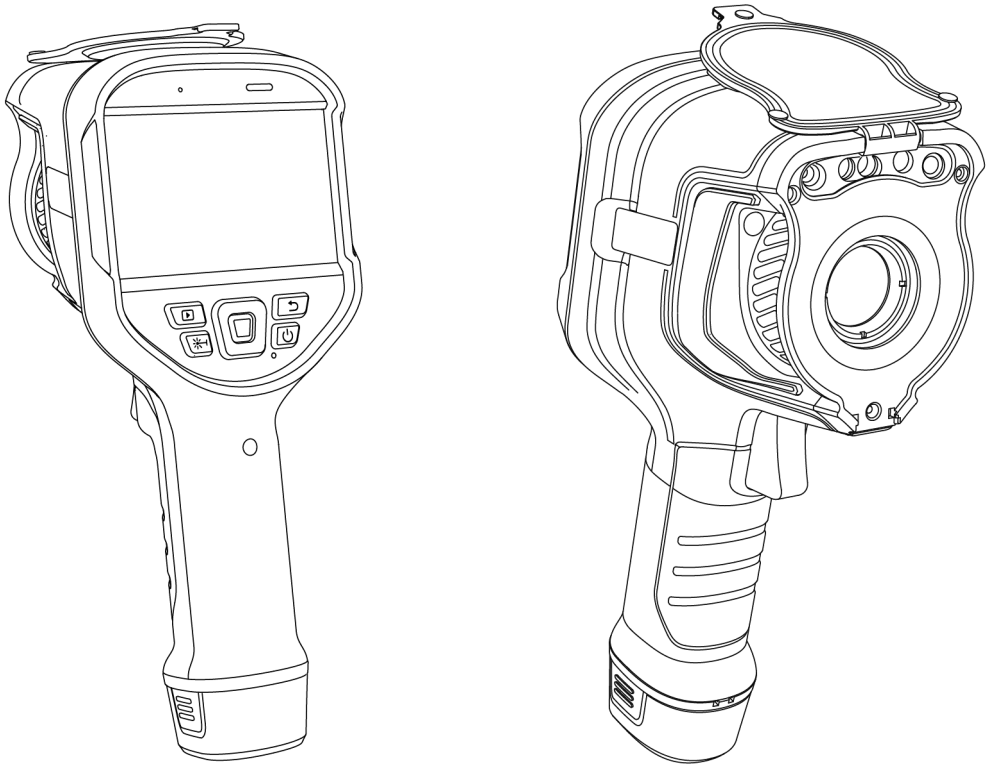
User Manual

Advanced Infrared Thermal Imaging Camera



Thank you for purchasing this product. Please read this instruction manual before use. The pictures are for reference only; the actual product shall prevail.

1. User reminder

1.1. Important Note

This manual is a general guide for this series of products, which means the specific model you receive may differ from the images in the manual; please refer to the actual product you receive.
This manual is compiled to facilitate users' use of and understanding of our company's products. We will make every effort to ensure the accuracy of its contents, but we cannot guarantee its completeness, as our products are continuously being updated and upgraded. Our company reserves the right to modify it at any time without prior notice.

1.2. Storage, Transportation

Storage: The packaged product should be stored in a clean indoor environment at -40°C to 60°C, with a relative humidity of no more than 95%, free from condensation and corrosive gases, and with good ventilation.
Transportation: During transportation and handling, it should be protected from rain, water immersion, and inversion. Severe vibrations and shocks should be avoided, and it must be handled with care to prevent dropping or throwing.

1.3. Precautions

1.3.1.Dangerous

1) Charge the battery using the method described in the quick operation guide, and follow the charging steps and precautions. Incorrect charging can cause the battery to overheat, get damaged, or even cause injury to people; ensure there are no flammable materials within 2 meters of the charger during charging.
2) Never attempt to open or disassemble the battery at any time. If the battery leaks and liquid gets into the eyes, rinse the eyes immediately with clean water and seek medical attention.

1.3.2.Warning

1) Please keep the device as stable as possible when in use, avoiding severe shaking;
2) Do not use or store the device in an environment with working temperatures or storage temperatures that exceed those permitted by the device;
3) Do not point the device directly at high-intensity heat radiation sources, such as the sun, lasers, spot welders, etc., to avoid damaging the device;

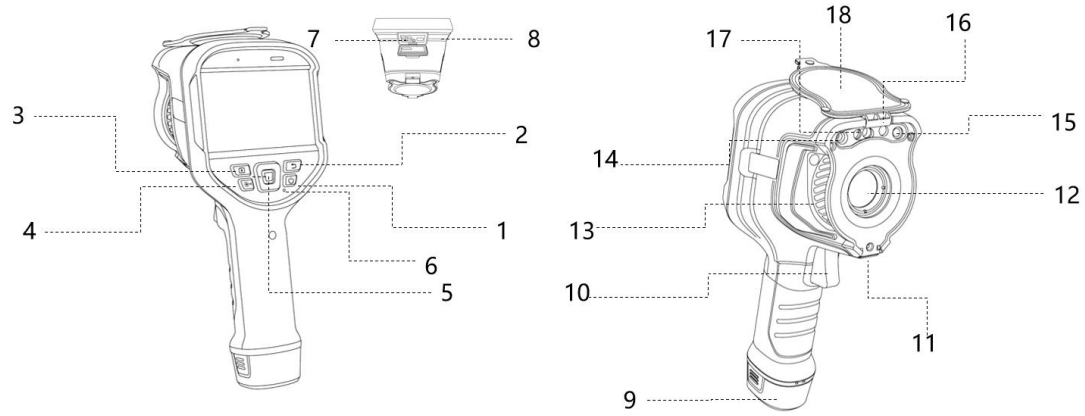
4) Do not block the holes on the device;
5) Do not strike, throw, or vibrate the equipment and accessories to avoid damaging them;
6) Do not disassemble the device on your own to avoid damaging it and losing warranty rights;
7) Do not wipe the equipment or cables with soluble liquids to avoid damaging the equipment;
8) When cleaning this device, please follow these steps:
Non-optical surfaces: Can be wiped with a clean, soft cloth if necessary;
Optical surface: Do not dirty the lens when using the device. When the surface of the optical lens is contaminated, it should be carefully wiped with professional lens paper.
9) Do not place the device in high-temperature environments or near hot objects;
10) Do not place the device in a humid environment or water.

1.3.3.Note

1) Do not expose the device to dust, humidity, or corrosive environments;
2) When not in use, please place it along with all accessories in a dedicated packaging box;
3) When the device is not used for an extended period, it should be recharged every 3 to 6 months to maintain battery health;

2. Infrared Camera Overview

2.1. At a Glance



No.	Component	Features
1	Power button	Press briefly to sleep, press long to shut down
2	Return key	Press briefly to return, press long to restore to the initial state

3	Gallery Key	Tap briefly on  to view the image or video file
4	Laser Pointer/Ranging Key	Press  briefly to turn on the laser pointer or distance measurement
5	Menu key	Menu mode: Select or confirm this feature Non-menu mode:  Left click: Cycle through image modes (IR, MIF, PIP, MIX, VL) Right-click: Cycle through dimming modes (A/M/S/L) Up key: In IR mode, press  to turn super-resolution mode on or off Down key: In IR mode, press  to enable electronic zoom mode
6	Charging indicator light	Charging indicator: red light indicates charging, green light indicates fully charged
7	Type-C port	Use a USB Type-A to Type-C data cable to charge the device or export files
8	TF card slot	The device is used to insert a TF (MicroSD) memory card for storage
9	Lithium battery	Installation and Removal of Lithium Batteries
10	Trigger key	Menu Mode: Tap the trigger button to return to the real-time preview interface Non-menu mode: Press the trigger button briefly to take a snapshot; press it longer to record a video
11	Tripod interface	Device and tripod connection parts
12	Infrared lens	Infrared camera
13	Focusing ring	Rotate clockwise or counterclockwise to adjust image clarity
14	Laser indicator light	Laser indicator light
15	Visible light	Visible light camera
16	Flood	LED lighting fixture
17	Laser ranging	Laser distance measurement module(Supported by partial device models)
18	Lens cap	Lens protection cover

2.2. Device charging

2.2.1.Description

This device is equipped with a removable battery. Before using the camera for the first time, please charge it continuously for over 2 hours using the charger that comes with the device.

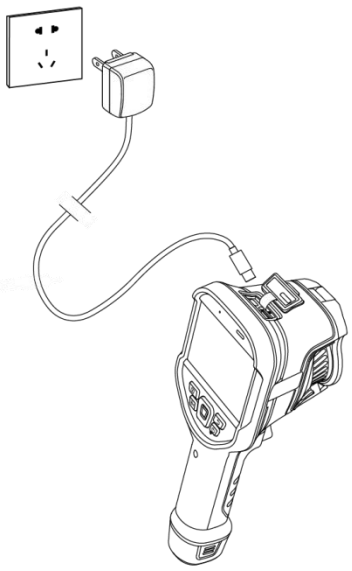
Note:
If the camera is left unused for an extended period, causing the battery to be over-discharged, it is recommended to charge it for at least 30 minutes before turning it on;
It is recommended to use the original USB cable included in the package for charging and data transfer.

2.2.2.Charging indicator

Signal type	Description
Red light	Battery is charging
Green light	The battery is over 90% charged.

2.2.3.Charging

1. Open the top cover of the device.
2. Insert the Type-C male end of the charging cable into the device, and insert the other Type-C end into the power adapter. Do not use USB-C to USB-C data cables from other manufacturers.
3. Charge using the device's standard charging cable to achieve the fastest charging speed.



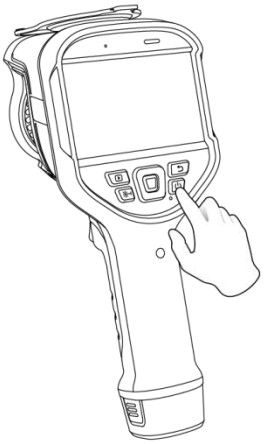
2.3. Operate the device

2.3.1.Power on/off

•To turn on the device, press the power/on/off  button. Once the device's interface stabilizes, you can observe the target.

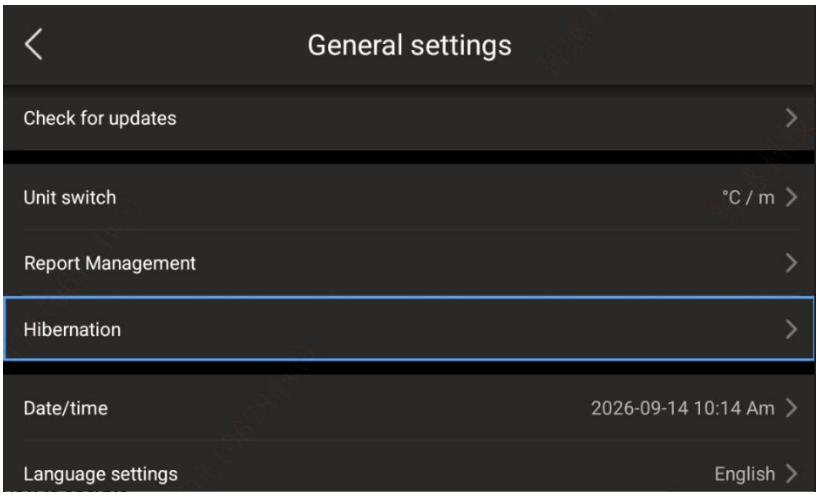
•To turn off the device, press and hold the power/on/off  button for more than 2 seconds.

Note: Do not remove the battery to turn off the device.



2.3.2.Hibernaiton

Preview the screen in real time, go to [Settings] - [General Settings] -[Hibernaiton]- [Shut Down/Sleep], and set the device's automatic shutdown time as needed.



2.3.3.How to operate

The device supports button or touch control. Press the navigation buttons to set parameters and configurations.

•Press the five-way button  to enter the menu and configure parameter settings.

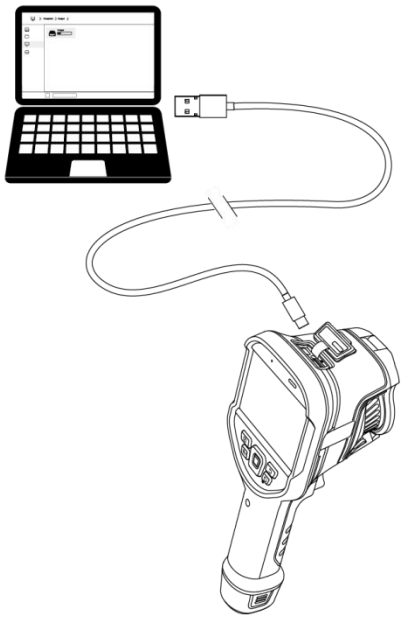
•Use  for quick operations or up/down navigation selection.

•Press  to return to the previous level.

•Press the trigger button to return to the main preview screen.

2.3.4.Connect external devices

•Use a USB-C to USB-A or USB-C to USB-C cable to transfer image and video files from the device to your computer.
•Use a TypeC connection adapter to charge the battery.



2.4. Screen elements

2.4.1.Main Preview

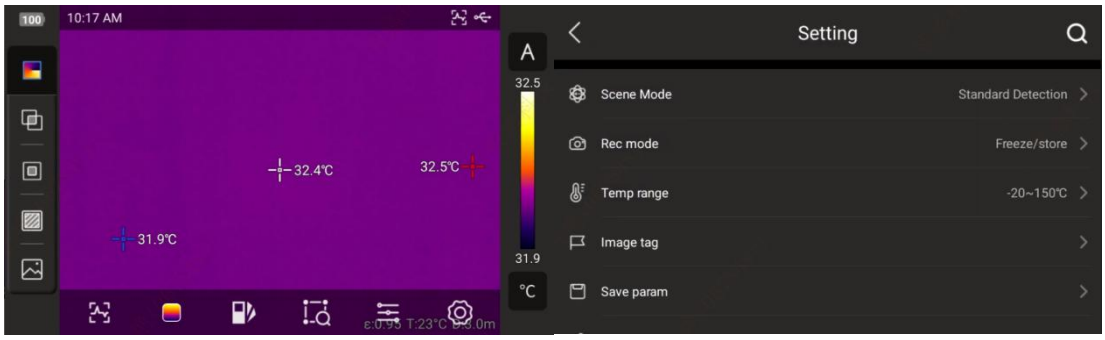
Once the device is powered on, the screen will display a real-time thermal imaging preview.
As this manual is updated regularly, the interface displayed in real time may differ slightly from the actual version on your device model. Please refer to the actual interface of your device.



No.	Description
1	**Status bar** (area displaying information such as scene mode, connection status, super-resolution status, etc.) **Quick action entry for swiping** down (swipe fingers downward to quickly turn on the lighting, brightness, sound, etc.)
2	**Battery Level (the** level value displayed when the device is in use)
3	**Temperature data** (area displaying temperature data of the analyzed object, temperature difference data, etc.)
4	**Image mode switching** (switch between image modes: IR, MIF, PIP, MIX, VL, 5 modes)
5	Center point cursor, which can be manually enabled/disabled in [Quick Menu] - [Analyze Object] - [Center Point]
6	Show current LevelSpan mode (A/M/S/L)
7	**Palette bar and temperature range (the** upper and lower limits of the palette bar represent the highest and lowest temperatures within the currently displayed temperature range) Tip: When a "~" symbol appears before the temperature value, it indicates that the device has not yet reached the prepared state for accurate temperature measurement; wait until the symbol disappears before taking the target temperature reading.
8	**Temperature unit** (display and operation temperature unit toggle)
9	**Context menu (quick** settings for scene mode, isotherms, drawing analysis objects, temperature measurement parameters, changing palettes, etc.)
10	**Image markers (watermark** information displayed on the preview screen during real-time observation: emissivity, reflected temperature, distance)

2.4.2.Menu

You can set the thermal camera parameters and view thermal camera information in the menu.

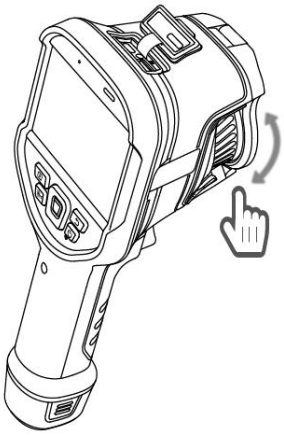


2.5. Display Settings

Tip:
Your device will periodically perform automatic calibration procedures to optimize image quality and measurement accuracy. During calibration, the image will pause briefly, and you will hear a “click” sound as the shutter in front of the detector moves. The frequency of automatic calibration increases when the device is first turned on or in extremely cold/hot environments. This is a necessary part of the device's normal operation to ensure optimal performance.

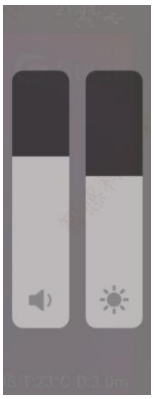
2.5.1.Manual focusing

Manually rotate the lens focus ring to achieve focusing until the infrared image is clear, ensuring that the contours and details of the target are fully visible, thus guaranteeing the accuracy of subsequent temperature measurement and results.



2.5.2.Brightness

The device screen brightness can be set to different levels depending on the usage environment.
Go to [Main Preview] - [Top Sliding Panel], slide to adjust brightness, and change the screen brightness.



2.5.3.Real-time super-resolution

The real-time preview uses super-resolution technology to significantly improve the clarity and detail of the real-time image. Once enabled, a super-resolution mode icon will appear in the top-right corner of the main preview screen.

• Main preview screen: In IR mode, a short press on quickly turns on/off the real-time upscaling mode.

Tip:

- The super resolution feature is only effective in IR mode with the dimming mode set to A. If the image mode or scene mode is changed after enabling super resolution, this feature will be automatically turned off (without any notification).
- The super-resolution mode switch status applies to both real-time preview and radiographic image capture. Some models in this series may not support super-resolution in real-time video streams; please refer to the actual device.

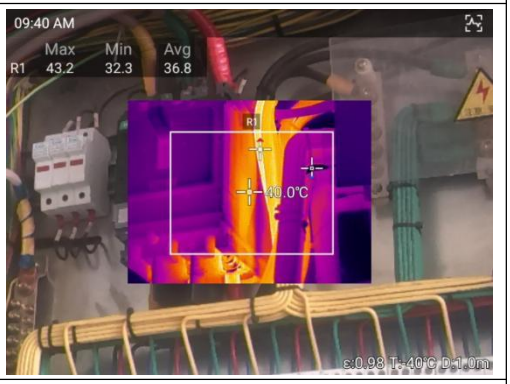
2.5.4.Image mode switch

You can set the device's infrared/visible light observation mode, with optional modes including: IR mode | MIF mode | PIP mode | MIX mode | VL mode.

Steps:

1) On the main preview screen, click the icon or press and hold the left button to cycle through the current image mode: IR|MIF|PIP|MIX|VL.

Mode	Description	Illustration

IR mode	In pure infrared mode, the device will display only infrared thermal imaging.	
MIF mode	In the fused imaging mode, the device will display a combined image of the infrared thermal imaging and visible light channels simultaneously. Note: When there is a slight misalignment when the infrared and visible light images are fused, tap the screen to trigger visible light fusion alignment.	
PIP mode	In PIP mode, the device will display the infrared thermal imaging within the visible light image. It is possible to set the opacity of the infrared thermal imaging area in visible light, which helps to make the target more visible. The lower the opacity parameter value, the higher the density of visible light display.	
MIX mode	In MIX mode, the device operates at a set temperature threshold; once this threshold is exceeded, the corresponding infrared image is mapped and overlaid on the visible light. Select the opacity parameter value; the lower the number, the higher the density of visible light display.	

VL mode	In Visible Light mode, the device will only display visible light images.	

2) . Press briefly to return.

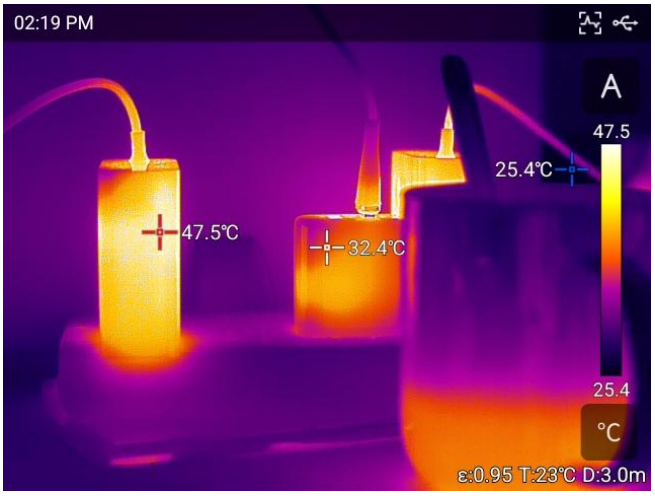
2.5.5.Scene mode switching

The device comes equipped with 4 dedicated scenario modes: standard detection, electrical detection, water leakage detection, and underfloor heating detection. Specific temperature measurement parameters are preset for the temperature detection needs of each scenario, allowing users to switch between them with one click based on the current task, eliminating the need for repeated manual adjustment of parameters and significantly improving the efficiency of on-site inspections as well as data consistency.

Steps:

1) On the main preview screen, click the scene mode icon.

- Standard detection mode: . With custom settings for temperature measurement parameters and the ability to draw analysis objects, it enables detailed temperature monitoring and analysis of the target.

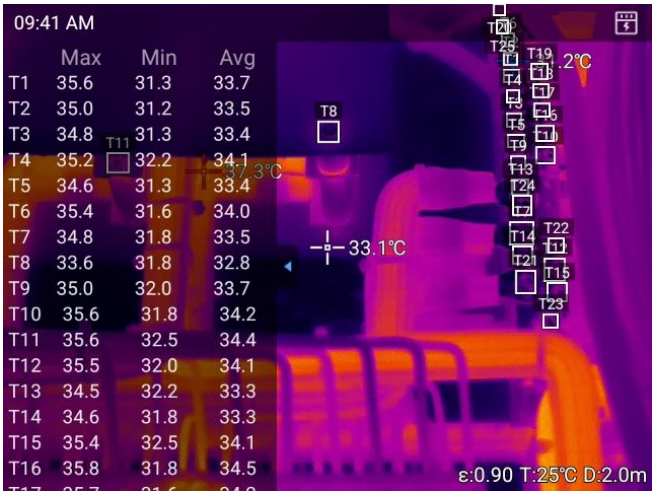


- Electrical testing mode: , designed specifically for temperature measurement of electrical terminals. It features AI-powered intelligent recognition that can automatically select the terminal positions, output temperature data for each terminal, and mark and locate faulty terminals, helping maintenance personnel quickly identify abnormal locations.

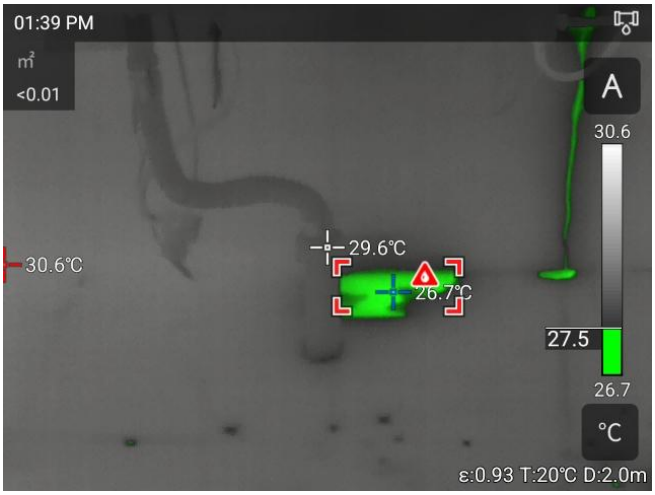
  When the detected temperature reaches the preset alarm threshold, the corresponding fault

terminal will automatically highlight, providing an intuitive indication of the risk and significantly improving the efficiency of troubleshooting abnormalities.

In this scenario mode, the temperature measurement parameters will automatically complete the initialization related to the electrical testing terminals. Based on the actual application requirements on site, you can go to the [Settings] – [Scenario Mode] page in the device menu, enable terminal recognition, adjust the relevant parameters, and save them to meet the needs of different testing scenarios.



- Leak detection mode: , equipped with an AI-powered leak analysis algorithm that can automatically pinpoint and mark the exact location of leaks. It also supports automatic estimation of the affected area based on the actual distance parameters of the target being inspected, providing intuitive data references and troubleshooting suggestions for subsequent on-site repair work, thereby significantly reducing the workload of manual inspection.



- Underfloor heating detection mode: . It is specifically optimized for detecting underfloor heating systems, with pre-set parameters dedicated to underfloor heating that can accurately identify areas with abnormal temperatures in the heating pipes. When issues such as pipe blockages, localized heat leakage, or uneven water temperatures occur in the underfloor heating system, enabling the [High-Temperature Highlight] function will automatically highlight these abnormal temperature areas with high contrast, helping technicians quickly locate the faulty

points in the heating pipes and significantly improving the efficiency of troubleshooting underfloor heating problems.

In this scene mode, the temperature measurement parameters will default to the underfloor heating detection mode. You can adjust and save the relevant parameters according to the actual application requirements on-site by navigating to the [Settings] – [Scene Mode] page in the device menu, to meet the needs of different detection scenarios.

2.5.6.LevelSpan

Set the temperature range displayed on the screen; the palette is only effective for targets within this temperature range. Users can adjust this temperature range as desired. The available LevelSpan modes include: A/M/S/L mode.

Steps:

1）Preview the image in real time; right-click to cycle through modes when not in upscaling mode.

2）Or touch the screen and click “A/M/S/L” to manually switch modes.

- Mode A: Auto mode. The temperature range is dynamically set based on the highest and lowest temperatures displayed on the screen.

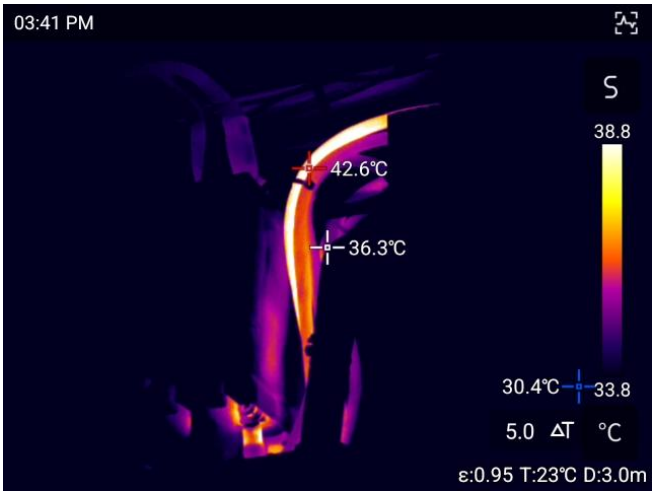


- M mode: Level/span adjustment in manual mode. Manually adjust the highest and lowest temperatures to set the range.



Steps: In M mode, click  or  to bring up the temperature and width range selection;

- S mode: Semi-automatic mode. Dynamically sets the highest and lowest temperature ranges based on the center point temperature.



Steps: Under the real-time preview, click △T or press  to adjust the △T value;

- L Mode: Zone dimming mode. It dynamically highlights the temperature contrast of the current zone target in real time, based on the automatically set zone size and position.

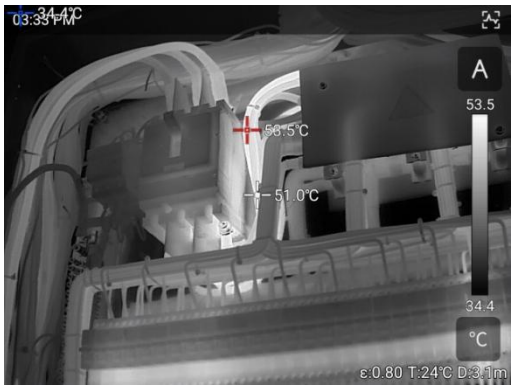
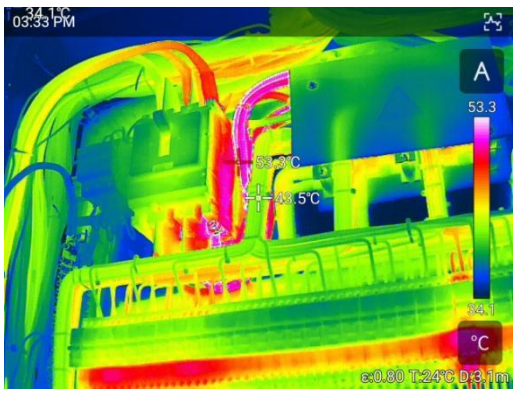


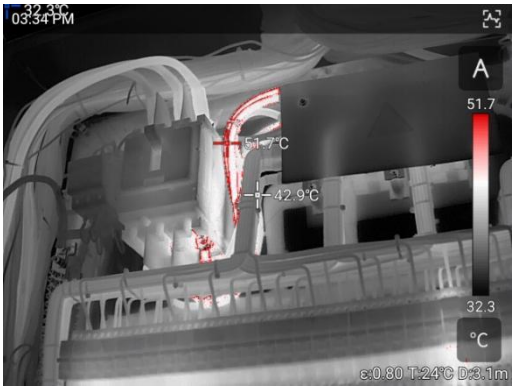
Steps: On the real-time preview screen, touch the rectangular area with your finger to change its position and size for adjusting the lighting of the target area.

2.5.7.Palette

The palette is a visualization scheme that represents temperature distribution through color gradients. This device provides multiple preset palettes optimized for different detection scenarios. The types and quantities of palettes vary depending on the device model; the actual display on the device shall prevail.

Users can go to [Quick Menu] - [Palette], press the middle button on the menu briefly, and use the five-way buttons for quick switching.

Palette	Description	Illustration
White Heat Mode	In this mode, high-temperature areas appear in bright colors on the display screen.	
Iron Red Mode	In this mode, the target object displays a gradient color typical of heated metal.	
Arctic Mode	In this mode, the target temperature distribution is displayed in multiple color levels. High-temperature areas appear in bright colors on the display screen.	

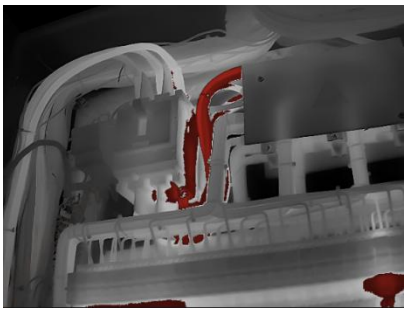
Rainbow Mode 1	This mode presents the target temperature distribution in multiple color levels, suitable for detection scenarios with no significant temperature differences, to highlight high- and low-temperature targets. High-temperature areas appear in bright red on the screen, low-temperature areas appear in dark red, and the remaining areas appear in dark tones.	
Fulgurite	Dominated by a warm color gradient, with bright orange-red and bright yellow in high-temperature areas, transitioning to dark black and dark red in low-temperature areas	
Tint	Using a basic grayscale image as the background, only the high-temperature areas exceeding the set temperature threshold are highlighted in bright red, while the remaining areas retain a low-contrast grayscale display, ensuring extremely high visibility of the target heat source.	
Blue hot	The overall theme uses a blue gradient as the main color; the lower the temperature, the darker the blue, while higher-temperature areas appear red, with the red becoming darker as the temperature rises.	

2.5.8.Isotherm

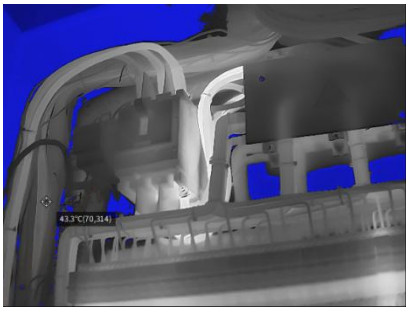
Used for rapid screening of abnormal temperature areas in the target being tested. This device supports four isotherms: upper limit, lower limit, within range, and outside range.
Note: Isotherms can only be enabled in A (auto dimming) mode.
Steps:
1) Click ••• at the bottom of the page to enter the shortcut menu page;

2) Click to set the isotherm;

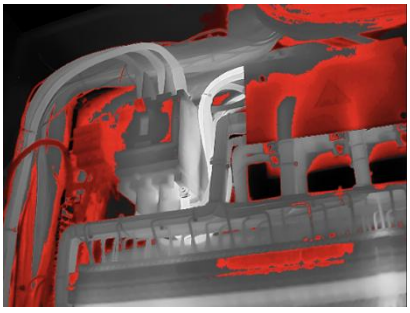
3) Click to set the isotherm color.
Upper limit: Set the upper temperature threshold and color; areas above this temperature will be filled in with the specified color.



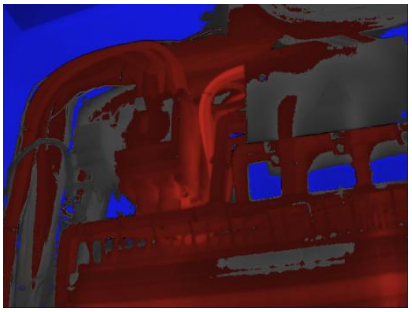
Lower limit: Set the lower temperature threshold and color; areas below this temperature will be filled with the specified color.



Within range: Set the temperature threshold and color for the range; areas within this temperature range will be filled and displayed in the set color.

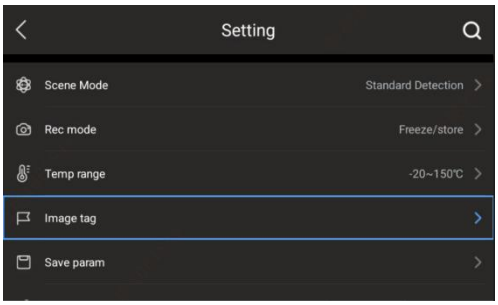


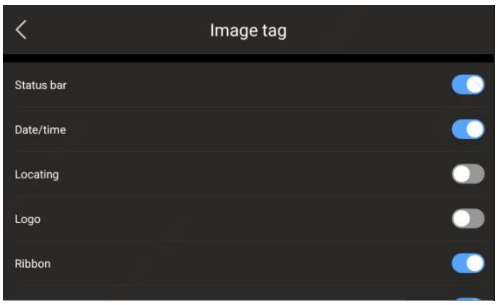
Outside the range: Set separate upper/lower temperature threshold values and colors; areas outside the temperature range will be filled and displayed in the set color.



2.5.9.Image tag

This device supports automatically overlaying a custom watermark on the thermal images and videos taken, with options to customize the activation time, status bar, color palette, and more. Once enabled, it automatically retains key information from the shots.
Steps: Go to the [Settings] - [Image Markers] page in the device menu bar, and turn on or off the corresponding watermark switch based on actual preview and storage needs.



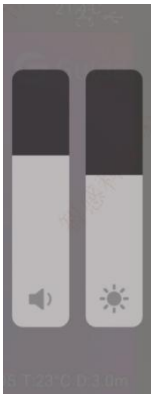


2.6. Lighting Settings

In dim or complex environments, lighting or lasers can be turned on to assist in observing the target.

2.6.1.LED lighting fixture

•Go to [Dropdown Menu] - [Lighting] and turn on the lighting switch.
•In the real-time preview interface, the lighting source can be turned on.



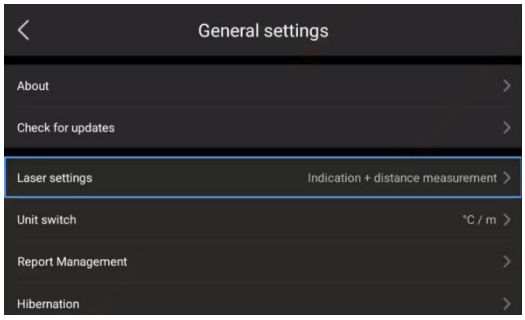
2.6.2.Laser

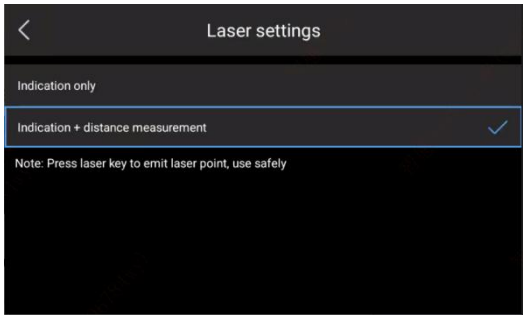
•Go to [General Settings] - [Laser Settings] to enable the laser pointer or distance measurement. Some device models support a laser pointer or laser distance measurement; please refer to the actual specifications of your device.

•In the live view interface, press  briefly or long to turn on the laser light source.

•If “Indicate + Measure Distance” is selected, pressing  briefly or longer will turn on the laser light while performing a rough distance measurement based on the center point position.

•The laser radiation emitted by the device may cause eye damage, skin burns, or ignite flammable materials. Before enabling the fill light function, ensure that there are no people or flammable materials in front of the laser lens.





2.7. Temperature measurement

This device can measure the temperature distribution across the entire scene, and it supports displaying temperature measurement area frames, center points, etc., simultaneously on the screen. You can improve the accuracy of temperature measurements by setting the measurement parameters.

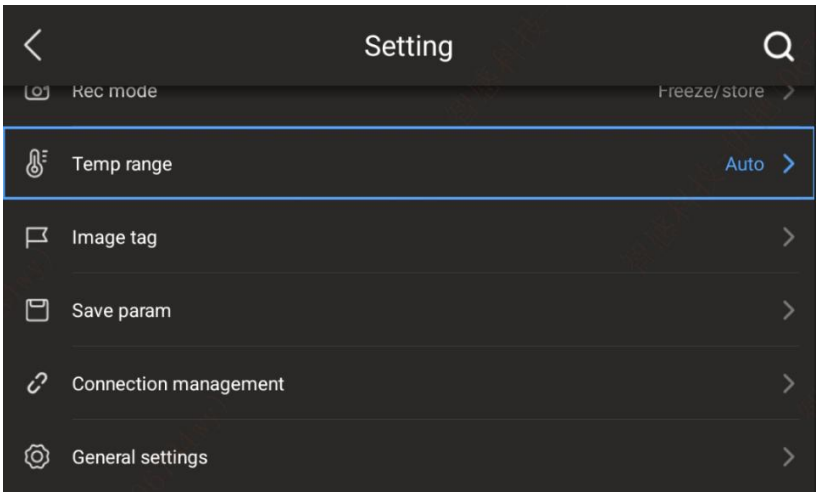
2.7.1.Temp range

This device is pre-set with multiple temperature measurement ranges; the available temperature range varies depending on the specific model.

• For accurate temperature measurement, select an appropriate measurement range based on the target object's temperature.

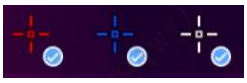
• If the temperature range of the object being measured is unknown or involves multiple different ranges, it is recommended to set it to “AUTO” mode; the device will automatically switch between different ranges based on the target temperature.

Go to [Quick Menu] - [Settings] - [Temp Range] to set the temperature measurement settings.



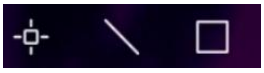
2.7.2.High temperature, low temperature, center point measurement

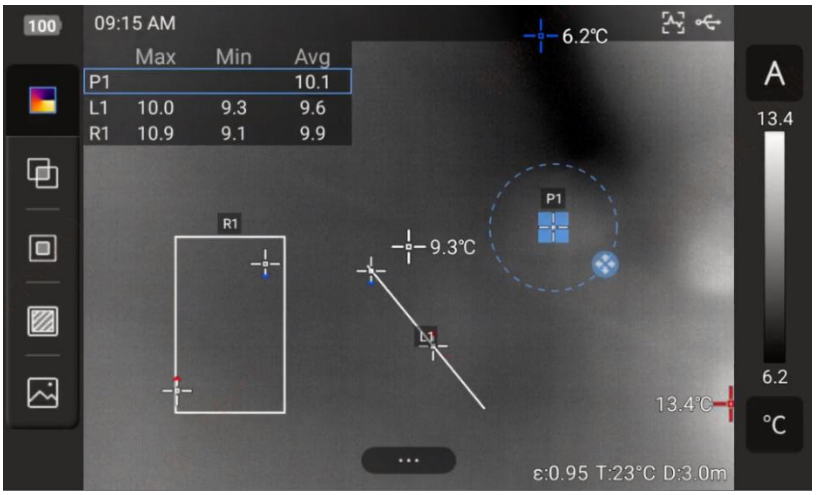
It automatically tracks high-temperature, low-temperature, and center-point targets in the full-screen area of the display, while showing positioning tracking markers and real-time temperature values.
Go to the main preview [Quick Menu] - [Analysis Object] to set the relevant information.



2.7.3.Point, line, and area measurement

The object being measured is displayed at the center of the screen, including points, lines, and areas. Its size and position can be adjusted freely. The real-time temperature value of the object is also shown, including the highest temperature, lowest temperature, and average temperature.

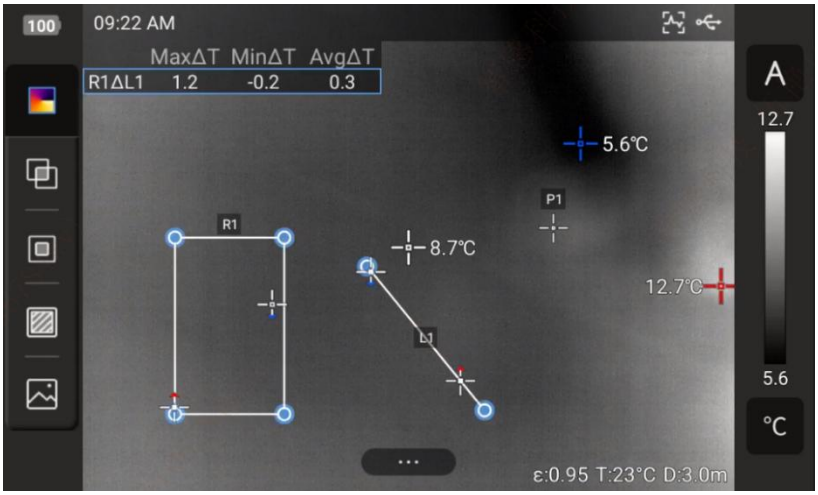




The number of objects that can be added varies depending on the device model; it is subject to the settings of the device itself.
Go to the main preview [Quick Menu] - [Analysis Object] to set the relevant information.

2.7.4.Temperature difference measurement

It supports manually adding analysis objects, enabling real-time calculation of temperature differences for two or more analysis objects.
Go to the main preview [Quick Menu] - [Analysis Object] settings to enable the temperature difference calculation mode.



Note: In scenario mode, if a temperature difference alarm is enabled, manual temperature difference calculation will not be available.

2.7.5.Area/Length Measurement

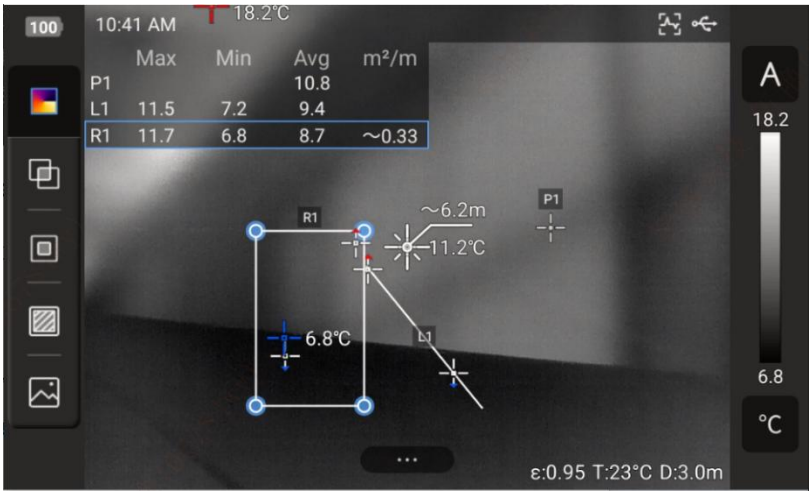
Only device models that support laser distance measurement have approximate calculations for area and line length. The actual functionality is subject to the specific capabilities of the current device.
Steps:

1）Go to [General Settings] - [Laser Settings] and enable laser distance measurement.

2）In the preview screen, long-press on the area analysis object;

3）Turn on the “Area” or “Length” switch;

4）In the preview screen, press the laser button briefly to perform a real-time approximate calculation of the area or line length.



2.7.6.Emissivity

Emissivity represents the ratio of a material's radiative capacity to that of a theoretical reference body at the same temperature (known as a “black body”). Its counterpart is reflectivity, which directly determines the proportion of energy emitted by the material itself compared to the energy reflected from external sources. The higher the emissivity, the stronger its infrared radiation capability; conversely, the lower the emissivity, the weaker its infrared radiation capability.

• Emissivity is the most critical measurement parameter that requires precise setting. If the emissivity value is set too low, the importance of the reflected temperature parameter increases significantly. When performing long-distance measurements, it is also necessary to pay attention to relevant parameters such as the target distance.

• If the parameter value is uncertain, it is recommended to use the default setting: 0.95

2.7.7.Reflect temp.

Reflective temperature (used to compensate for the ambient radiation energy reflected from the object being measured back to the thermal imager), this parameter is directly related to the object's reflectivity characteristics.

• If the emissivity of the object under test is low and its actual temperature is much lower than that of its reflector, the reflected temperature value should be set to the temperature value of the reflector (avoiding reflection interference as much as possible, if field testing conditions permit, can significantly improve measurement accuracy).

• If the parameter value is uncertain, it is recommended to use the default setting: 20℃

2.7.8.Target distance

Actual distance between the thermal imager and the target being measured. At short distances or distances less than the thermal imager's maximum accurate temperature measurement range, the target distance is usually set to the default value.

If the parameter value is uncertain, it is recommended to use the default setting: 3m

2.7.9.Atmos. temp

Atmospheric temperature: The air temperature between the thermal imager and the target object;
The atmospheric temperature value is usually set to the default value; this parameter only needs to be set when the atmospheric temperature is higher than the actual temperature of the target being measured.

2.7.10.Relative humidity

Relative humidity: The relative humidity of the ambient air in the environment where the target is located;
At short distances and normal humidity, the relative humidity is usually the default value.

2.7.11.Dew point

Dew point: The temperature at which air is cooled to saturation while keeping the water vapor content constant and the air pressure steady is called the dew point temperature;
The dew point value is automatically calculated using the formula and cannot be modified.

2.7.12.Temp alarm

After setting the alarm rules, when the temperature triggers the condition, the device will automatically issue an alarm and display the alarm indicator.

1）In the real-time monitoring interface, go to [Settings] - [Scene Mode] - [Temperature Alarm], and turn on the [Alarm Switch].

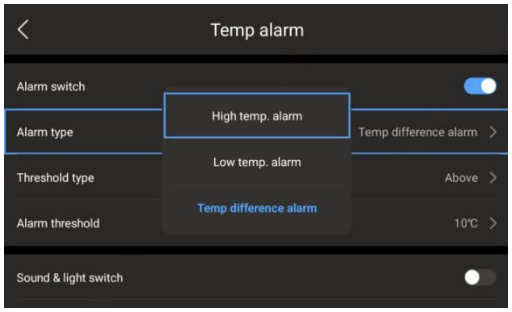
2）Select [Temperature Alarm] to enter [Alarm Type];

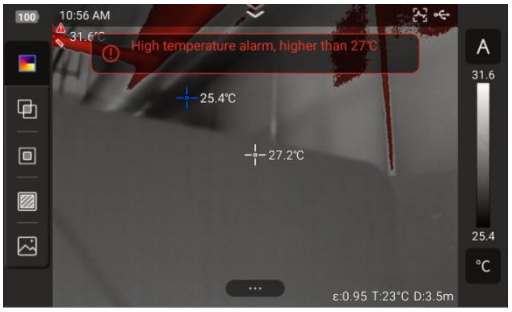
3）Select [High Temperature], [Low Temperature], or [Temperature Difference] to activate the alarm function;

4）Alarm color: When the warning threshold is triggered, the target exceeding the temperature threshold on the screen will be mapped to the set alarm color.

5）Sound and light: When the alarm threshold is triggered, a sound alarm and LED lighting flash are activated.

6）Alarm photo capture: Triggered by an alarm to take a scheduled photo.





Steps to set alarm rules:

1）Select [Temperature Alarm] to configure alarm rules;

2）Enter the temperature threshold for [High Temperature Alarm], [Low Temperature Alarm], or [Temperature Difference Alarm].
Target temperature under test:

Red: High-temperature alarm triggered when above the set threshold

Blue: Low-temperature alarm triggered when below the set threshold

Temperature difference alarm:

1）If no analysis target is specified, it automatically calculates the temperature difference between the highest and lowest temperatures across the entire screen; if this difference exceeds the set threshold, a temperature difference alarm is triggered.

2）If an analysis target is available, it automatically calculates the maximum and minimum temperatures of all analysis targets to determine the temperature difference. If this difference exceeds a set threshold, a temperature difference alarm is triggered.

2.8. Save or process image

Tip:
The device does not support photography or recording when displaying menus. When the device is connected to a computer for real-time video streaming, it is not possible to take photos, record videos, or make settings changes.

2.8.1.Take photo

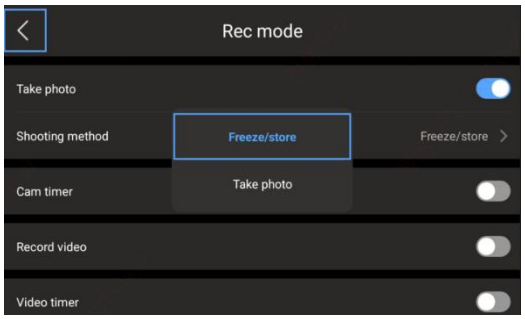
Preview the live feed; press the trigger button briefly to operate the device to capture the live image and save it to the local album.
The stored images include infrared and visible light images. The size of the visible light images can be set.

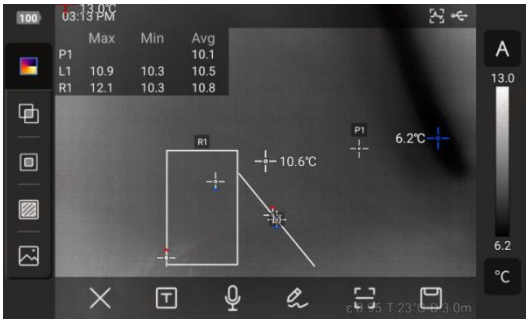
➢ Go to [Quick Menu] - [General Settings] - [Save Parameters] to set the visible light resolution size.

2.8.2.Freeze photo

In preview mode, a short press of the trigger button can freeze the image. In frozen mode, it is possible to quickly add text annotations, voice notes, doodle annotations, or sort images by scanning codes.

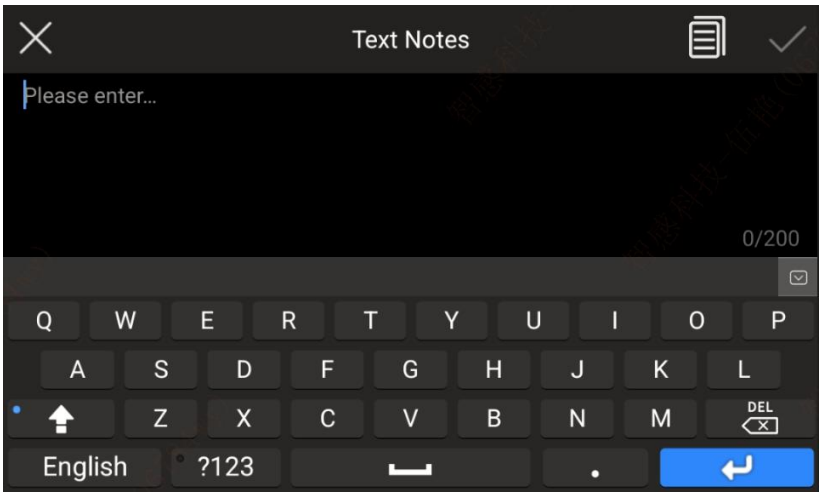
- Go to [Quick Menu] - [General Settings] - [Shooting Mode] to set the timer shooting mode. By pressing the shutter button briefly, the device will take photos at regular intervals and for the specified number of times.



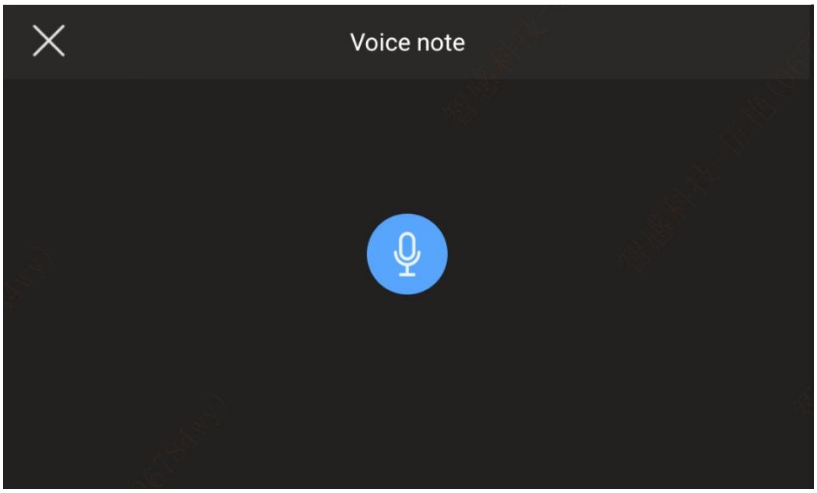


2.8.3.Image caption

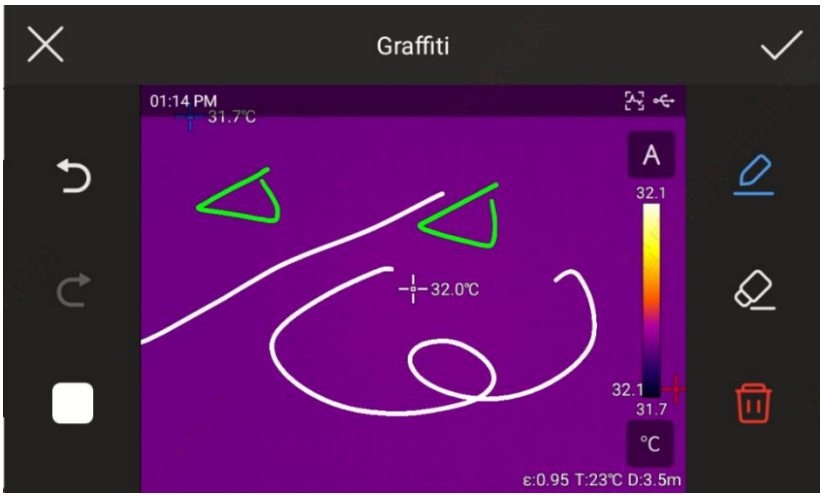
Add text annotations to images for easier organization of image data later. Custom text annotation templates are supported for one-click annotation.



Add voice annotation to images for easier subsequent data analysis and organization.



Add graffiti-style notes to images. Supports custom color markers to highlight problem areas.



Steps:

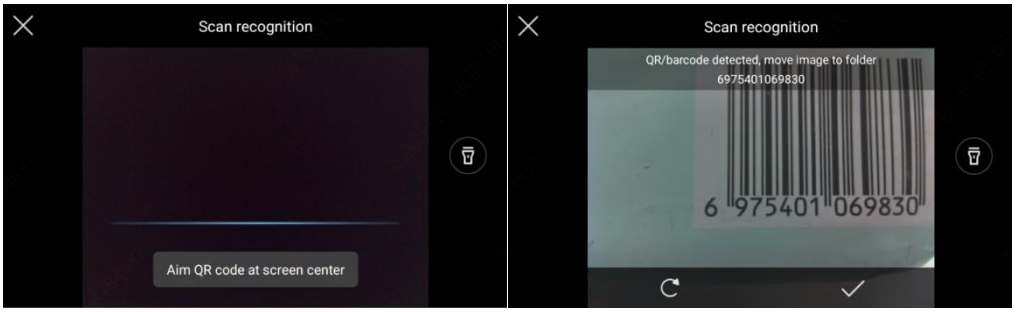
1）In preview mode, the shooting mode is set to freeze/photo

2）Press the trigger button briefly to freeze the frame, allowing for quick text, voice, or doodle notes.

3）Or go to [Gallery] to view detailed image information and add text, voice, or doodle notes.

2.8.4.Scan to categorize

When the target being scanned has asset information such as a QR code or barcode, the quick scanning function can be used directly to identify it and quickly obtain the target ID information. The system will automatically sort the image materials into the corresponding folders based on the identified ID, eliminating the tedious step of manual sorting and greatly improving the efficiency of material organization.



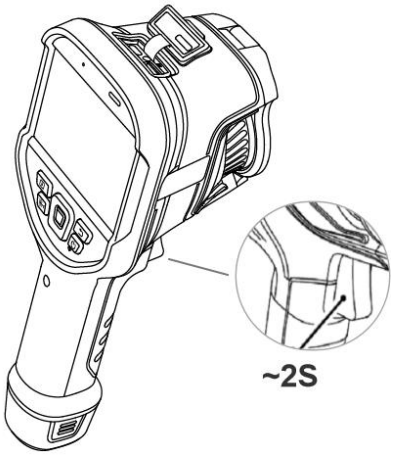
Steps:

1）In preview mode, the shooting mode is set to freeze/photo.

2）Press the trigger key and select [Scan to Categorize].

2.8.5.Record video

Preview the footage in real time; press and hold the trigger button to start recording. Press the trigger button again or the back button to save the video to your local album.



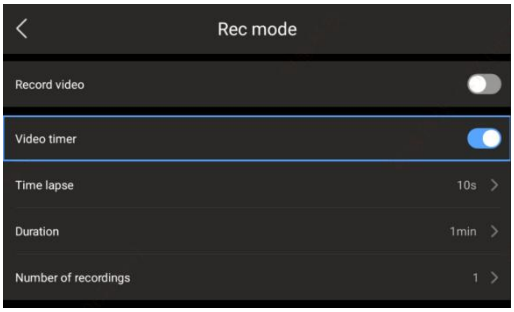
The stored videos include infrared videos and visible light videos. There are 2 video formats: irgd and mp4.

- Go to [Quick Menu] - [General Settings] - [Save Parameters] to set the infrared video format.

2.8.6.Video timer

In preview mode, a short press of the trigger button can initiate timed recording.

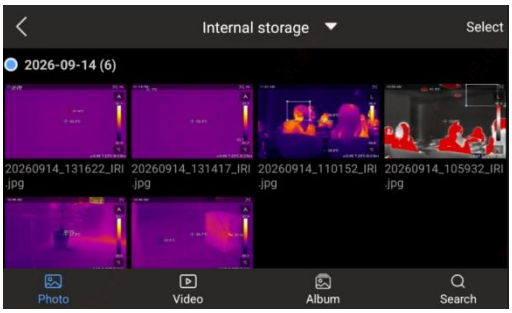
- Go to [Quick Menu] - [General Settings] - [Recording Mode] to enable the timed recording mode. Press the shutter button briefly, and the device will record at the set delay time, duration, and number of times.

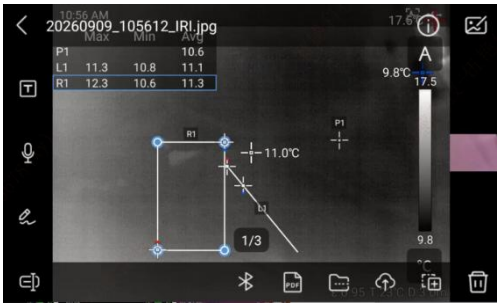




2.8.7.View/Remove File

Photos and videos taken by the device are automatically saved to the local album. Press the gallery button briefly to perform the following a
ctions: • Browse files
• Delete file





Steps:

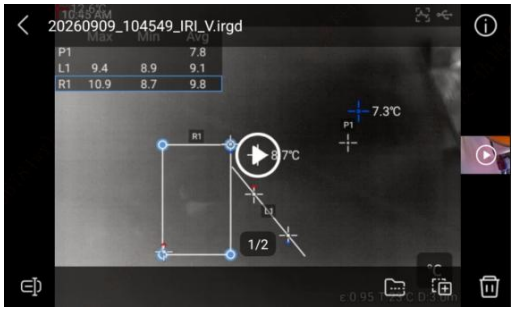
1）Preview the image in real time. Press the gallery button briefly to enter the gallery preview interface.

2）Press briefly on  to select and view image or video files

View images: Supports viewing accompanying visible light or infrared images. It also allows renaming the currently previewed image, transmitting it via Bluetooth, generating reports, cutting and moving it, and uploading it to the cloud. Additionally, it supports adding text, voice notes, and doodle annotations to images.

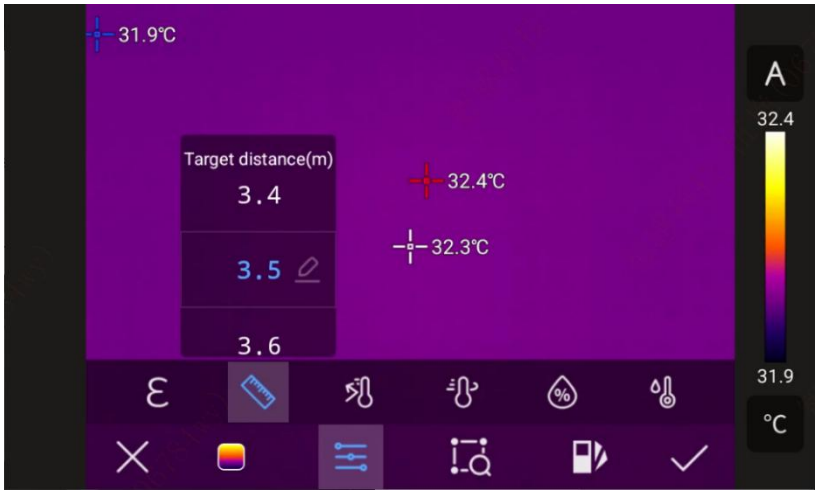
View video: Support playing/pausing or deleting videos.





2.8.8.Edit file

Photos and videos taken by the device support local secondary analysis. This includes operations such as changing color palettes, temperature measurement parameters, drawing analysis objects, and isotherms.



Steps: Go to the [Gallery], switch to large image preview mode, and click .

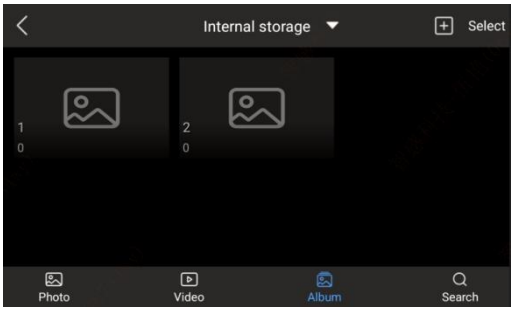
2.8.9.Album Management

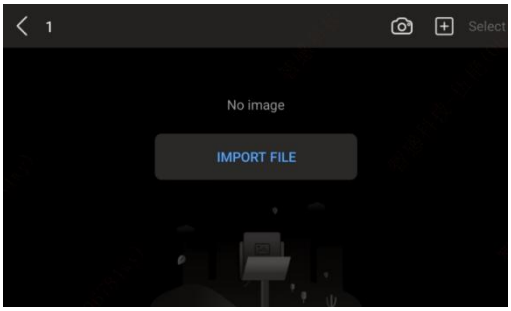
Local album management is supported, allowing you to categorize images or video files taken by the device and quickly organize them into specified folders. The following operations can be performed:

• Create new album: Supports quick creation of folders via keyboard or scanning a code.

• Move files: Move local pictures or videos to a specified album.

• Take photos in albums for quick categorization: Enter the album folder and click . While taking photos or recording videos, the image or video files will be automatically categorized into this folder, eliminating the need for cutting or moving them.





Steps:

1） Press the gallery key briefly to enter the gallery preview screen

2） Go to [Album], click to enter a specific album, and then you can perform operations.

2.8.10.Export file

- Exported through analysis software

If the device supports WiFi and AP hotspot functions, the file can be downloaded and saved locally using the air import feature in PC analysis software.

Steps:

1）Launch the PC analysis software;

2）Enable AP hotspot mode on the device side;

3）Computer network connection to device AP hotspot;

4）Select the target file in the PC analysis software, then click the Download button to save it locally for viewing.

- Export via computer

Steps:

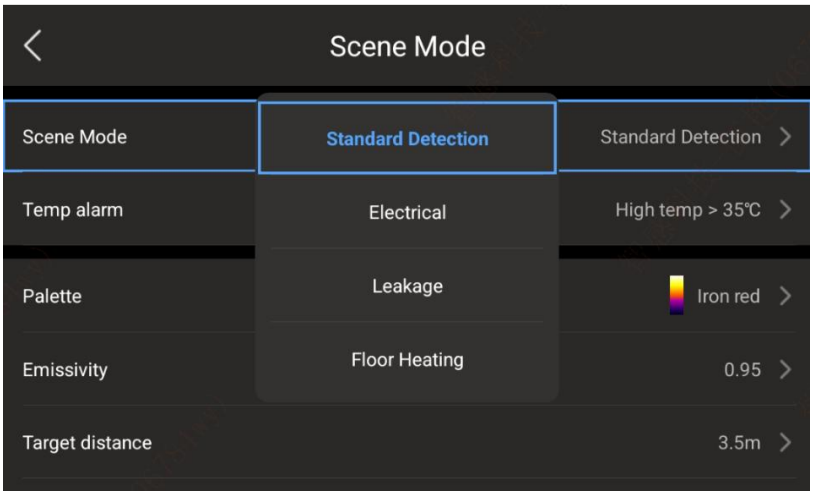
1）Connect device: Use the included data cable to connect the device to the computer;

2）Copy file: Open the disk of the recognized device on your computer, and copy and paste the video or image file to your local computer for viewing.

2.9. Setting

2.9.1.Scene mode settings

The device pre-configures 4 scene modes, which can be set and modified according to different actual detection scenarios. Under normal circumstances, no changes are required.



Steps: Go to [General Settings] - [Scene Modes] to make the settings.

- 1) Set standard detection: Initialize default parameters, suitable for most general detection scenarios. Parameter values can be customized according to the specific target scenario and saved. Includes palette, emissivity, distance, reflected temperature, etc.

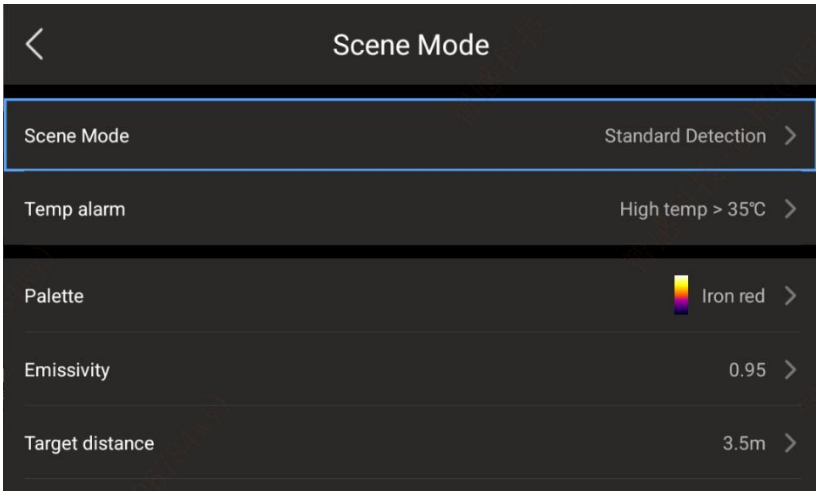
In standard detection mode, only high-temperature alarm and low-temperature alarm settings are supported. Alarm linkage includes: alarm color, sound and light, and alarm photography.

• Alarm color: When the warning threshold is triggered, the target exceeding the temperature threshold on the screen will be mapped to the set alarm color.

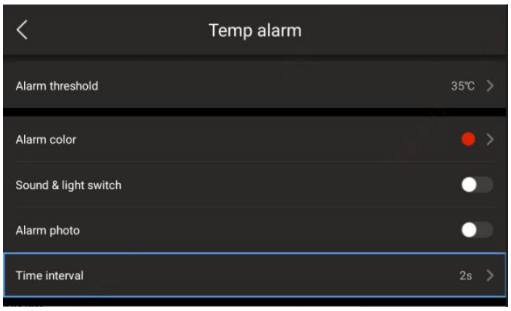
• Sound and light: When the alarm threshold is triggered, a sound alarm and LED lighting flash are activated.

• Alarm photo capture: Triggered by the alarm for scheduled photo taking.

Steps: Go to [General Settings] - [Scene Mode] - [Standard Detection] to enter the parameter settings.



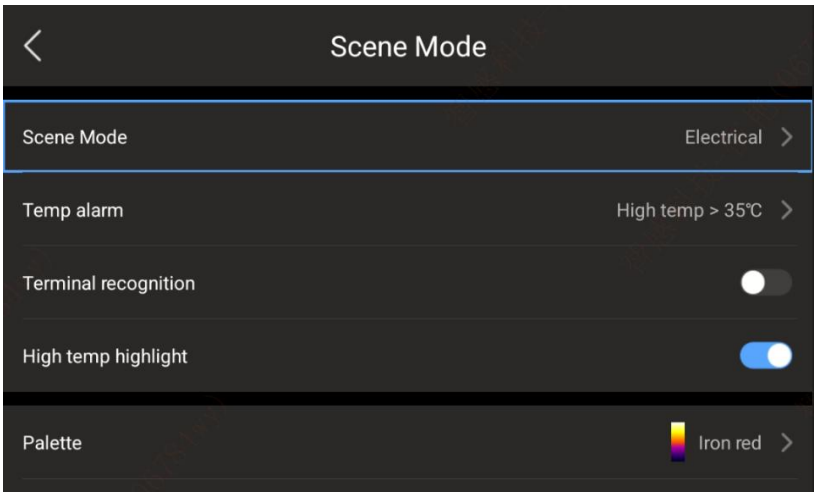


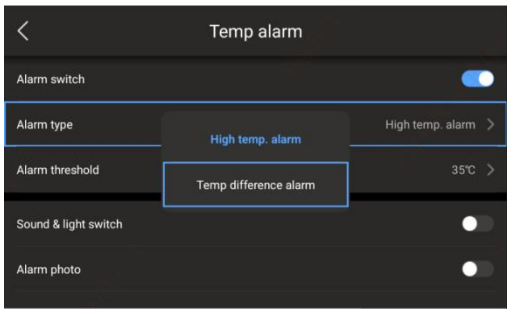


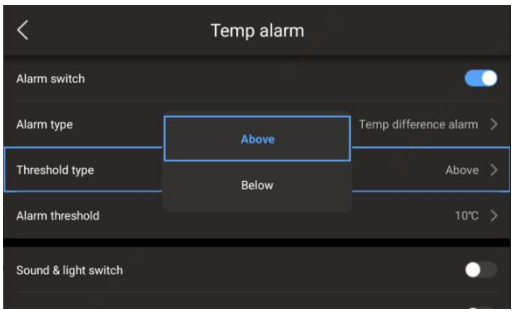
- 2）Set electrical testing:

In electrical detection mode, only high-temperature alarm and temperature difference alarm are supported. Alarm actions include: audio and visual alerts, as well as alarm photography.

Steps: Go to [General Settings] - [Scene Modes] - [Electrical] to enter the parameter settings.





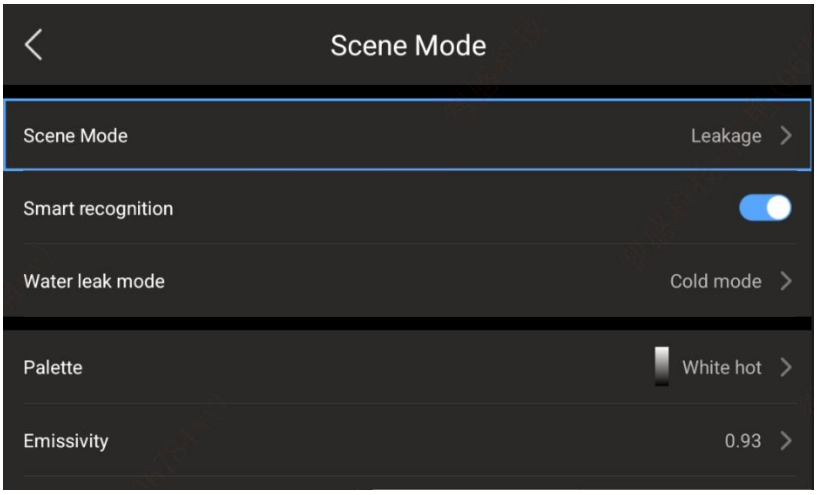


- 3) Set up leak detection:

In leak detection mode, intelligent recognition is supported, and it is also possible to enable cold mode or hot mode detection. In cold mode, low-temperature areas are highlighted, while in hot mode, high-temperature areas are highlighted.

When intelligent leakage detection is triggered, the real-time preview will trigger an alarm for a suspected leakage fault.

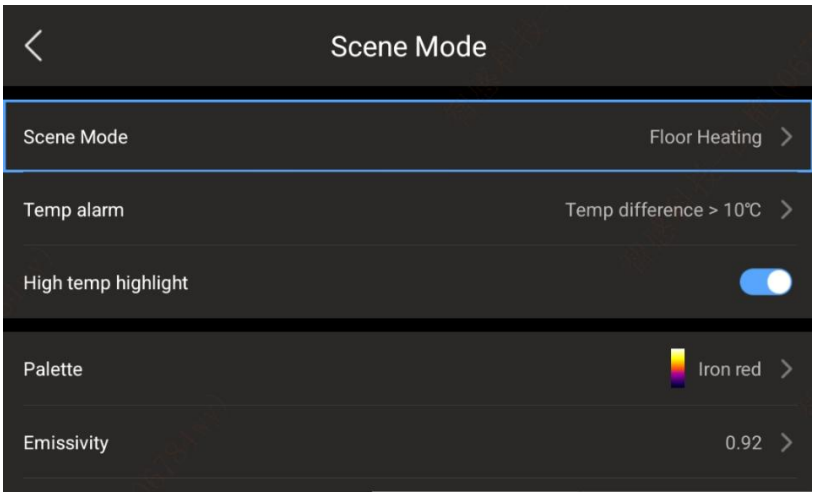
Steps: Go to [General Settings] - [Scene Modes] - [Leakage Detection] to enter the parameter settings.

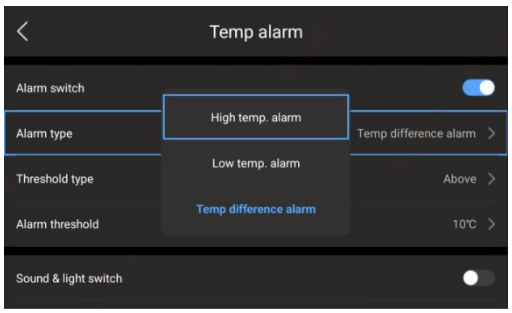


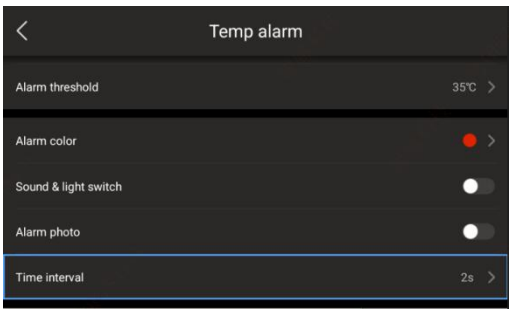
- 4）Set up floor heating detection:

In the floor heating detection mode, it supports high-temperature alarm, low-temperature alarm, and temperature difference alarm. It also enables high-temperature highlighting. Alarm actions include sound and light alerts, as well as alarm photo-taking.

Steps: Go to [General Settings] - [Scene Modes] - [Floor Heating Detection] to enter the parameter settings.







Note: In scenario mode, when the temperature difference alarm is enabled, manual temperature difference mode cannot be used.

2.9.2.Rec mode

The device supports 4 shooting modes: photo, timed photo, video recording, and timed video recording.

• Photography: In photo mode, it supports single-frame photography storage and frozen-frame photography storage.

• Scheduled photography: In scheduled mode, set the timing and the number of photos to take. Photos will be automatically saved at the set time and according to the specified count; once the total number of photos is reached, scheduled photography stops.

• Recording: In single-recording mode, set the delay time, duration, and number of recordings. Multiple recordings are supported.



2.9.3.Save param

Supports custom storage for device infrared video formats, frame rate, file naming conventions, etc.
In the real-time preview interface, go to [Quick Menu] - [General Settings] - [Save Parameters] to set the relevant information.

- 1) Set the infrared video storage format, including 2 options: irgd/mp4.

irgd: A video encoding format with temperature data; supported for analysis by software.
mp4: A video encoding format without temperature data.

- 2) Set the visible light resolution.

The visible light storage resolution can be set.
AUTO: When storing infrared and visible light images, it attempts to maintain consistent fields of view as much as possible.

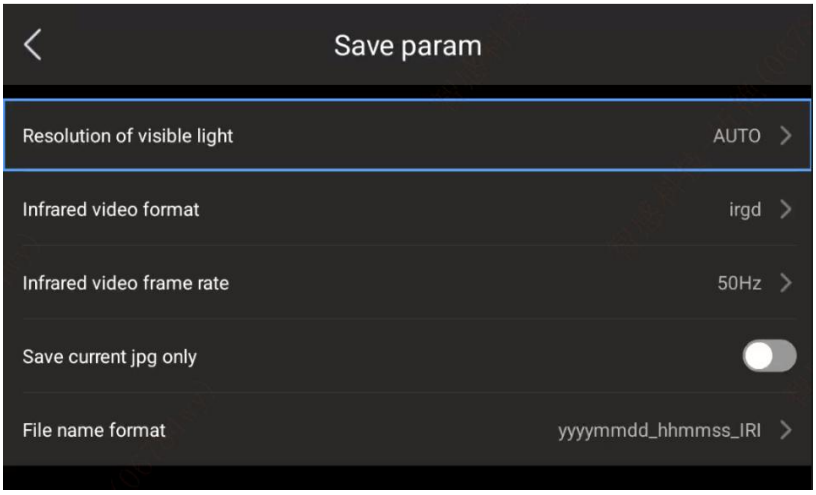
- 3）Infrared frame rate

Store infrared video with temperature data, frame rate is adjustable.
Note: Depending on the device's storage method, the maximum frame rate that can be stored varies; the actual value is subject to what can be set on the device display.

- 4）Save only the current JPG

With the switch on, it can be set to save only the image in the current preview mode when saving pictures.

- 5) File naming format, including 2 types: by time/by sequence number.



2.9.4.Connection Management

- 1）Cloud services

(This feature is available on only some product models.)
Used for image uploading, storage, and sharing; users upload their photos and videos to the cloud for easy access and management at any time.
After the device is connected to the network, it can register/log in to the “Cloud Service” to upload images from this device to the cloud.

- 2）Wi-Fi

(This feature is available on only some product models.)
Connect the device to a wireless LAN via Wi-Fi, primarily for data transfer and OTA updates.
Turn on the Wi-Fi switch, search for nearby networks, select the network you want to connect to, enter the password, and then connect.
Note: To ensure a stable Wi-Fi signal and reliable data transmission, please keep the connection distance within 10 meters and free of obstacles such as walls.

- 3）Network connection

(This feature is available on only some product models.)
Through a network connection, it enables features such as real-time video streaming, data transmission, and OTA updates.
(1) Personal hotspot: Set the device hotspot name and password to enable mobile phones and PC analysis software to remotely access images from the device.
(2) Supports connecting to mobile phones and PC analysis software via AP:
① AP connection
1) Go to the quick settings page of the sliding panel and turn on the “AP” switch;
2) Connect to this device’s hotspot using a smartphone/computer (the TCP/IP settings on the computer should be set to “Obtain automatically”).
3) On the mobile or PC analysis software, click “Connect Device” and select the “AP” mode to load, thereby completing video streaming and wireless connection.

- 4）Bluetooth

After connecting to a device via Bluetooth headphones, it supports voice annotations on images, as well as connecting to other devices for Bluetooth image transfer. (This feature is available only on certain product models.)
(1) Turn on the Bluetooth headphones and enter pairing mode by following the device pairing steps;
(2) Turn on the Bluetooth switch; the system will automatically search for Bluetooth devices, and select the Bluetooth headphones from the device list to pair.
(3) After pairing is complete, the headphones will attempt to reconnect each time they are turned on.
Note: For compatibility reasons, please try to choose well-known brands.

2.9.5.General Settings

- Laser settings (available on some device models)

Laser pointing and distance measurement are supported.
In the real-time preview interface, go to [Quick Menu] - [General Settings] - [Laser Settings] to set the relevant information.

- Unit switch

Implement settings for temperature units and distance units.
In the real-time preview interface, go to [Quick Menu] - [General Settings] - [Unit Settings] to set the relevant information.

- Report Management

Implement report template management. Initialize report titles, headers, footers, and report templates.

- Hibernation

Set the auto-shutdown or auto-sleep duration when the device is not in use.

- Date/time

Implement device system date and time update settings. Supports 12H/24H format.
In the real-time preview interface, go to [General Settings] - [Date and Time] to set the relevant information.

- Language settings

Implement device system language settings.
In the real-time preview interface, go to [Quick Menu] - [General Settings] - [Language] to set the relevant information.

- Storage management

Displays the capacity of the internal storage device and information about the external SD card, with support for customizing storage options.
Note: Due to software compatibility issues, not all SD cards from various brands on the market can be used; it is recommended to use the SD card that comes with the device.

- Restore factory setting

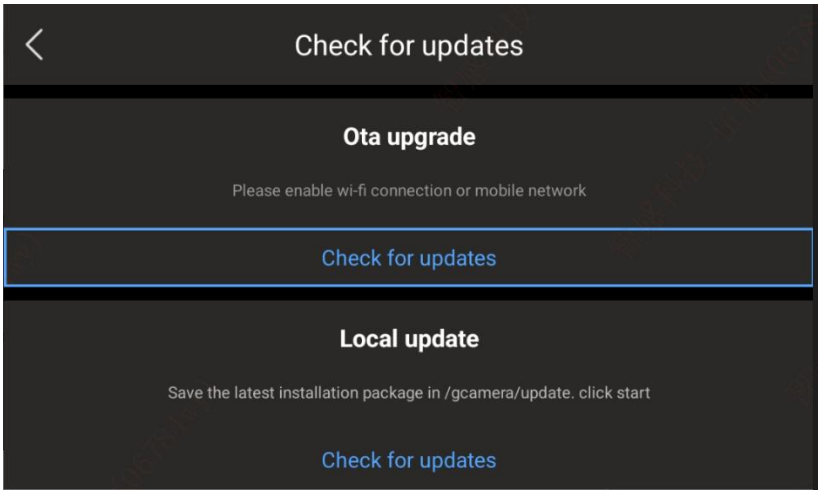
By resetting the parameter settings, the parameters will be restored to their pre-manufacturing state. Please back up your data promptly and proceed with caution.
In the real-time preview interface, go to [Quick Menu] - [General Settings] - [Reset to Factory Settings] to set the relevant options.

- Format

Delete all images, videos, and other files saved on the current device.
Note: Formatting will permanently delete all images and other data, please proceed with caution.
In the real-time preview interface, go to [Quick Menu] - [General Settings] - [Formatting] to set the relevant options.

2.10. Check for updates

Check the device version update status; OTA and local upgrades are supported.
In the real-time preview interface, go to [General Settings] - [Check for Updates] to set the relevant information.



2.10.1.Local update

Place the upgrade package provided by the manufacturer in the designated device storage directory for local upgrading.
Steps:

1）Connect the device to the computer using a data cable;

2）Place the upgrade package in the /Update directory;

3）On the device, click “Check for updates” to detect if there is the latest upgrade package;

4）On the device, click “Upgrade Install”. After the upgrade is complete, restart the device to update it to the latest version.

2.10.2.Ota upgrade

OTA updates can be performed when the device is connected to the Internet via WiFi.

Steps:

1）Go to [General Settings] - [Connection Management] - [WiFi] to connect the device to the network, click “Check for Updates”, and a latest update package will be detected;

2）Click “Download and Install”, restart the device after the upgrade is complete, to update to the latest version.

Note: An OTA update requires an active internet connection, and the device should have sufficient battery power during the update process. If you have any questions regarding the update, please contact the device manufacturer promptly.

2.11. Connect the device to the analysis software

2.11.1.AP Mode

Enable a device-side hotspot via AP mode, primarily for data transmission, to push the real-time infrared video stream from the device to the infrared analysis software on the PC.

In the real-time preview interface, swipe downward from the top of the screen to enter [Swipe Down Panel] – [AP Mode]. Enable AP to set the relevant information.

Note: In AP streaming connection mode, accessing [Settings] is not supported.



Steps:

1）Go to the device side [Scroll down panel] - [AP Mode] to turn on the AP and hotspot switches;

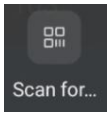
2）Search for the device’s WiFi name on a PC or mobile device, enter the hotspot password, and connect to the device’s wireless hotspot;

3）Start the infrared analysis software on PC or the mobile app to connect to the device, enabling functions such as real-time video streaming and remote data import.

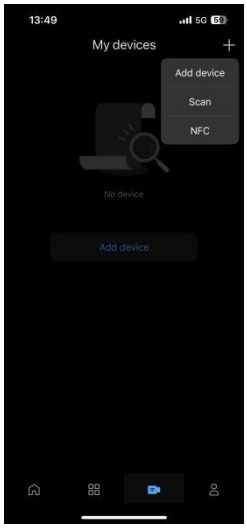
2.11.2.Scan for connection

It enables quick connection between the device and mobile apps for data transfer, pushing real-time infrared video streams from the device to the infrared analysis software in the app.

In the real-time preview interface, go to [Downward Panel] - [Scan to Connect] to set the relevant information.







(APP)

Steps:

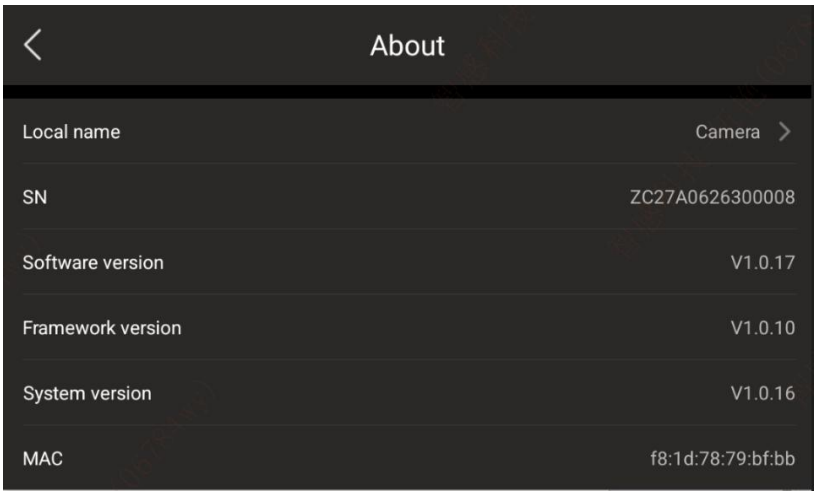
1）Go to the device side [Scroll Down Panel] - [Scan to Connect] to open the QR code;

2）Launch the mobile app analysis software and use the [Scan] function to scan this QR code;

3）After successful scanning, connect to the device to enable communication between the mobile app and the device, facilitating data transfer functions such as video streaming and remote access to the photo album.

2.12. About Devices

Go to [General Settings] - [About This Device] to view detailed information about the device, including firmware version, serial number, etc.



2.13. About client software (if applicable)

Camera models that support Wi-Fi and hotspot functions can connect to PC analysis software and

mobile apps. Scan the QR code to download the app, and you can enjoy features such as real-time preview, snapshot capture, and video recording.
Not all device models in this series support the mobile applications, software, and all their functions mentioned (or not mentioned) in this manual; please refer to the user manuals of each application for specific compatibility details.

2.14. Lens protection

To protect the device's lens, the lens cover is activated before leaving the factory. Remember to remove it before use.

2.15. About Calibration

To ensure device accuracy, we recommend sending it back for professional calibration once a year. For information on maintenance centers, please contact your local dealer.

2.16. About Maintenance

Troubleshooting: If the product malfunctions, please contact the distributor or the nearest service center immediately. The company shall bear no responsibility for issues resulting from unauthorized repair or maintenance.
Cleaning method: If necessary, gently wipe the device surface with a clean, soft cloth.
Usage Guidelines: Using the device in a manner other than that specified by the manufacturer may result in the failure of its protective functions.

3. Appendix

3.1. Table of Emissivity for Common Objects

Material	Emissivity
Wood	0.85
Water	0.96
Brick	0.75
Stainless steel	0.14
Tape	0.96
Aluminum plate	0.09
Copper plate	0.06

Black Al	0.95
Human skin	0.98
Asphalt	0.96
PVC	0.93
Black paper	0.86
Polycarbonate	0.8
Concrete	0.97
Copper oxide	0.78
Cast iron	0.81
Rust	0.8
Plaster	0.75
Paint	0.9
Rubber	0.95
Soil	0.93

3.2. Common Troubleshooting Guide

Fault symptoms	Reason	Measures
Cannot boot up	Battery low	Recharge before using the battery again
	The plug of the external power supply is not properly inserted.	Unplug the power cord, reinsert it, and push it in fully.
The device shut down suddenly.	Auto-shutdown enabled	The auto-shutdown interval is set to never shut down
The battery level indicator differs significantly from actual usage.	Battery power depleted	Charge via data cable
	Battery life has expired	Replace with a new battery
The infrared image is unclear.	The lens is fogged or contaminated	Use professional equipment to clean the lens
	The temperature measurement range is incorrect.	The correct temperature measurement mode was not selected; switch back to the appropriate mode.
The visible light image is not clear.	The environment is too dark.	Take appropriate lighting measures
	The visible light lens has water mist or is	Use professional equipment to clean visible-light lenses

	contaminated	
Inaccurate temperature reading	The parameter settings related to temperature measurement are incorrect.	Change the parameter settings, or directly restore the default parameter values
	Measure temperature immediately upon startup	To ensure accurate temperature measurement, we recommend waiting 5 to 10 minutes after turning on the thermal camera before starting the measurement
	Not calibrated for a long time	To obtain accurate temperature measurement results, we recommend calibrating it once a year
The file cannot be saved.	Insufficient remaining storage space	Delete image and video files from the gallery