photos will be saved.



Resolution setting of visible image

The system provides two option of resolution of visible light (640*480 and 2592*1944) for users. The resolution of visible photo will be as selected;

Local settings

Video format

The system provides two optional video formats of “MP4” and “irgd” for users. Video files of “irgd” format contain temperature information, and can be analyzed.
(See the part of video analysis in this Manual for details.)

Report setting

Various parameters of PDF report (including watermark, report header, report footer, PDF template (three preset templates provided)) may be modified.

Local settings

Time/date

Set the date and time of system manually.

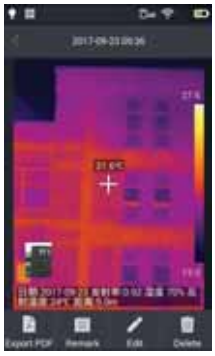
Language

Provide multiple languages for selection.

Local settings

Watermark setting

1. Enter watermark setting and enable some watermark options including LOGO watermark, date watermark, emissivity watermark, distance watermark, humidity watermark and reflected temperature watermark;



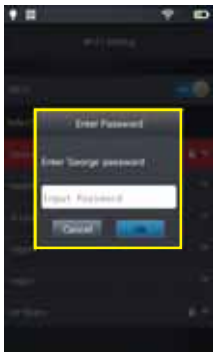
2. Return to the real-time picture and take a sample picture at random;
3. Press the quick playback button and enter the picture browse interface. Select the picture taken just a minute earlier for preview;
4. All available watermark information will be displayed at the bottom of preview picture.

Connection settings

WIFI switch

If the symbol of [] occurs at the top of main screen, it indicates that the device has been linked to the wireless local area network.

(Control enabling and disabling functions of WIFI module)



1. Select a network: slightly click one network listed and enter the password (if required);
Add to a closed wireless local area network: slightly click “Others” and enter the name of closed network (**name, security type and password of the network are required**);

2. Enter the link interface after entering the right password;

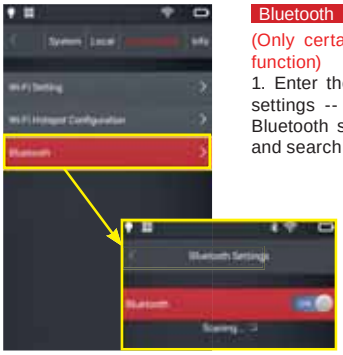
Connection settings

3. Click “More” button [ⓘ] to enter the WIFI address setting interface.
Ignore a network: slightly click “More” button beside the network added earlier and then slightly click "Ignore the network".

WIFI hotspot configuration

1. Enter “System settings -- Connection settings -- WIFI hotspot configuration”;
2. In the configuration interface, enter the effective name (Camera) and password (12345678) of hotspot and click “Save”.
3. Customized configuration of SSID and password of wireless AP hotspot is saved successfully.

Connection settings



Bluetooth

(Only certain models of device support this function)

1. Enter the “System settings -- Connection settings -- Bluetooth” interface, turn on the Bluetooth switch, activate Bluetooth function and search device;

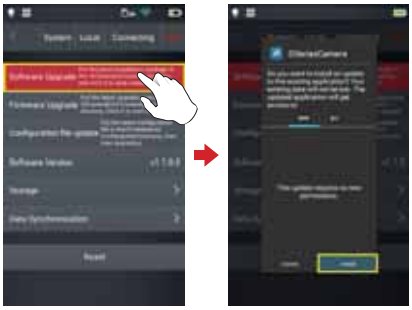
2. After successfully finding a Bluetooth device, conduct Bluetooth pairing. Successfully link after Bluetooth pairing and then use Bluetooth function normally.

About upgrade

Program upgrade

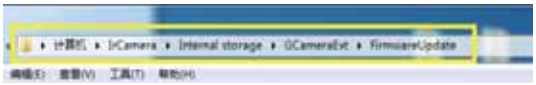
1. Put APK program upgrade patch under the route of Computer/IrCamera/Internal storage/GCameraExt/Update, as shown below:

2. Enter “system settings -- information” interface, click program upgrading. A dialog box of update confirmation will be popped up, click “Install” as per the prompt to install. Restart the device after successful upgrading, as shown below:



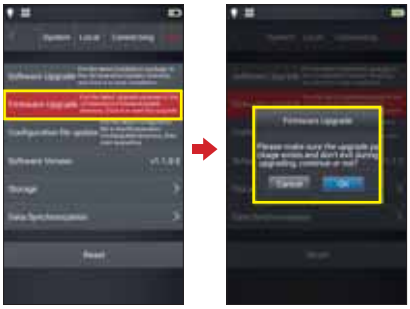
Firmware upgrade

1. Put the firmware program upgrade patch under the route of Computer/IrCamera/Internal storage/GCameraExt/FirmwareUpdate, as shown below:



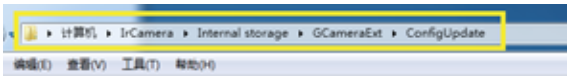
About upgrade

2. Enter “system settings -- information” interface, click firmware upgrading. A dialog box of update confirmation will be popped up. Click “Yes” as per the prompt. Restart the device after successful upgrading, as shown below:



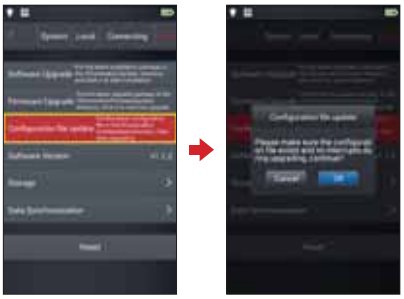
Configuration file upgrade

1. Put files of “.dat” and “.png” for configuration file upgrading under the route of Computer/IrCamera/Internal storage/GCameraExt/ConfigUpdate, as shown below:



About upgrade

2. Enter “system settings -- information” interface, click file upgrading. A dialog box of update confirmation will be popped up. Click “Yes” as per the prompt. Restart the device after successful upgrading, as shown below:

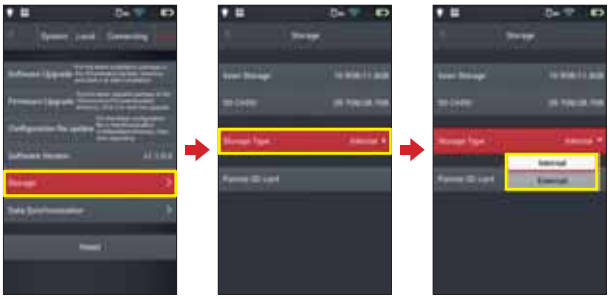


About upgrade

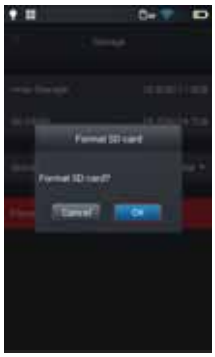
Storage space

Mainly display the residual capacity of internal storage and basic information of external TF card. In addition, users may customize storage option setting, including internal storage and storage of external TF card;

(**Select the storage medium:** enter “system settings -- information -- storage space” interface. Users may switch between external storage route and external storage route as needed. External storage option may be selected only when SD card is inserted.)



About upgrade



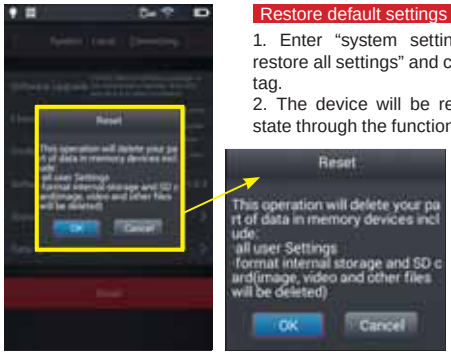
Formatting TF card

For formatting, select a slot of memory card and then select “Yes”. Note that all photos and other data on the memory card will be deleted permanently after formatting. Please make backups if needed prior to formatting.

Data synchronization

Data synchronization may be conducted for files in the internal storage and TF card.

About upgrade



Restore default settings

1. Enter “system settings -- information -- restore all settings” and click “Restore settings” tag.
2. The device will be restored to the factory state through the function. Please be careful.

Chapter 7

Connection with External Devices

Port connection
Installing memory card and lens
External connection

Port connection

The device can be connected to external devices through HDMI cable and USB cable.

Micro HDMI interface

Micro HDMI interface is mainly used to be connected to an external HD display. Please ensure that the display to be connected is provided with an HDMI interface.
1. Connect the HDMI connecting line to the thermal imager.
2. Make <HDMI> mark of Micro HDMI plug on the front of device and insert the plug.
3. Connect the HDMI cable to the HDMI IN port of HD display.
4. Turn on the HD display, switch to video input and select the port connected.

USB interface

1. **View the internal storage file:** connect USB cable to the desktop, open “My Computer” and view the information of internal storage disk. Click “Enter internal storage”, and find the file with pictures stored. The specific route is …\SABRESD-MX6DQ\Internal storage\DCIM\GCamera\SourceImage.

Storage Location	File Format	Storage Path
Onboard Memory	Images	IrCamrea/Onboard Memory/DCIM/GCamera/ SourceImage
Onboard Memory	Videos	IrCamrea/Onboard Memory/DCIM/GCamera/ SourceVideo

Note: the file name with a prefix of IRI refers to an infrared image while that with a prefix of VIS refers to a visible image.

2. **View the file of TF card.**
For saving photos into TF card, enter “system settings – information – storage space”, select TF card as the storage medium, and then take a photo.

Port connection

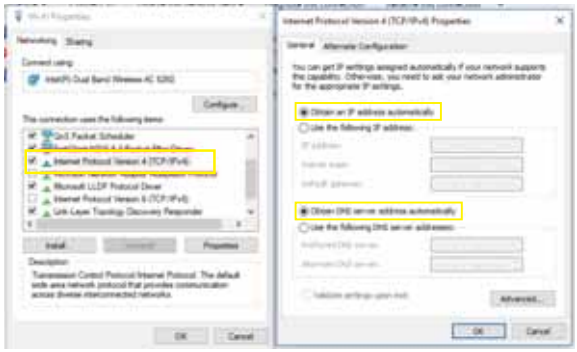
Connect to the computer through USB cable, open “My Computer” and view the information of internal storage disk. Click “Enter internal storage”. The specific route is …\SABRESD-MX6DQ\TF card\DCIM\GCamera\SourceImage.

Storage Location	File Format	Storage Path
SD card	Images	IrCamrea/SD card/DCIM/GCamera/ SourceImage
SD card	Videos	IrCamrea/ SD card/DCIM/GCamera/ SourceVideo

Note: the file name with a prefix of IRI refers to an infrared image while that with a prefix of VIS refers to a visible image.

Connection to infrared analysis software

1. Connect the computer with device reliably through USB cable;
2. Enter the setting interface of “TCP/IP v4”, set the attribute of “Internet protocol version 4 (TCP/IPv4)” as “Automatic acquisition of IP address” and “Automatic acquisition of DNS server address”, click “Confirm”, as shown below:



First step　　Second step

Port connection

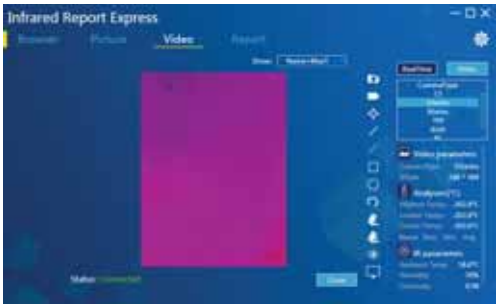
3. Click “USB real-time video” at the device to activate the function of USB real-time video, as shown below:

4. After network identification by the computer, start “Infrared analysis software”, as shown below:

Port connection

5. Click “Video analysis” and select “DSeries” in the choice box of device model. Select “USB” in the popped dialog box of connection setting, as shown below:

6. Click “Confirm” to normally connect the device. The infrared analysis software from computer will display real-time infrared image and analyze correspondingly, as shown below:

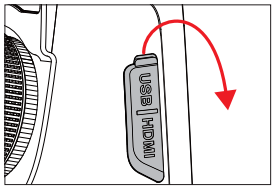


Installing memory card and lens

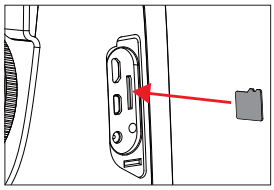
The device may use a TF card and images and videos taken can be recorded on the device or TF card. The device supports a TF card with capacity of 32GB at most.

・Ensure the write-protect switch of memory card is set at the upper to allow write/delete.

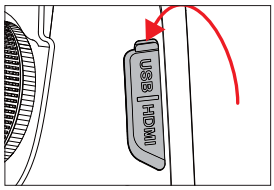
Installing memory card



1. Open the slot cover: slide as per the arrow direction, open the slot cover and insert the memory card;



2. Insert to the slot: make the tag of memory card be toward you and insert the memory card till hearing clicks;

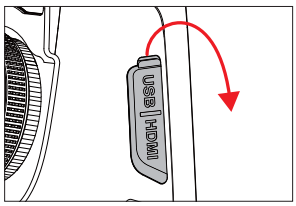


3. Close the slot cover: close the slot cover and slide the slot cover as per the arrow direction.

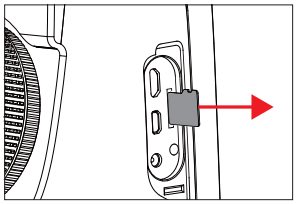
Note: remaining shootings depend on residual storage of memory card and recording quality of image.

Installing memory card and lens

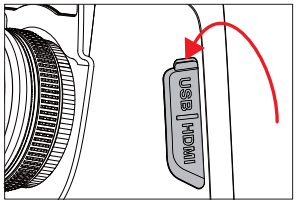
Removing memory card



1. Turn off the power and open the slot cover.
(Make sure the indicator light is off and open the slot cover)



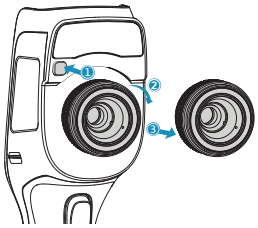
2. Take out the memory card: for exiting the memory card, slightly push the memory card and then release.



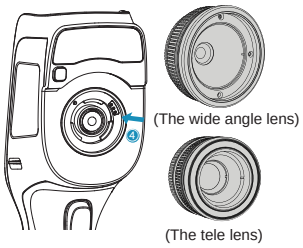
3. Pull out the memory card directly and close the slot cover.

Installing memory card and lens

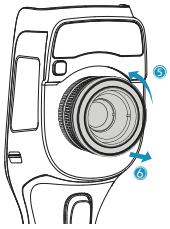
Installing optional lens



1. Install the lens: press the lens disassembling button and align the red point at the back of lens with the red point on the device;



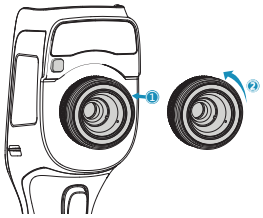
2. Select the lens: select a proper lens, insert and rotate clockwise to install the lens;



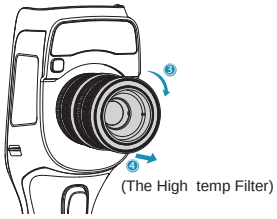
3. Disassembly the lens: press the lens disassembling button and rotate the lens counterclockwise to take out the lens.

Installing memory card and lens

Installing high-temperature lens



1. Install the lens: insert the high-temperature lens to the threaded neck of standard lens and rotate counterclockwise to install it;



2. Disassembly the lens: rotate the high-temperature lens clock-wise to take out the lens.

(Some models of the device don't support optional lens.)

External connection

Wireless AP setting

1. Call out the shortcut menu interface at the bottom of the main screen, directly click [Hotpot] AP button to activate wireless AP function.
2.The status bar will automatically display that AP function has been activated. Conduct signal search through the wireless network card. (SSID:Camera，Password:12345678). SSID is the factory default name. For modification, refer to the chapter of connection setting – WIFI hotspot configuration.
3. To inactivate the function, click AP button again.

Latest Version IOS/Android Acquisitions

Refer to the download area in our official website for details.

IOS version: access **Apple Store**, search the key word of "**Thermography**" to obtain the latest version.

Android version: Domestic users access major application markets (including 360 application market, Wandoujia and AppChina), search the key word of "**Thermography**" and download. Foreign users access Google Play market, search the key word of "**Thermography**" and download.

Chapter 8

Troubleshooting Guide

FAQs

Troubleshooting Guide

FAQs

Problems	Causes	Action
Failure to start	Insufficient battery capacity	Recharge and then use the battery
	Poor battery contact	Take out the battery, put it into the battery cabin again and install in place
	Plug of external power supply is not inserted correctly	Pull out the power plug, insert again and push in place
Big deviation between indicating value and actual value of battery capacity	The battery capacity is exhausted	Replace with a battery full charged
	The battery life is over	Replace with a new battery
Unclear infrared image	Focusing is not conducted	Focus manually or automatically to make the image clear
	The infrared lens has steam or is polluted.	Use a special tool to clean the lens
Unclear visible image	Too dark environment	Take lighting measures properly
	The visible lens has steam or is polluted	Use a special tool to clean it
Incorrect temperature measurement	The objective is not focused	Focus manually or automatically to make the image clear and then read the temperature.
	Incorrect parameter settings related to temperature measurement	Change the parameter settings or directly recover the default parameter
	Heterogeneity correction is not conducted for a long time.	Set the customized button in the menu as “Compensation”, press the actual customized button. Heterogeneity correction is conducted when hearing shutter sound
	Measure temperature immediately after starting	To ensure the precision of temperature measurement, we suggest that you wait for 5-10min before temperature measuring
	No calibration for a long time	To obtain precise temperature measurement results, we suggest that you returnthe thermal imager for calibration once a year

产品简介

本产品是工具型手持测温红外热像仪，它具有110592/27648个有效红外像素点，配置激光，照明灯和500W像素可见光，可外接PC机，TF卡，移动设备（IPHONE或Android设备），HDMI显示器等，可满足不同场合下的使用需求。

重要说明

本手册为通用手册，涵盖一个产品线中的多款热像仪，这意味着某些功能和说明并不适用于您特定型号的热像仪。

注意事项

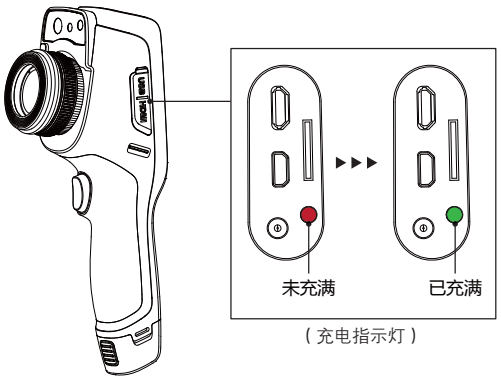
在任何时候都请严格遵守下列注意事项：

・在使用设备时请尽量保持稳定，避免剧烈晃动。
・不要在超出设备许可的工作温度或储存温度环境中使用或存放仪器。
・不要将设备直接对准很高强度的热辐射源，例如太阳，激光器，点焊机等。
・不要将设备暴露在灰尘或潮湿的环境中。在有水的环境中使用时，应避免水溅到仪器上。在不使用仪器时应盖上镜头盖。
・当不使用本设备时，请将仪器和所有配件放置在专用包装箱内。
・不要堵塞设备上的孔。
・不要敲打，扔掷或震动仪器和配件，以免造成损坏。
・请勿自行拆卸本机，这有可能造成设备损坏，并丧失保修权利。
・避免将TF卡挪作他用。
・请不要在超过设备使用工作温度的环境下使用该设备，这可能会造成设备的损坏。
・不要将有溶解性或类似的液体用于设备，线缆，这可能会导致设备的损坏。
・本设备使用锂离子电池，为了安全使用电池，必须严格遵守下列事项：
・在任何时候都不要尝试打开或拆解电池。
・不要将电池置于高温环境或靠近高温物体。
・不要使电池的正负极短路。
・不要将电池置于潮湿环境或水中。
・一旦电池发生泄露导致液体进入人眼，应该立刻用清水冲洗眼睛，且进行医学护理。
・请按照本手册中说明的方法为电池充电，并请遵照充电步骤和注意事项。错误的充电会导致电池变热，损坏甚至造成人体受伤。
・长时间不使用机器时，请拔出电池。
・擦拭本设备时请遵照以下措施：
・非光学表面：在必要时可以使用干净柔软的布擦拭热像仪的非光学表面。
・光学表面：使用热像仪时请避免弄脏镜头的光学表面，特别要避免用手触碰镜头，因手上的汗迹会在镜头玻璃上留下痕迹且可能会腐蚀玻璃表面的光学镀膜层。当光学镜头表面受到污染时，使用专业镜头纸小心的擦拭。

注意事项

电池使用注意事项:

・电池可以反复充电，但电池属于易损耗品，如发现设备的待机时间大幅度降低，请使用本公司提供的原装电池进行更换。
・设备长时间工作，尤其在高温环境下，可能出现表面发热的情况，这属于正常现象。感觉发烫时，请停止充电同时将设备移至阴凉处。请避免长时间接触发烫的设备表面。
・为设备充电时，建议您仅使用本公司提供的原装电池、充电线。
・电池充电时间会随温度条件和电池使用状况而变化。
・当电池电量较低时，系统会弹出低电提示。
・当电池电量过低时，系统会自动关机。
・若按下电源键，设备没有任何反应，表明电池电量已耗尽，需要使用原装充电器充电10分钟以上，才可以启动设备。
・当电池正在充电时，设备侧方的指示灯会一直显示红色。
・不支持开机充电。
・当电池充满后，设备侧方的指示灯会由红变绿，不需要继续充电。



（充电指示灯）

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第1章

物品清单

标配件：

热像仪、锂电池（2块）、适配器（包含适配器插头）、USB连接线、手带、HDMI连接线、电容屏手套、快速操作指南、说明书、光盘、TF卡（16GB）

选配物品：

锂电池、座充、携行包、扩展镜头、三脚架接口、遮阳罩、蓝牙耳机，部分产品型号无扩展镜头和蓝牙耳机选配件

物品清单

标配件：

热像仪

锂电池（2块）

适配器

USB连接线

手带

HDMI连接线

电容屏手套

快速操作指南

说明书

光盘

TF卡（16GB）

座充

三脚架接口

★（其中座充与三脚架接口为部分产品型号标配件）

物品清单

选配件：

锂电池

座充

携行包

选配镜头

三脚架接口

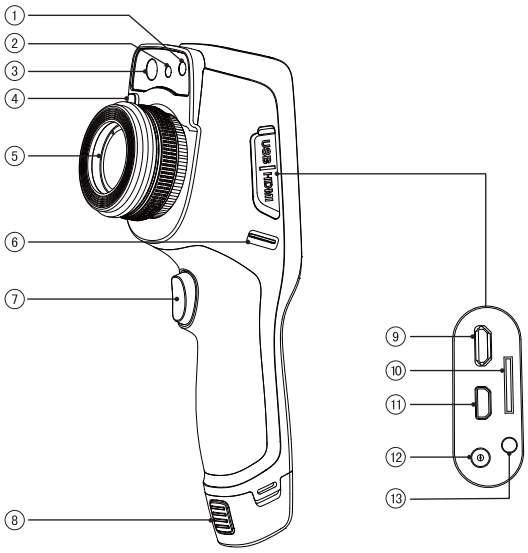
遮阳罩

蓝牙耳机

第2章

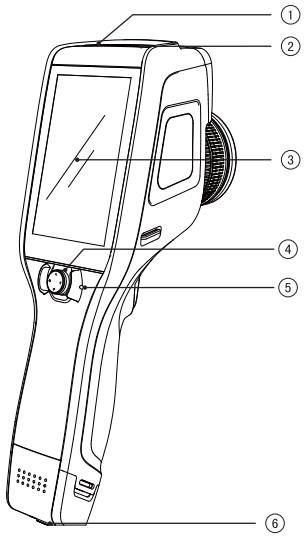
产品部件一览

产品部件一览



1	照明灯
2	激光
3	可见光
4	镜头快拆键
5	镜头
6	腕带扣
7	拍照键
8	电池取出按键
9	Micro USB端子
10	TF卡槽
11	Micro HDMI输出端子
12	电源端子
13	指示灯

产品部件一览



1	开机按键
2	扬声器
3	LCD显示屏
4	五向按键
5	麦克风
6	电池锁扣

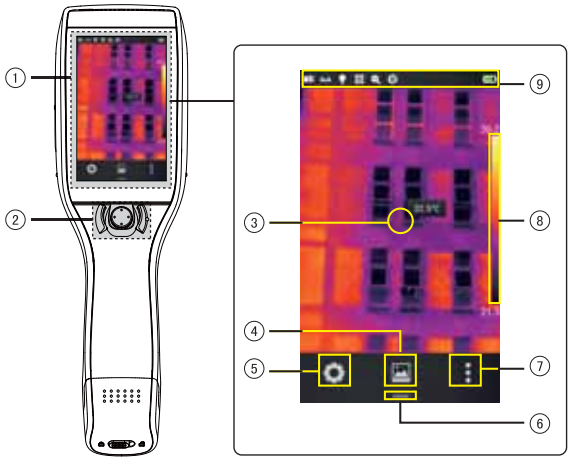
第3章

机身区域一览

各区域介绍
图库
快捷菜单

机身区域一览

A 各区域介绍:

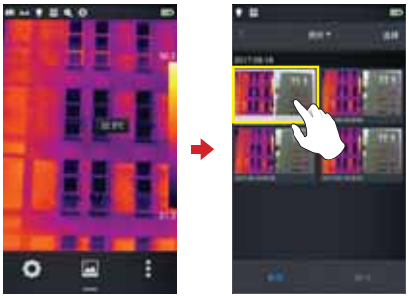


1	显示区域	4	图库	7	进入实时编辑
2	控制区域	5	系统设置	8	调色板
3	中心点光标	6	快捷菜单按钮	9	状态标识区

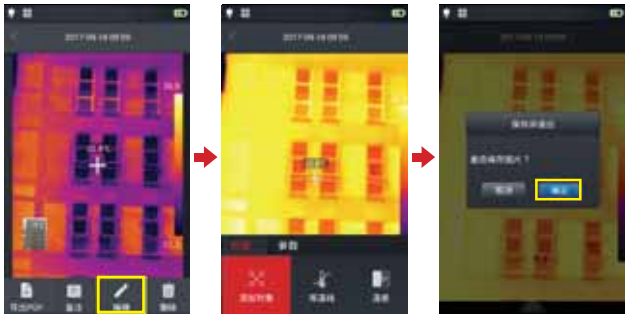
机身区域一览

B 图库:

1. 点击主界面下方的【 图库 】按钮，进入图片浏览界面，单击即可进入图片编辑界面；



2. 点击底部的【 编辑 】按钮，进入分析对象编辑区域；当对测温图像进行修改操作后，界面在退出前，会弹出是否保存修改的提示对话框，点击【 确定 】按钮保存修改。



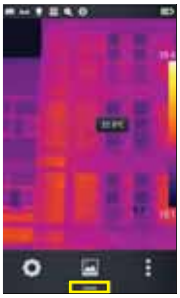
机身区域一览

C 快捷菜单:

在实时画面下提供快捷操作，主要包括红外模式切换、相机模式切换、照明灯开关、激光开关、无线AP热点开关、变倍调节、USB实时视屏快捷操作；

如何进入快捷菜单

1. 在实时画面运行状态下，上滑界面最底端的快捷图标【▬】，系统会弹出快捷菜单界面。



2. 快捷菜单内容如下:

相机模式：相机模式主要切换拍照与录像模式；
红外模式：主要控制红外模式、可见光模式、融合模式、画中画模式切换；
照明灯：主要控制开启和关闭照明灯模块；
激光：主要控制开启和关闭激光模块；
热点：主要控制无线AP的开启和关闭；

机身区域一览

快门补偿：双击实时画面区域，系统会自动进行快门补偿操作，并弹出提示信息。

电子变倍：提供4倍的电子变倍功能。
USB实时视频：开启和关闭USB实时视频连接。

第4章

观测

图像模式切换
测温
电子变倍

观测

图像模式切换

进入实时视频，点击快捷菜单–红外模式，通过点击红外模式按钮多次，可以对当前画面进行多模式的切换操作。

图像可在如下四种模式下进行切换：

A. 画中画

B 融合模式

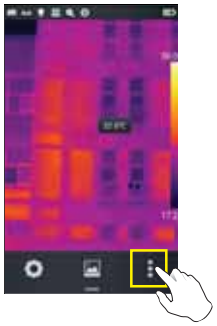
C 可见光

D 红外

观测

测温

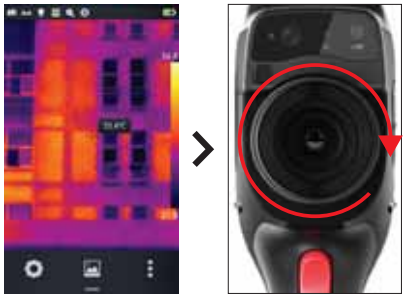
1. 在实时图像状态下，点击图像最下方最右侧的快捷菜单【⋮】；



2. 点击参数菜单内的“材料”按钮，依据被测目标对应选择发射率参数，之后点击参数菜单内的“目标距离”按钮，依据目标距离设置目标距离参数，设置完成后点击屏幕空白处返回实时成像界面；

观测

3. 将中心点光标对准被测物体，手动逆时针或者顺时针旋转镜头调焦环调节焦距（电动调焦产品可通过五向按键的左键或者右键进行自动聚焦，自动聚焦时请尽量将目标置于屏幕中央并保证目标相对静止），直至被测物体清晰成像，即可进行测温操作。



电子变倍

在实时图像状态下，点击底部按钮【▬】，调出快捷菜单，手指向后方滑动到电子变倍选项【🔍】，开启此功能后，左右滑动状态条就可以进行4倍放大与缩小操作。

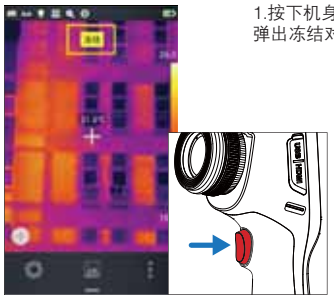
第5章

拍摄

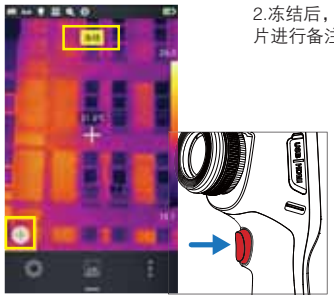
拍摄图片
录制视频
实时分析
文件浏览
图片分析
等温线
自定义发射率

拍摄图片

在实时画面状态下，按下机器上的【拍照】按钮，可以对当前场景进行冻结画面、拍照保存等操作。
进入系统设置–拍照设置，直接设置拍照键功能为拍照，即可实现一键拍照。



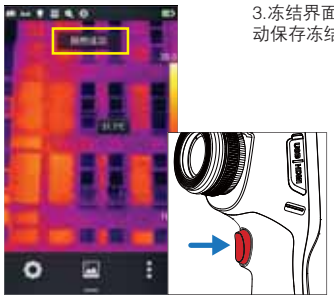
1.按下机身的【拍照】按钮一次，画面即冻结，弹出冻结对话框。



2.冻结后，界面左下角【⊕】编辑按钮，可对图片进行备注、编辑等操作。

★(拍摄图片前请先确认是否处于拍照模式下在进行拍照)

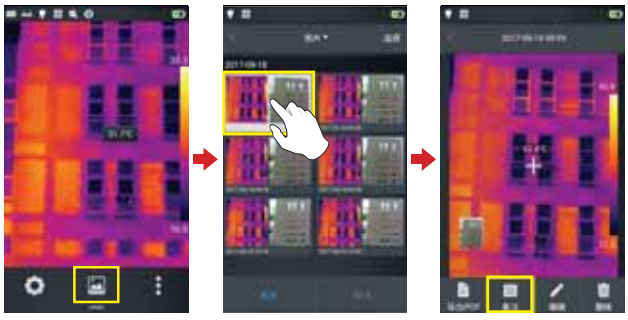
拍摄图片



3.冻结界面状态下，再次按下【拍照】按钮，自动保存冻结的图像。

添加注释信息

1. 点击主界面居中的【图库】按钮，进入文件浏览目录。
2. 在触摸屏上双击选择需添加注释的原始图像，预览单个文件。
3. 成功进入单张图像浏览界面后，选择界面下方的备注图标【▤】，即可进备注的操作菜单。



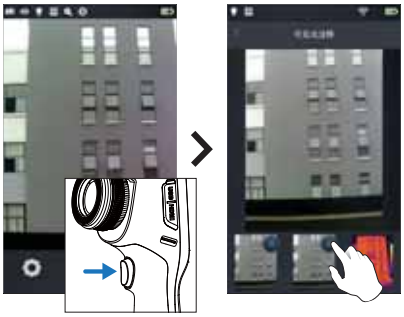
① ② ③

拍摄图片

添加拍照注释

1. 点击下方工具栏的图片注释【 】按钮，进入图片注释主界面，

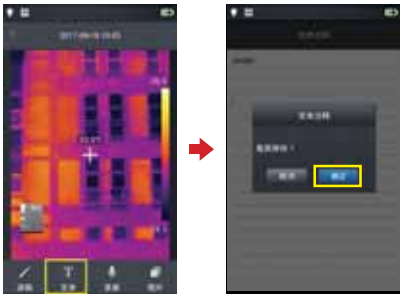
2. 点击实体拍照按钮，可以拍摄最多两张可见光图片进行可见光注释保存，如图所示。
3. 点击刚刚拍摄的可见光图片的右上角【 删除 】按钮，进行删除操作。



拍摄图片

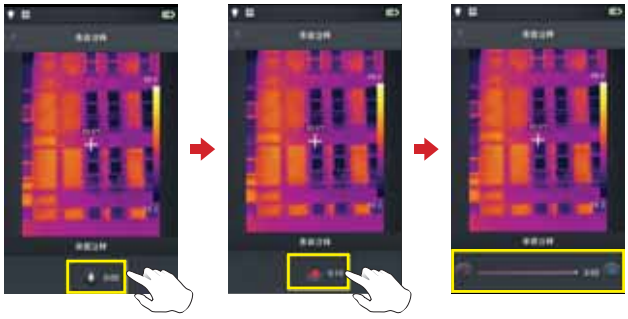
添加文本注释

1. 选择添加文本注释【 T 】按钮，
2. 进入注释文本输入区域，输入有效的注释信息，如XXXX。
3. 文本信息输入完成后，按下【 返回 】按钮，系统弹出文本注释保存对话框，点击【 确定 】即可对文本信息进行保存。



添加语音注释

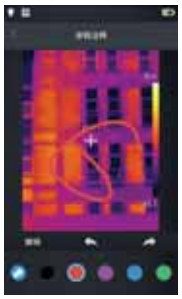
1. 选择添加语音注释【 】按钮，进入语音注释界面，
2. 点击录音【 】按钮，开始录音
3. 点击停止按钮，停止并保存录音文件。系统录制时长最多为60秒，如图所示



拍摄图片

添加涂鸦注释

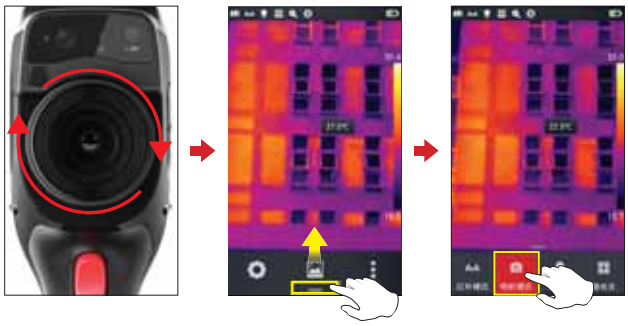
1. 选择添加涂鸦注释【 】按钮，进入涂鸦界面；
2. 最下方按钮功能依次为画笔、橡皮擦和各种颜色选取按钮，用户可以先选择任意一种功能，就可以直接在图像区域进行涂鸦操作；



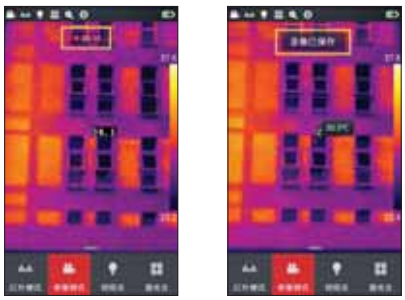
3. 加入4个功能按钮从左至右分别为撤销、上一步以及恢复、保存，用户可以通过该按钮对图像区域进行操作；

录制视频

1. 拍摄前请先对准被摄目标，通过手动或自动聚焦使目标清晰成像；（仅部分型号产品支持自动聚焦功能）
2. 点击底部快捷菜单按钮，点击相机模式后，当前界面立即会切换成录像模式；



3. 按下实体拍照按钮，开始录制屏幕上方会开始显示计时信息；
4. 再次按下录制按钮，结束录制，视频数据完成存储。可以在图库中进行查看和播放。

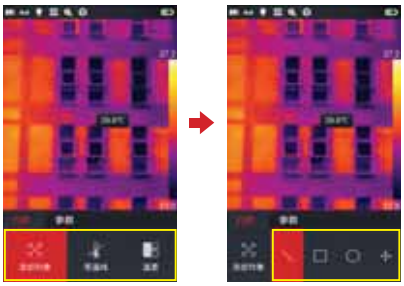


实时分析

添加/删除分析对象

1. 在实时画面中，点击快捷菜单的最右侧按钮【⋮】图标，进入添加分析对象菜单界面，如图所示；

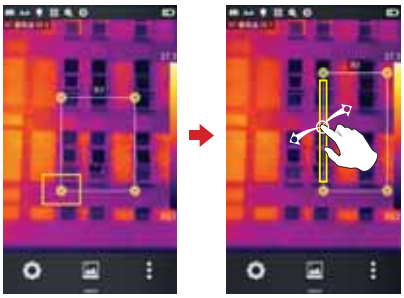
2. 提供多种分析对象测温，如**线、矩形、圆形、点**，同时也能够自定义显示最高温、最低温、平均温度值以及居中显示功能。
通过触摸屏长按任意分析对象，系统自动弹出对象菜单，功能如下；
标记：控制显示分析对象区域的温度标记（最高温、最低温、平均温）。
标记内容：显示分析对象区域中的最高温、最低温或平均温标记。
居中：点击此按钮，分析对象会自动居中显示。
删除按钮：可删除当前分析对象。



实时分析

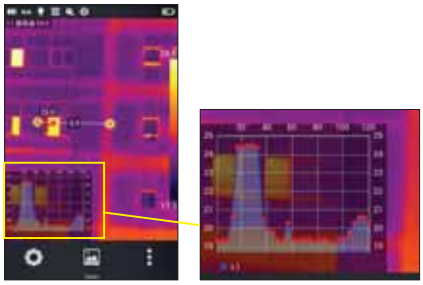
改变分析对象大小

1.选中任意分析对象，其各节点均为选中状态且颜色为黄色标记【■】；
2.移动任意一个节点，即可改变分析对象的区域范围。



对象实时温度曲线显示

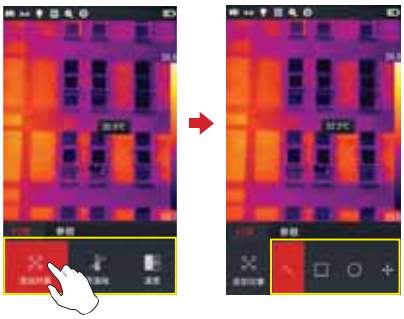
添加线型分析对象或选中已有线型分析对象，支持同步实时显示线上30个测温点温度信息；



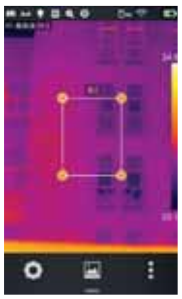
实时分析

分析对象移动功能

1、点击【⋮】按钮，进入添加分析对象界面；



2、选择所要添加的分析对象（如矩形分析对象）；



实时分析

3、分析对象在选中的状态下，可通过五向按键的上、下、左、右按钮对分析对象进行移动，且温度信息同步刷新；

调色板切换

1.进入主界面，点击屏幕右侧的调色板区域，系统弹出调色板选项，分别为白热、熔岩、铁红、彩虹1、北极、热铁、医疗、描红、黑热等。
2. 用户可以自由切换各种色带模式。如图所示；

实时分析

手动亮度/对比度调节

1. 在实时画面状态下，直接双击屏幕最右侧的色带的最高温或者最低温数值。
2. 实时视频画面中的色带最高温与最低温值变成锁定状态。

3. 点击最高温或者最低温，系统会自动弹出相应的数值菜单。
4. 选择合适的高温或者低温值后，点击任意画面区域，即可保存温度值和重新显示最新结果。

实时分析

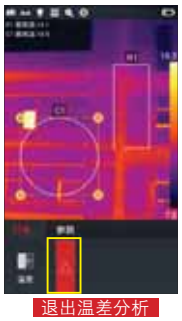
温差分析

添加至少两个分析对象后，点击温差模式按钮【△】后需要手动去选择所要对比的两个分析对象，才能进行温差计算；

温差分析前

温差分析后

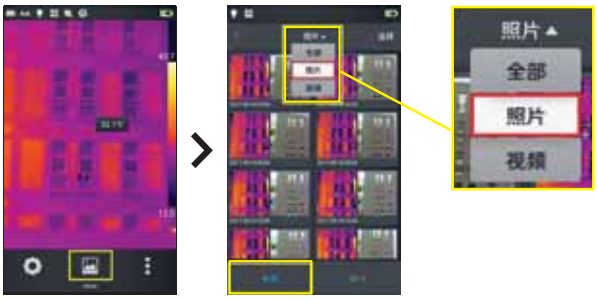
2. 退出温差分析：进入快捷菜单–温差功能，再次点击已激活的温差按钮【△】即可退出温差状态。



退出温差分析

文件浏览

1. **本机图片与视频**：在实时画面状态下，点击底部中间的图库【🖼】按钮，进入文件浏览主界面，选择照片——全部，系统会自动显示机身存储中的全部文件。

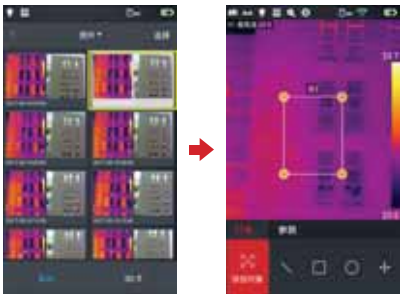


2. **TF卡文件与视频**：在实时画面状态下，点击底部中间的图库按钮，进入文件浏览主界面，选右下角的SD卡标签，系统会自动显示外置SD卡中的全部文件。

图片分析

图片编辑

1. 在图片预览界面，单击任意一张图片即可进入编辑图片界面，
2. 点击【✎】按钮，系统自动进入编辑模式，即可对当前图片进行分析对象添加修改、等温线修改以及两点温差修改。



分析对象编辑

3.点击【参数】按钮，还可以对其他属性进行修改，退出后保存设置。如图所示

图片属性

图片分析

放大和缩小图像

・在图片编辑的模式下，用两个手指触摸屏幕，然后在屏幕上将手指张开。张开手指时，图像将被放大，最大为10倍。
・合拢手指，图像将被缩小。

放大图片

缩小图片

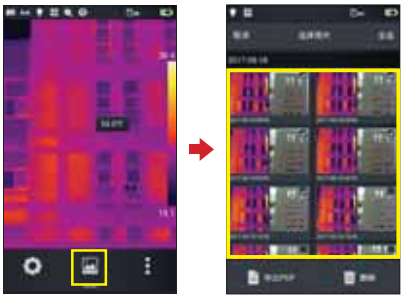
・可通过单个手指在触摸屏上滑动以移动放大的图像。

移动图片

图片分析

创建PDF

1. 在实时画面中，点击快捷菜单的中间的图库【🖼】图标；
2. 通过点击【选择】按钮，可以自由选择最多5个图像信息。如图所示；

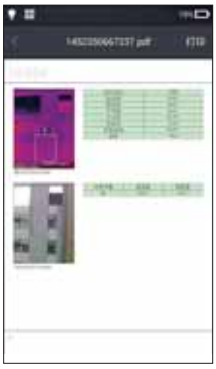


3. 点击左下角的【导出PDF】按钮，即可生成PDF预览文件。

图片分析

PDF打印

1. 通过系统设置–连接设置界面，连接无线打印网络（无线打印）；
2. 进入图库界面，选择一张图像，并进行PDF打印输出操作，详见生成PDF章节；
3. 触按PDF预览界面右上方的【打印】按钮；
4. 准备开始打印 触按打印按钮，即可实现无线打印。



PDF打印

无线打印预览

图片分析

视频回放

1.进入图库界面，点击照片–本机视频，成功进入本机视频界面，选择一个视频文件；

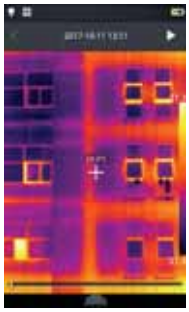
2.回放短片：
步骤：
・点击屏幕中央的播放按钮，将开始短片播放；
・要显示短片回放面板，点击屏幕即可；
・要在播放期间暂停短片，点击屏幕下方暂停按钮；

图片分析

视频分析

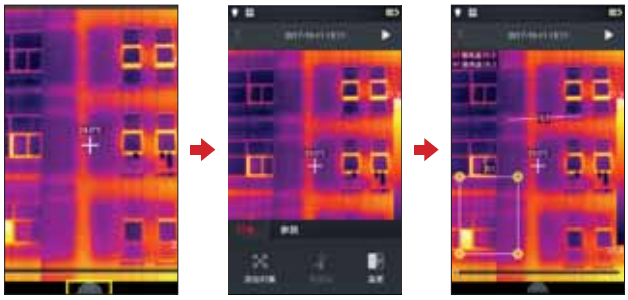
1.进入设置–系统设置界面，将视屏录制格式切换为“irgd”格式，如图所示：

2.进入快捷菜单，点击“相机模式”按钮，将相机模式切换为“录像模式”，并录制视屏文件；
3.进入图库，选择所录制的“irgd”格式录像文件，点击“ ”按钮可进入录像文件预览界面；



图片分析

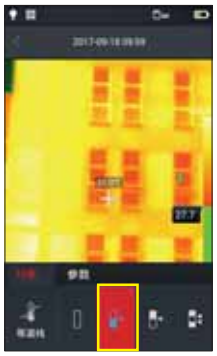
4.点击左上角“ ”按钮进行视频播放，点击“ ”按钮暂停播放；
5.点击快捷菜单按钮，系统弹出“对象”及“参数”工具菜单，可添加分析对象进行实时分析；



快捷菜单按钮　分析工具菜单　添加分析对象

等温线

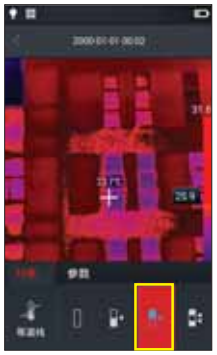
1. 在实时画面状态下，点击底部的图库【🖼】按钮，进入文件浏览界面；
2. 在图片浏览界面，选择一张红外图像进行编辑操作；
3.从底部调出编辑菜单后，然后选择对象–等温线。



向下等温线

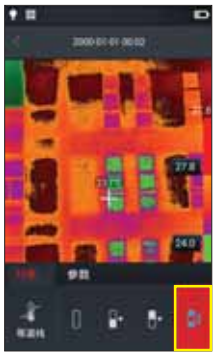
1. 调出编辑主菜单，进入对象–等温线；
2. 在等温线一栏，触击【🌡】图标，目标场景进入向下等温线图像模式。

等温线



向上等温线

1. 调出编辑主菜单，进入对象–等温线；
2. 单击【🌡】图标，即进入向上等温线图像模式。



区间外等温线

1.调出编辑主菜单，进入对象–等温线；
2. 单击图标【🌡】，即进入区间外等温线图像模式。

LEVEL与SPN功能

1.实时成像界面点击调色板顶部或底部温度数据区域（如图1所示黄色方框区域），进入“手动调光模式”，调光参数加锁（如下图2所示）

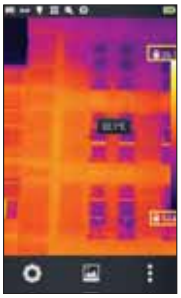


图1

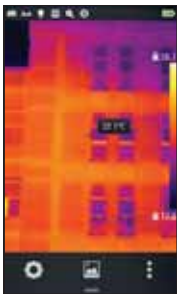


图2

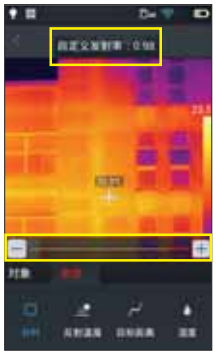
2. LEVEL调节：通过“五向按键”中的“上键”或“下键”可以对“LEVEL“进行调节，其中“上键”为同时增加TMax和TMin调光参数，“下键”为同时减小TMax和TMin调光参数，调节过程中图像调光同步变化。

3. SPAN调节：
（1）通过“五向按键”中的“左键”可以对SPAN进行调节，调节方式为TMax参数减小同时TMin参数增加；调节过程中图像调光同步变化。
（2）通过“五向按键”中的“右键”可以对SPAN进行调节，调节方式为TMax参数增加同时TMin参数减小，调节过程中图像调光同步变化。

4. 双击屏幕空白区域可返回自动调光模式；

自定义发射率

1. 进入编辑主菜单，选择参数-【材料】选项，目前提供多种预设值，如图所示；



2. 选择自己的需求对参数进行自定义修改，范围控制在0.01-1.00，滑动相应数值进行修改。如图所示；

自定义参数介绍：
反射温度：用户可以依据实际情况对参数进行修改，范围值在0-100之间。
目标距离：用户可以依据实际情况对参数进行修改，范围值在0-100之间。
相对湿度设置：用户可以依据实际情况对参数进行修改，范围值在0-100%之间。

第6章

全局设置

系统设置
本地设置
连接设置
关于更新

系统设定

在实时视频界面，点击屏幕底部的设置按钮，即可进入全局设置界面，设置界面主要对系统各个主要参数进行修改，包括温度单位、距离单位、亮度、网络连接、日期与语言等。

中心温光标

主要控制实时画面的中心温光标的显示，以及中心点温度数据显示。

测温范围

主要是对当前机器可测量的目标温度范围进行设置。

系统设定

温度单位切换

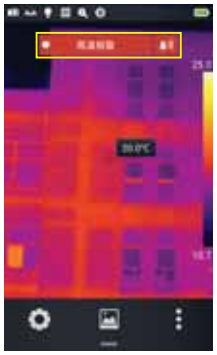
可以自由切换系统显示的摄氏度℃和华氏度°F单位。
(默认温度单位摄氏度℃)

距离单位切换

切换距离单位米、码，系统默认距离单位为米。

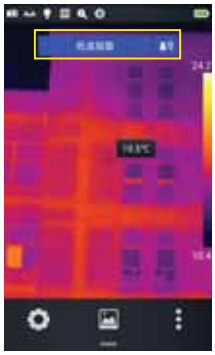
报警设置

控制报警的温度与范围，默认关闭状态；
报警温度值范围需要进入测温范围进行获取；
如温度范围设定在-20~150摄氏度，此处的报警温度值范围就在此区间进行选取；
报警范围分别是高温或者低温选项；
测温范围设置是-20~150摄氏度，报警温度就在此区间内判断。



高温报警

1.打开温度报警开关，设置报警温度范围值为高温，且报警温度设定值为-20摄氏度；
2.回到实时测温界面，机器会立即发声报警；
3.点击【 】图标会立即关闭高温报警声音。



低温报警

1.打开温度报警开关，设置报警温度范围值为低温 且报警温度设定值为30摄氏度；
2.回到实时测温界面，机器会立即发声报警；
3.点击【 】图标，关闭低温报警声音。

亮度

用户可以手动调整触摸屏幕亮度；

定时关机

设置定时关机选项，默认值为永不。提供5分钟、10分钟、30分钟、60分钟以及永不关机选择；

定时休眠

设置定时休眠选项。默认值为永不休眠。提供1分钟、5分钟、15分钟、永不的选项选择。

音量

调节控制设备音量，或者静音。

振动反馈

开启/关闭振动反馈功能。

自动镜头识别

默认开启自动镜头识别，程序会根据设备安装的镜头自动识别对应选项。

自动镜头识别关闭

关闭自定义镜头识别，用户可以根据自身镜头特性进行手动选择标准镜头、长焦镜头、广角镜头。

全图温度标记

控制实时画面中高低温跟踪模式，默认值为不显示（高低温跟踪关闭）。

等温线颜色

可以对高温等温线、低温等温线、区间等温线进行自定义颜色显示。

本地设置

拍照设置

设定拍照模式，提供“冻结/拍照”、“拍照”、“冻结”三种模式

冻结/拍照模式：按下拍照按钮先冻结，再次按下拍照按钮进行图片保存；

拍照模式：按下拍照按钮直接进行拍照操作并保存；

冻结模式：按下拍照按钮实时视频冻结，再次按下拍照按钮取消冻结，不存储图片；

可见光分辨率

系统提供640*480与2592*1944两种可见光分辨率可供用户选择，可见光照片分辨率与所选可见光分辨率一致；

本地设置

视频录制格式

系统提供“MP4”与“irgd”两种录像格式可供用户选择，其中“irgd”格式录像文件包含温度信息，可对视频文件进行分析。

（具体见本说明视频分析部分）

报表设置

可以对PDF报表各参数进行修改，包括水印设置、报表页眉、报表页脚、PDF模板选择（提供3种预置模板）。

本地设置

时间/日期

手动设定系统日期与时间。

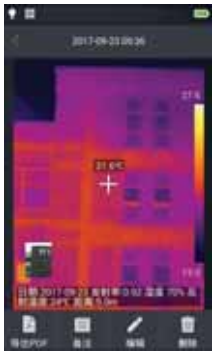
语言

提供多国语言切换。

本地设置

水印设置

1. 进入水印设置，开启部分水印选项，包括LOGO水印、日期水印、发射率水印、距离水印、湿度水印、反射温度水印等；



2. 回到实时画面中，任意拍一张示例图片；
3. 按下快捷回放按钮，进入图片浏览界面，选取刚刚拍下的一张图片进行预览；
4. 预览图的最下方会显示所有已开启的水印信息。

连接设置

WIFI开关

如果【 】出现在主屏幕顶部，表示您已经连接到无线局域网络。
(控制WIFI模块的开启和关闭功能)

1. 选取网络：轻点列出的一个网络，然后输入密码（如果需要）；
加入封闭式无线局域网络：轻点“其他”，然后输入封闭式网络的名称（**您需要知道网络名称、安全性类型和密码**）；

2.密码输入成功，进入连接界面；

连接设置

3. 点击【 】更多信息按钮，即可进入WIFI地址设置界面；
忽略网络：轻点以前加入的网络旁的 更多信息按钮，然后轻点“忽略此网络”。

WIFI热点配置

1. 进全局菜单--连接设置--WIFI热点配置标签；
2. 在配置界面中，输入有效的热点名称Camera，密码12345678，点击确定按钮保存成功。
3. 无线AP热点的SSID与密码自定义设置保存成功。

连接设置

蓝牙 (仅部分型号产品支持该功能)

1. 进入“设置--连接--蓝牙”界面，打开蓝牙开关激活蓝牙功能并开始搜索设备；

2. 成功搜索到蓝牙设备后，开始蓝牙配对，配对成功后界面提示连接成功，即可正常使用蓝牙功能；

关于更新

程序升级

1.将APK程序升级包放置于：计算机/IrCamera/内存设备/GCameraExt/Update路径下，如图所示：

2.进入设置–信息界面，点击程序升级，系统弹出升级确认对话框，按照提示点击“安装”进行升级操作，系统提示升级成功后重启设备即可，如下图所示：

固件升级

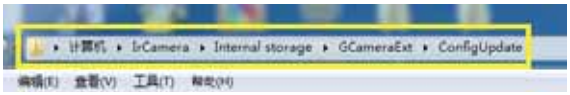
1.将固件程序升级包放置于：计算机/IrCamera/内存设备/GCameraExt/FirmwareUpdate路径下，如图所示：

关于更新

2.进入设置–信息界面，点击固件升级，系统弹出升级确认对话框，按照提示点击“确定”进行升级操作，系统提示升级成功后重启设备即可，如下图所示：

配置文件升级

1.将配置文件升级所需的“.dat”与“.png”文件放置于：计算机/IrCamera/内存设备/GCameraExt/ConfigUpdate路径下，如图所示：



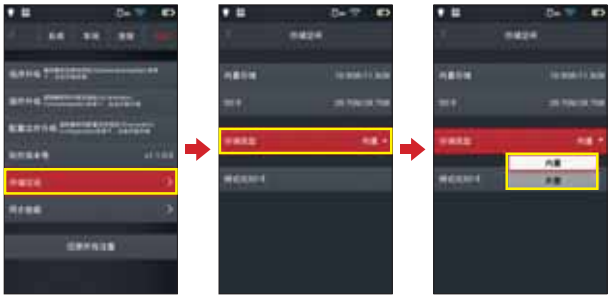
关于更新

2.进入设置–信息界面，点击配置文件升级，系统弹出升级确认对话框，按照提示点击“确定”进行升级操作，系统提示升级成功即可，如下图所示；

存储空间

主要显示内部存储设备的剩余容量以及外置TF卡的基本信息。同时用户可以自定义设置存储选项，包括机身内部存储和外置TF卡存储；

(**选择存储介质**：进入设置–信息–存储空间界面，用户可根据需求切换存内置或外置存储路径，外置存储仅在SD卡插入状态可选择)



关于更新

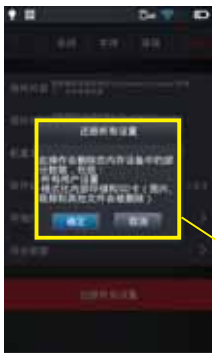
格式化TF卡

若要开始格式化，请选择一个存储卡插槽，然后选择是。请注意，格式化会永久删除所选插槽中存储卡上的所有照片及其它数据 。在格式化之前，务必根据需要进行备份；

同步数据

可对内置存储、SD卡中的文件进行数据同步；

关于更新



还原默认设置

1.进入设置菜单–信息–还原所有设置，并点击还原设置标签；
2.此功能会将机器恢复为出厂状态。请谨慎操作。

第7章

与外部设备连接

端口连接
安装存储卡与镜头
外部连接

端口连接

本产品可以使用HDMI数据线、USB数据线与外部设备进行连接。

Micro HDMI接口

Micro HDMI接口主要连接外部高清显示器使用，请确保所需连接的显示器均带有HDMI接口。

1. 将HDMI连接线连接到热像仪。
2. 让Micro HDMI插头的<HDMI >标志朝向设备前面，将其插入。
3. 将HDMI连接线连接到高清显示器的HDMI IN端口。
4. 打开高清显示器并切换其视频输入以选择连接的端口。

USB接口

1. **查看内部存储文件**：将USB数据线与台式电脑进行连接后，打开我的电脑，查看内部存储盘信息，点击进入内存设备，找到存放图片的文件夹，具体路径为…\SABRESD-MX6DQ\内存设备\DCIM\GCamera\SourceImage。

存储位置	文件类型	存储路径
本机内部存储	照片文件	IrCamrea/内存设备/DCIM/GCamera/SourceImage
本机内部存储	录像文件	IrCamrea/内存设备/DCIM/GCamera/SourceVideo

注意：IRI开头的文件名称为红外图像，VIS开头的文件名称为可见光图像。

2. 查看TF卡文件。

如需将拍摄图片存入TF卡，请先进入全局设置——信息——存储空间，选择存储介质为TF卡，再进行拍照操作即可将文件保存到内存卡中。

端口连接

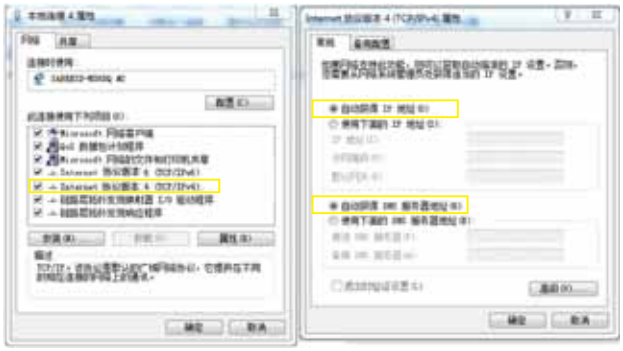
使用USB数据线连接到电脑，打开我的电脑，查看内部存储盘信息，点击进入内存设备，路径为…\SABRESD-MX6DQ\TF卡\DCIM\GCamera\SourceImage

存储位置	文件类型	存储路径
SD卡存储	照片文件	IrCamrea/SD卡/DCIM/GCamera/SourceImage
SD卡存储	录像文件	IrCamrea/ SD卡/DCIM/GCamera/SourceVideo

注意：IRI开头的文件名称为红外图像，VIS开头的文件名称为可见光图像。

红外分析软件连接

1、使用USB数据线将电脑与设备可靠连接；
2、进入电脑“TCP/IP v4”设置界面，将“Internet 协议版本4（TCP/IPv4）”属性设置为“自动获得IP地址”与“自动获得DNS服务器地址”，点击“确定”，如下图所示：



第一步　　第二步

端口连接

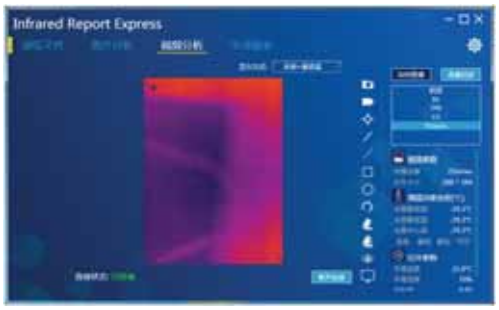
3. 点击设备端“USB实时视屏”打开USB实时视频功能，如下图所示：

4. 等待电脑端网络识别后，打开“红外分析软件”，如下图：

端口连接

5. 点击“视频分析”，在机型选择框中选择“DSeries”，然后在弹出的连接设置对话框中选择“USB”，如下图：

6. 点击“确定”，即可正常连接设备，电脑端红外分析软件显示实时红外图像，并可进行相应分析操作，如下图：

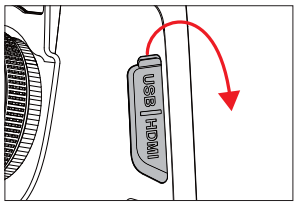


安装存储卡与镜头

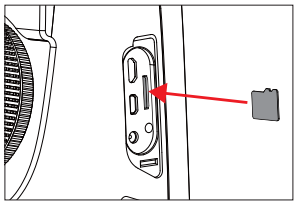
本产品可以使用TF卡，所拍摄的图像和视频可记录在本机或TF卡上。本产品最大支持32GB容量的TF卡；

・确保存储卡的写保护开关设置在上方位置，以便允许写入/删除。

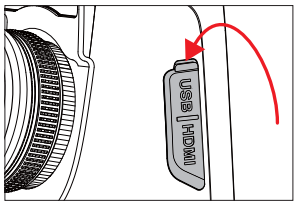
安装存储卡



1. 打开插槽盖，如箭头所示方向滑动并打开插槽盖，插入存储卡；



2. 插如卡槽，令存储卡的标签侧朝向您并将其插入直到发出咔嚓声到位；

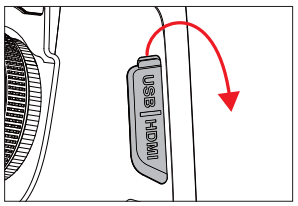


3. 关闭插槽盖，关闭插槽盖并如箭头所示方向滑动插槽盖直至其锁闭。

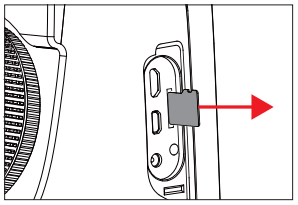
注意：可拍摄数量取决于卡的剩余容量、图像记录画质等。

安装存储卡与镜头

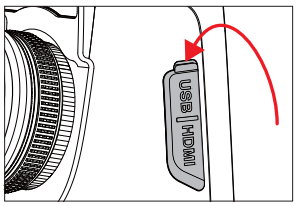
取出存储卡



1. 先关闭设备电源，然后再打开插槽盖。
(确认指示灯熄灭，然后打开插槽盖)



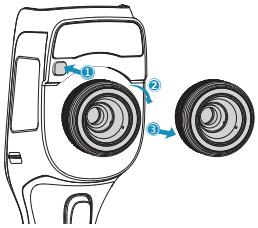
2. 取出存储卡，要退出存储卡时，轻轻推入存储卡， 然后释放；



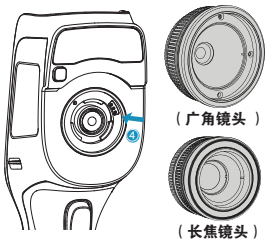
3. 径直拉出存储卡，然后关闭插槽盖。

安装存储卡与镜头

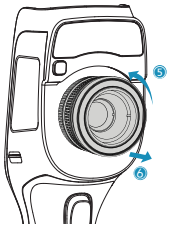
安装选配镜头



1. 安装镜头，按住拆镜按钮，将镜头背部的红点与机器上的红点对齐；



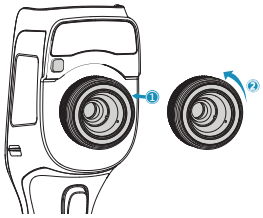
2. 挑选镜头，选择合适的镜头，插入后再顺时针旋转上镜头；



3. 卸载镜头，按住拆镜按钮，逆时针旋转镜头并取下即可。

安装存储卡与镜头

安装高温镜头 (部分型号产品不支持选配镜头)



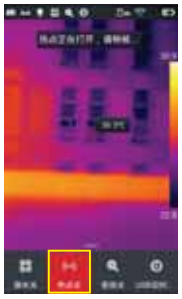
1. 安装镜头，将高温镜头插入标准镜头的螺纹口内，并逆时针旋上镜头；

2. 卸载镜头，将高温镜头顺时针旋转并取下即可。

外部连接

无线AP设置

1. 调出主屏幕下方的快捷菜单界面，直接点击【热点】AP按钮，即可打开无线AP功能；
2.状态栏会自动显示AP功能已开启并可以通过无线网卡进行信号搜索；（SSID:Camera，密码:12345678），此SSID为出厂默认名称，如需修改请参见连接设置–WIFI热点配置章节；
3.如需关闭该功能，需要再次点击AP按钮即可。



获取最新版本的IOS/Android应用程序

具体详见本公司官方网站–下载专区。
IOS版本：请前往 **Apple Store** 搜索关键字“**Thermography**”即可获取最新版本。
Android版本：国内用户请前往各大应用市场，如360应用市场、豌豆荚、应用汇，搜索关键字 **Thermography** 下载即可。国外用户请前往 **Google Play** 市场下载“**Thermography**”，即可。

第8章

故障排除指南

常见问题汇总

故障排除指南

常见问题汇总

症　　状	原　　因	措　　施
无法开机	电池电量不足	重新充电后再使用电池
	电池接触不良	取出电池，重新放入电池仓内并安装到位
	外接电源的插头没插到位	拔出电源插头，重新插入并推到位
电池电量指示与实际使用情况偏差较大	电池电量耗尽	更换充满电的电池
	电池寿命已到	更换新电池
红外图像不清晰	没有进行对焦	手动对焦或自动对焦使图像清晰
	镜头蒙上水气或被污染	使用专业设备清洁镜头
可见光图像不清晰	环境太暗	采取适当照明措施
	可见光前端有水汽或被污染	使用专业设备清洁可见光前端
测温不准	没有对目标聚焦	手动对焦或自动对焦使图像清晰，然后再读取温度
	与测温相关的参数设置不对	更改参数设置，或直接恢复默认参数值
	长时间没有进行非均匀性校正	在菜单中将自定义按键设置为补偿，按下自定义实体按键，听到快门响声，进行一次非均匀性校正
	开机立刻测温	为保证测温精度，我们建议您打开热像仪之后，等待5~10分钟再开始测温
	长时间没有校准	为获取精确的测温结果，我们建议您每年将热像仪送回校准一次