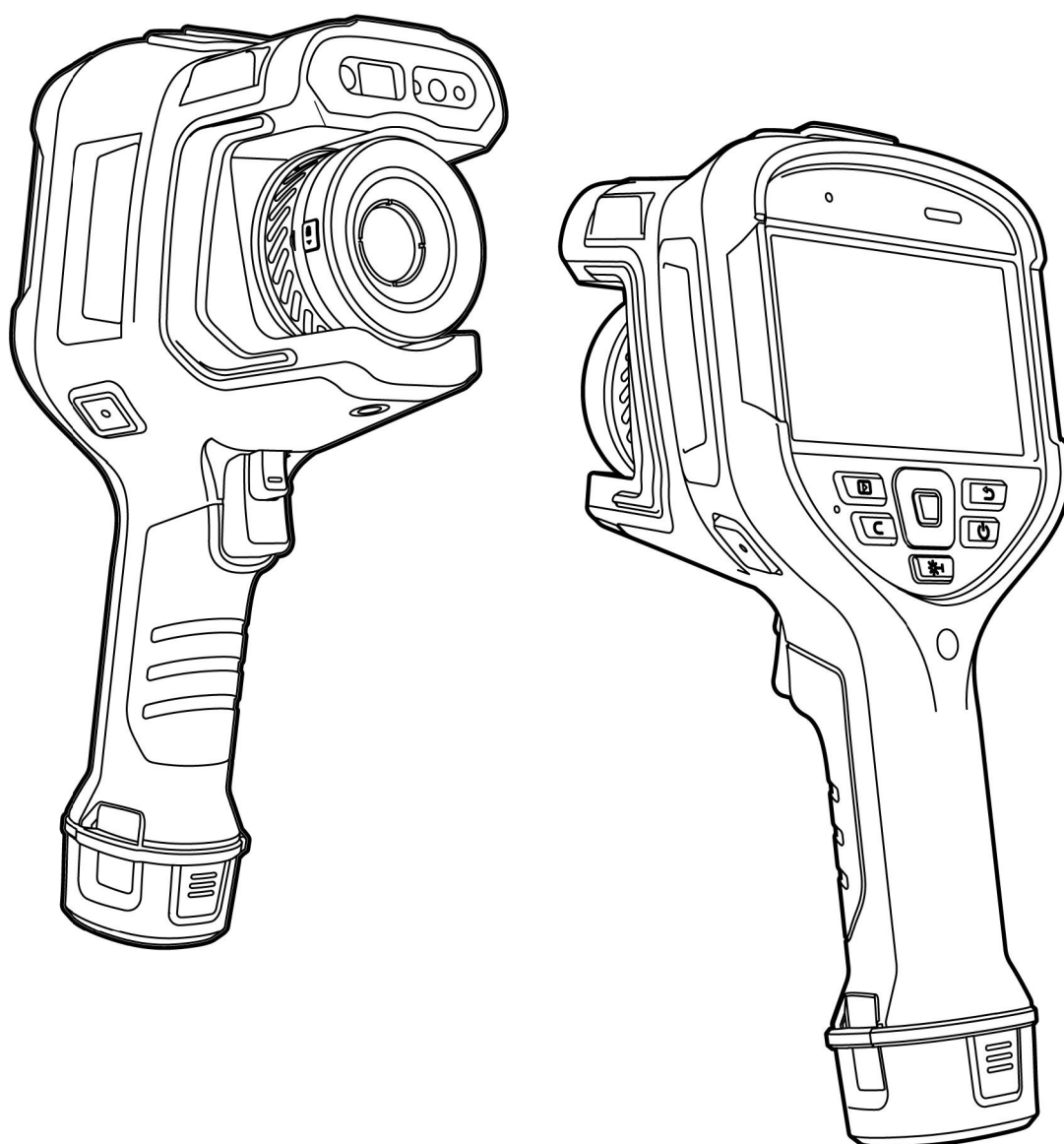


INTELLIGENT ***THERMAL CAMERA***

USER GUIDE



Thank you for choosing this product. Please read this Guide carefully before use and keep it properly for future reference. We hope you'll be satisfied with this product.

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1. Important

This manual is a general manual for this series of products, which means that the specific model product you receive may be different from the manual pictures. Please refer to the actual product received .

This manual is compiled for the convenience of users to use and understand our company's products . We will do our best to ensure the accuracy of the contents of this manual, but we cannot guarantee the completeness of the contents of this manual. Because our products have been continuously updated and upgraded, our company reserves the right to modify them at any time without prior notice .

2. Storage and transportation

Storage: The packaged products should be stored in a well-ventilated and clean room with a temperature between -40℃ and 70℃, a relative humidity not exceeding 95%, no condensation and no corrosive gases.

Transportation: During transportation, the product should be protected from rain, water immersion, and inversion. It should not be subjected to severe vibration and impact. It should be handled with care and is strictly prohibited to drop it.

3. Precautions

3.1. Danger

- 1) Please charge the battery according to the instructions in the quick operation guide and follow the charging steps and precautions. Improper charging may cause the battery to heat up, damage or even cause personal injury;
- 2) Do not attempt to open or disassemble the battery at any time. If the battery leaks and liquid enters the eyes, rinse the eyes immediately with clean water and seek medical care.

3.2. warn

- 1) Please try to keep the device stable when using it and avoid violent shaking;
- 2) Do not use or store the device in an environment where the operating temperature or storage temperature exceeds the permitted temperature of 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 in the device;
- 5) Do not knock, throw or vibrate the device and accessories to avoid damage;
- 6) Do not disassemble the device by yourself, as this may damage the device and void the warranty.
- 7) Do not wipe the device or cables with solvents or similar liquids, as this may cause damage to the device;
- 8) Please follow the steps below when wiping this device:
 - Non-optical surfaces: wipe with a clean, soft cloth when necessary;
 - Optical surface: When using the device, please avoid dirtying the optical surface of the lens, especially avoid touching the lens with your hands, because sweat on your hands will leave marks on the lens glass and may corrode the optical coating layer on the glass surface. When the optical lens surface is contaminated, it needs to be wiped carefully with professional lens paper.
- 9) Do not place the battery in a high temperature environment or near high temperature objects;
- 10) Do not short-circuit the positive and negative terminals of the battery;
- 11) Do not expose the battery to moisture or water.

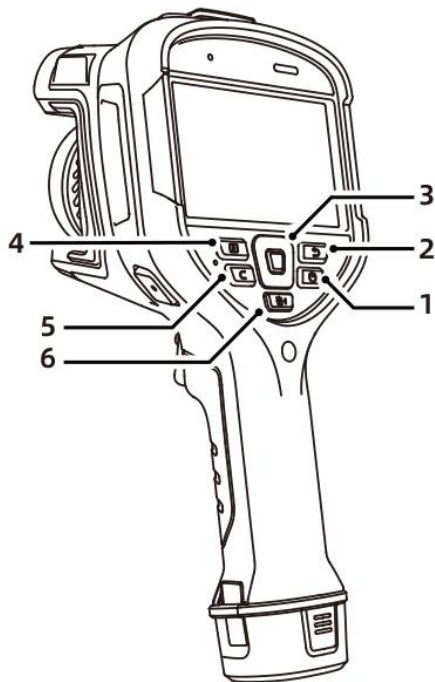
3.3. Notice

- 1) Do not expose the device to dusty, humid, or corrosive environments ;
- 2) When the device is not in use, please place it and all accessories in a dedicated packaging box ;
- 3) When the device is not used for a long time, it should be recharged every 3 to 6 months to maintain the activity of the battery;
- 4) Avoid using the SD card in this device for other purposes.

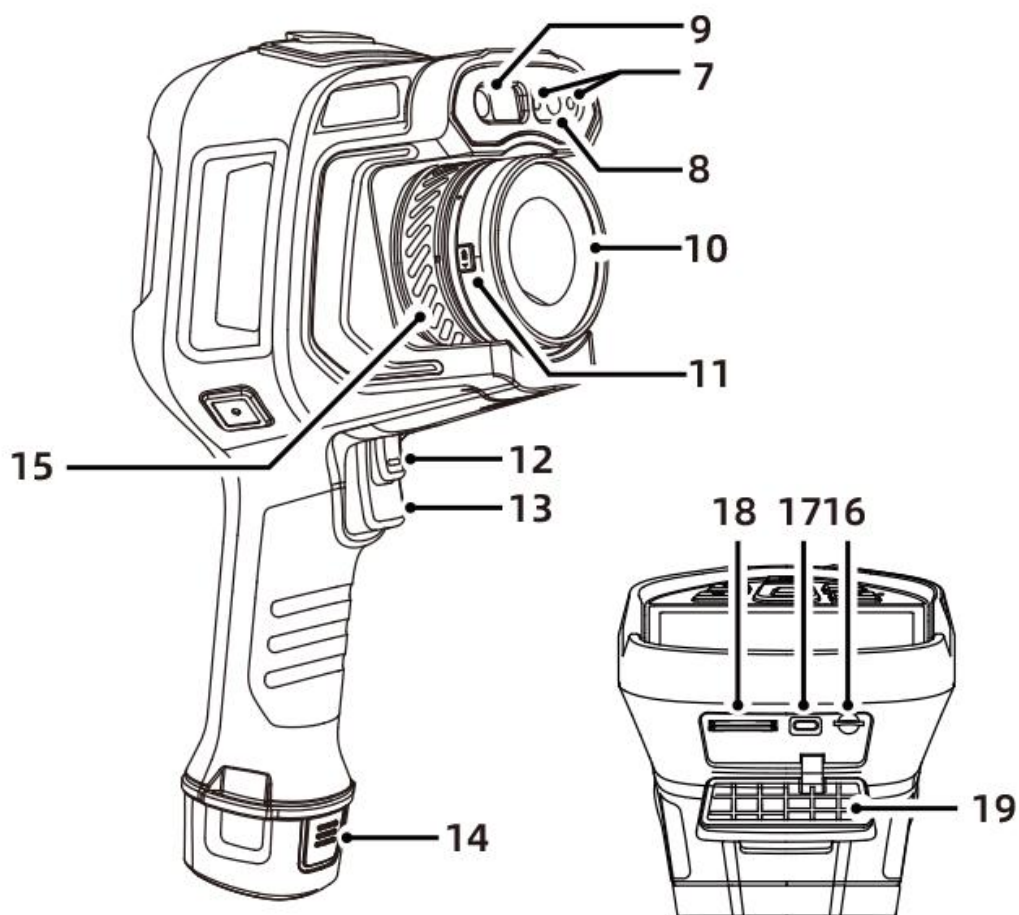
4. Product Introduction

This is a high-precision infrared temperature measurement thermal imager developed specifically for the industrial field . It uses a high-sensitivity, high-resolution infrared detector to provide clearer infrared images and higher temperature measurement accuracy. It simultaneously collects visible light and infrared images, supports multiple image modes such as picture-in-picture and MIF, and highlights key observation positions. With a large-screen display and a detachable lens structure, it is easy to use and powerful .

4.1. Appearance



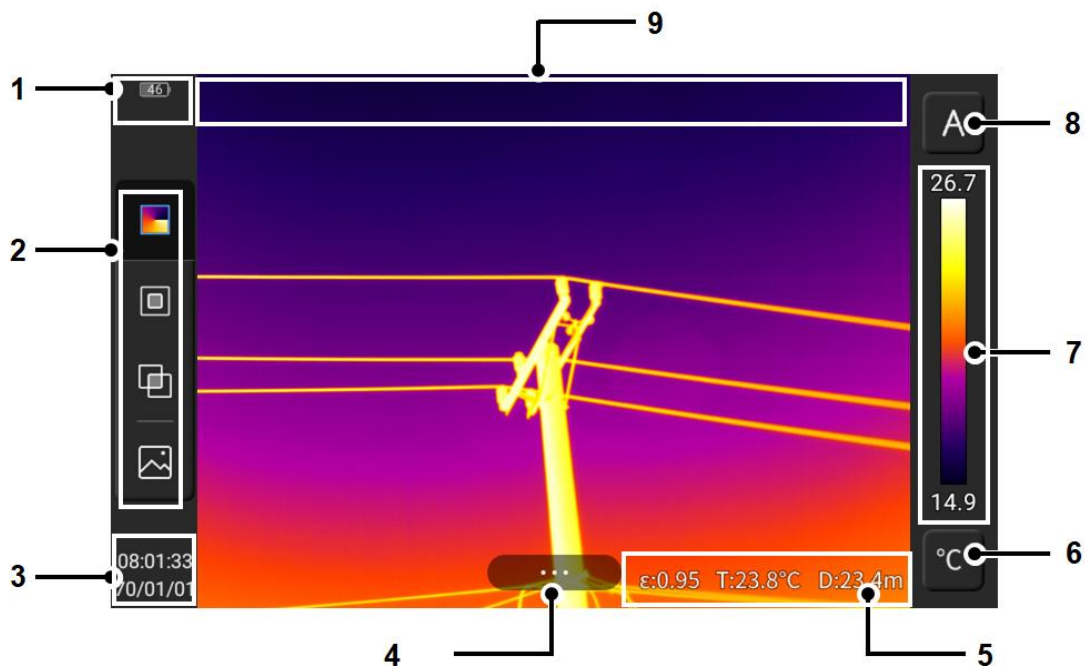
- 1 Power button
- 2 Back key
- 3 Five-way key
- 4 Gallery Key
- 5 Assist Keys
- 6 Laser Key



7	Lighting	14	Battery
8	Visible light camera	15	Focus ring
9	laser	16	SIM card slot (supported by some devices)
10	Infrared lens	17	Type-C port
11	Change lens button	18	SD card slot
12	Focus key	19	Silicone cover
13	Camera button		

4.2. Main interface

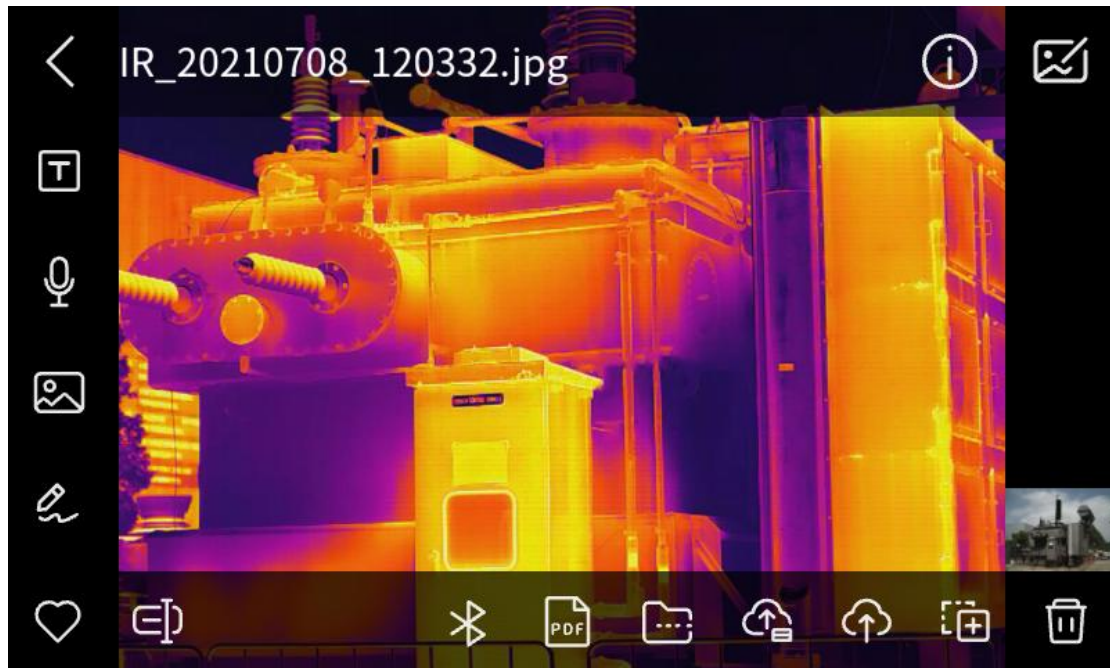
4.2.1. Observation



- (1) Status bar: displays battery power, 4G network (supported by some models), Wi-Fi, positioning status, etc.
- (2) Image mode: from top to bottom: infrared, picture-in-picture, image fusion, visible light;
- (3) Time and date: Display device time and date;
- (4) Quick menu: supports color palette, temperature measurement parameters, adding analysis objects, isotherms and other settings;
- (5) Image tag/image watermark: Image tag refers to the watermark information displayed on the preview screen during real-time observation, and image watermark refers to the watermark information superimposed when saving the image;
- (6) Unit: temperature unit setting;
- (7) Palette: Palette settings;
- (8) LevelSpan mode: supports automatic mode (A), manual mode (M), semi-automatic mode (S), and regional dimming mode (L);
- (9) Quick Settings: Supports Wi-Fi, Bluetooth, lighting and other settings.

4.2.2. Gallery

Press the "Gallery Key" to enter the gallery, which supports operations such as viewing image information, analyzing images, and deleting .

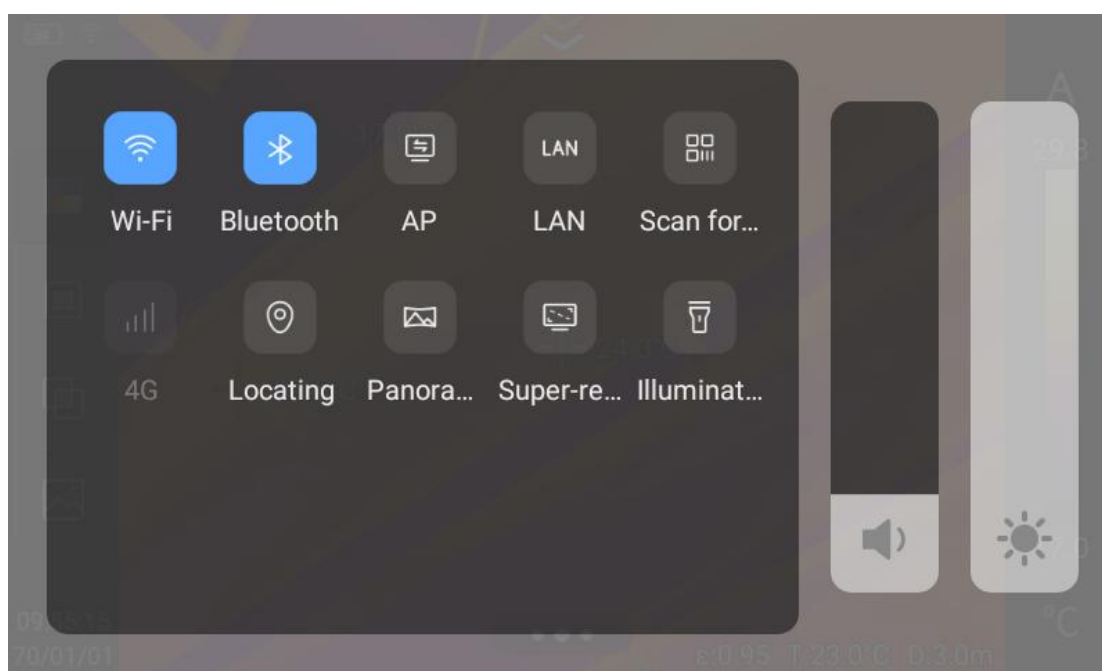
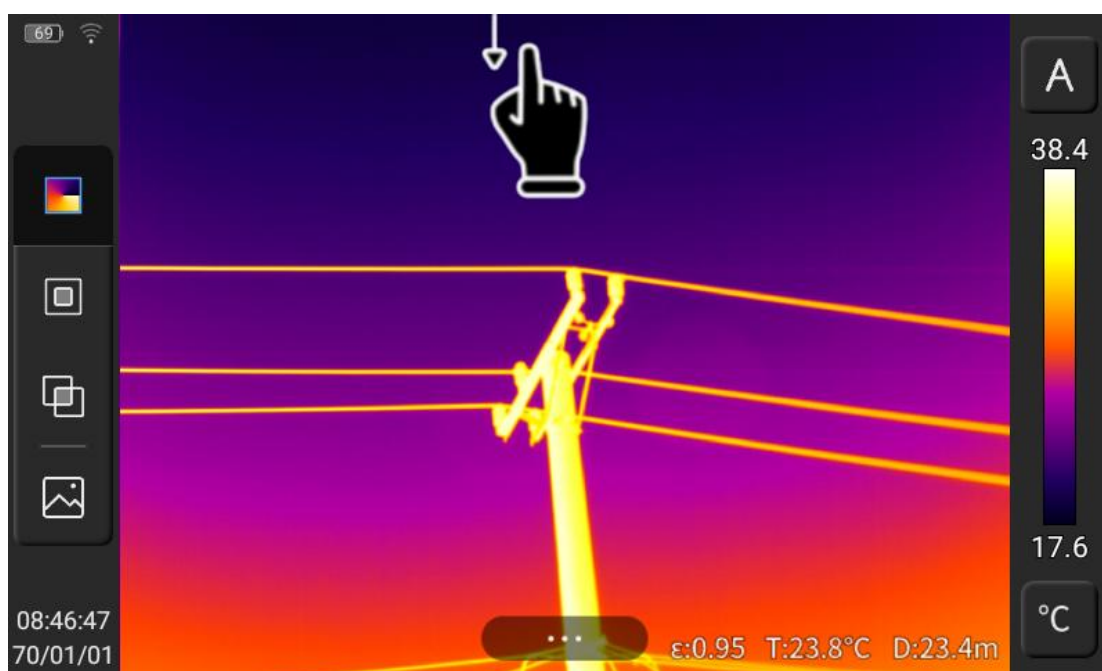


icon	Functional Description
<	Return to previous level
!	View image details
📷	Analyze pictures, such as adding analysis objects, setting temperature measurement parameters, modifying isotherms, etc.
T	Add text annotation
🎤	Add audio notes
🖼️	Add photo annotations
🖋️	Add Scribble Annotation
❤️	Save the image
📷	Modify the image name
📶	Bluetooth image transfer, transfer images to the local photo album of the mobile phone or mobile phone analysis software
PDF	Generate PDF report
📁	Add pictures to the specified album folder

	Upload to cloud photo album
	Cut to SD card or local storage
	delete

4.2.3. Quick Settings

Swipe down from the top of the screen to display the quick settings, and short press the "Back" button to return to the observation interface.



icon	Functional Description
 Wi-Fi	Wi-Fi switch
 Bluetooth	Bluetooth switch
 AP	AP switch, mainly used for PC/mobile phone analysis software to connect to devices wirelessly to obtain video streams
LAN	LAN switch, mainly used for PC analysis software to connect devices to obtain video streams via wired connection
 One Sweep	Device hotspot QR code, mainly used for mobile analysis software to quickly connect to device hotspots
 4G	4G switch (supported only by some models)
 position	Position switch
 panoramic	Panorama mode switch , stitching two or more consecutively shot pictures into one panoramic picture through intelligent algorithms (only supported by some models)
 Super Resolution	Super-resolution mode switch , using intelligent algorithms to enhance image clarity and detail
 illumination	Light switch
 	Adjust screen brightness
 	Adjust the volume

5. Instructions

5.1. Observation

5.1.1. Image mode switching

According to the observation requirements in different scenes, different image modes are set during observation.

icon	Functional Description
	Click to turn on the IR (infrared) mode. The preview screen will display the infrared image of the target being measured.
	Click to turn on PIP (Picture in Picture) mode. The preview screen will show the superposition effect of the infrared image and the visible light image. Drag the infrared image to modify the size and position of the infrared area. Click  to set the transparency of the infrared image .
	Click to turn on MIF (fusion) mode. The preview screen will show infrared thermal image + contour enhancement effect.
	Click to turn on the visible light (VL) mode. The preview screen will display the visible light image of the target being measured.

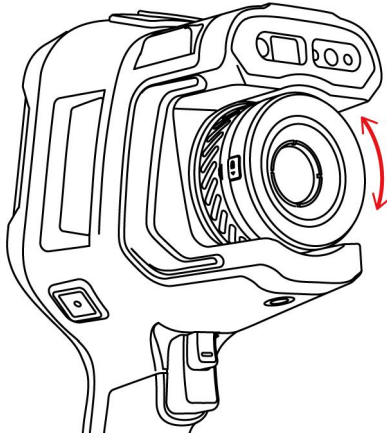
Note: In infrared, picture-in-picture and fusion modes, please make sure the image is in focus. If the infrared thermal image is not in focus, it will affect the accuracy of thermal temperature measurement and cause the visible light and thermal image to not match.

5.1.2. Focus Mode

This device supports multiple focus modes including manual focus, image focus, laser focus and continuous auto focus.

5.1.2.1. Manual focus

Manually rotate the “ focus ring ” to focus manually.



5.1.2.2. Image focus and laser focus

Go to "Settings-Focus Mode" and set the focus mode to image focus or laser focus.

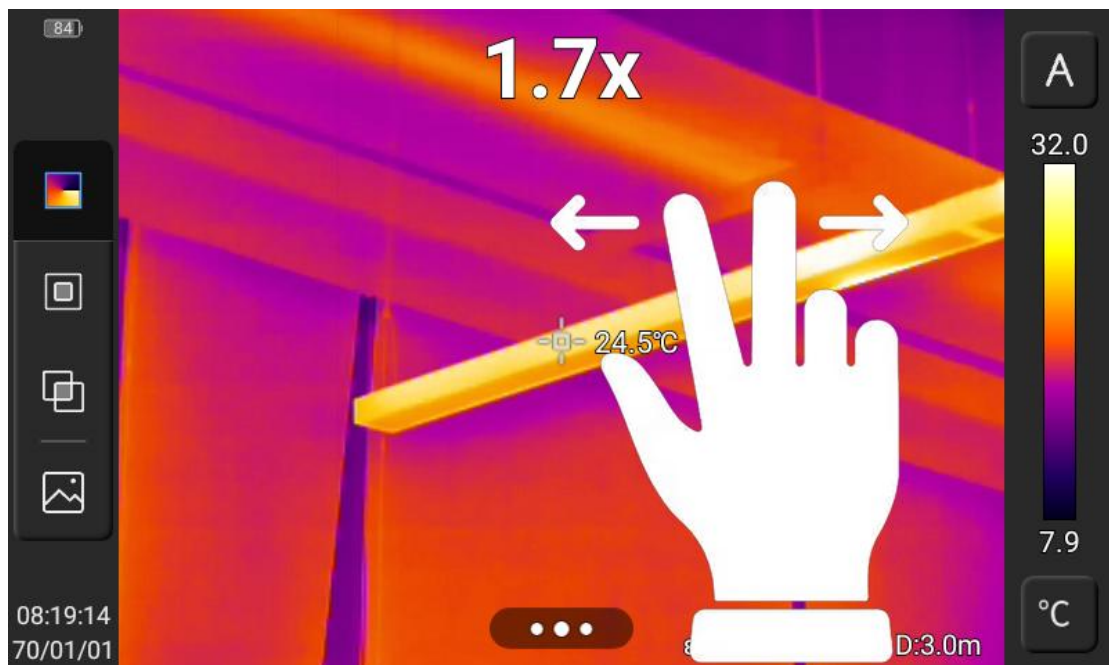
If laser focus is set, you can press the "laser key" to assist focusing during observation .

5.1.2.3. Continuous autofocus

Go to "Settings - Focus Mode" and turn on "Continuous Auto Focus". The device will automatically focus continuously and quickly according to the target scene.

5.1.3. Digital zoom

Digital zoom by pinching and pinching (supports infrared and visible light modes).



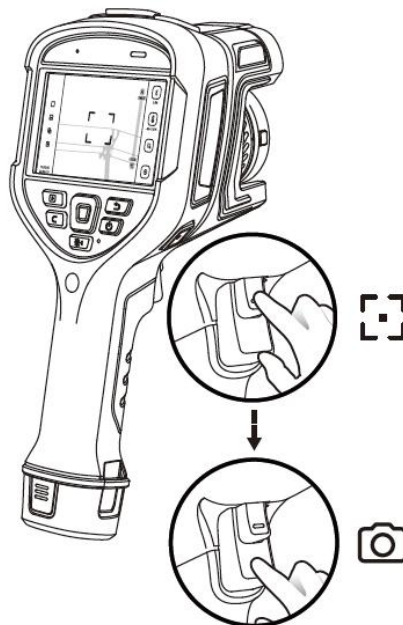
5.2. Photograph

5.2.1. Photoshoot

Turn on "Photo" in "Settings->Shooting Mode". Now short pressing the camera button will take you to "Photo".

The shooting mode can be set to take photo or freeze/take photo according to the actual usage scenario.

- (1) Photographing: When observing, adjust the focus to make the image clear and then shortly press the "photographing key" to capture the current target image ;
- (2) Freeze/Photograph: When observing, adjust the focus to make the image clear and then shortly press the "Photograph key" to freeze the current image. Press the "Photograph key" again to save the image and press the "Back key" to cancel the current shooting.



5.2.2. Timed photo taking

Set a specific time interval to automatically take a specified number of photos.

In "Settings->Shooting mode", turn on "Timed photo taking" and set the time interval and number of photos.

After the settings are completed, during observation, short press the "Photo" button to start the timed photo shooting, and short press the "Photo" button again to end the timed photo shooting task and save the picture.

5.2.3. Panoramic stitching

Use intelligent algorithms to stitch two or more consecutively shot pictures into a panoramic picture . (Only supported by some models)

- 1) In Quick Settings, tap Panorama. , enter panoramic mode;
- 2) Short press the "Photo button" to start moving the device to take multiple photos (the overlap of adjacent images must be $\geq 30\%$);
- 3) After shooting, click ✓ Finish stitching.

Note: The panorama stitching function is only supported in infrared mode.

5.2.4. Super Resolution

Improve image clarity and details through intelligent algorithms .

In Quick Settings, click Super Resolution , enter the "super resolution" mode , at this time the saved infrared image is enlarged to 4 times the standard pixels, the image is clearer and the details are richer.

Note: The super-resolution function is only supported in infrared mode.

5.3. Video

5.3.1. Single video recording

Turn on "Video Recording" in "Settings->Shooting Mode". Now short pressing the camera button will activate the "Video Recording" function.

- 1) When observing, short press the "photo button" to start recording;
- 2) Short press the "Photo button" again to end recording and store both the infrared video and the visible light video.

5.3.2. Timer video recording

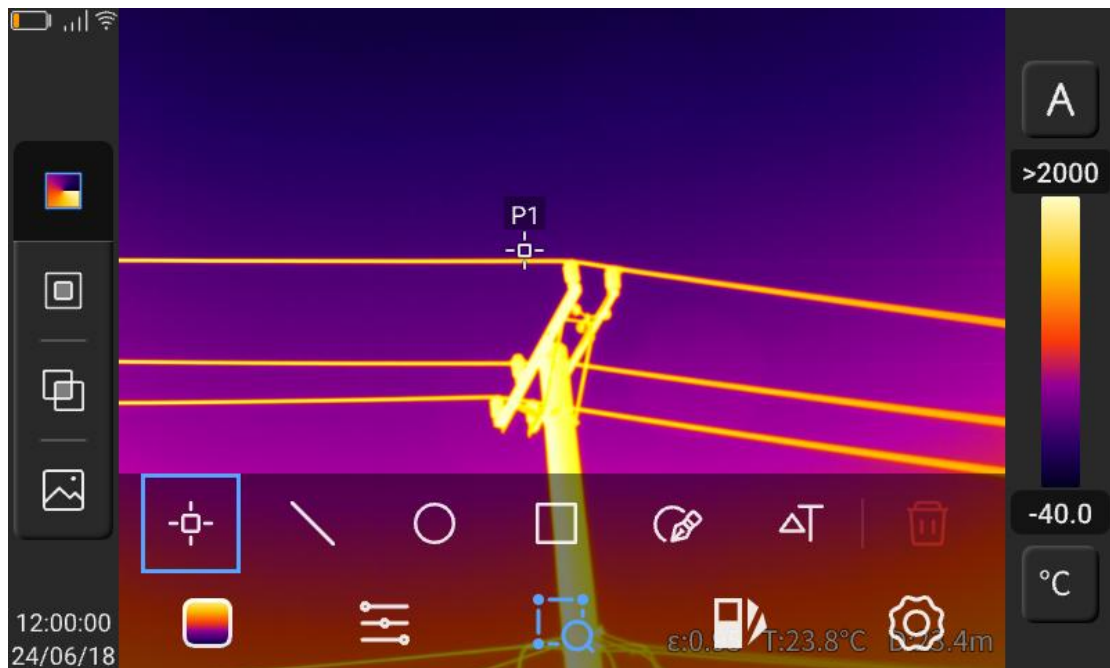
Automatically start recording at the set time and automatically stop recording after the preset time is reached .

In "Settings->Shooting Mode", turn on "Timed Recording" and set the delay time, duration and number of recordings. At this time, short pressing the camera button will function as "Timed Recording".

- 1) When observing , short press the "photo button" to start the countdown, and the video will start automatically when the countdown ends;
- 2) Short press the "Photo" button again to end the timed video recording.

5.4. Temperature measurement analysis

5.4.1. Add/remove analysis objects



- 1) Click the bottom of the page ● ● ● to enter the shortcut menu page;
- 2) Click  Add Analysis Object.
- 3) Supports adding various types of temperature measurement analysis objects such as points, lines, circles, rectangles, strokes, etc.

icon	Functional Description
	Point analysis objects
	Line analysis objects
	Circular analysis object
	Rectangle Analysis Object
	Irregular analysis objects
	Temperature difference analysis, see section 5.4.5 for details
	delete

5.4.2. Change the size and position of the analysis object

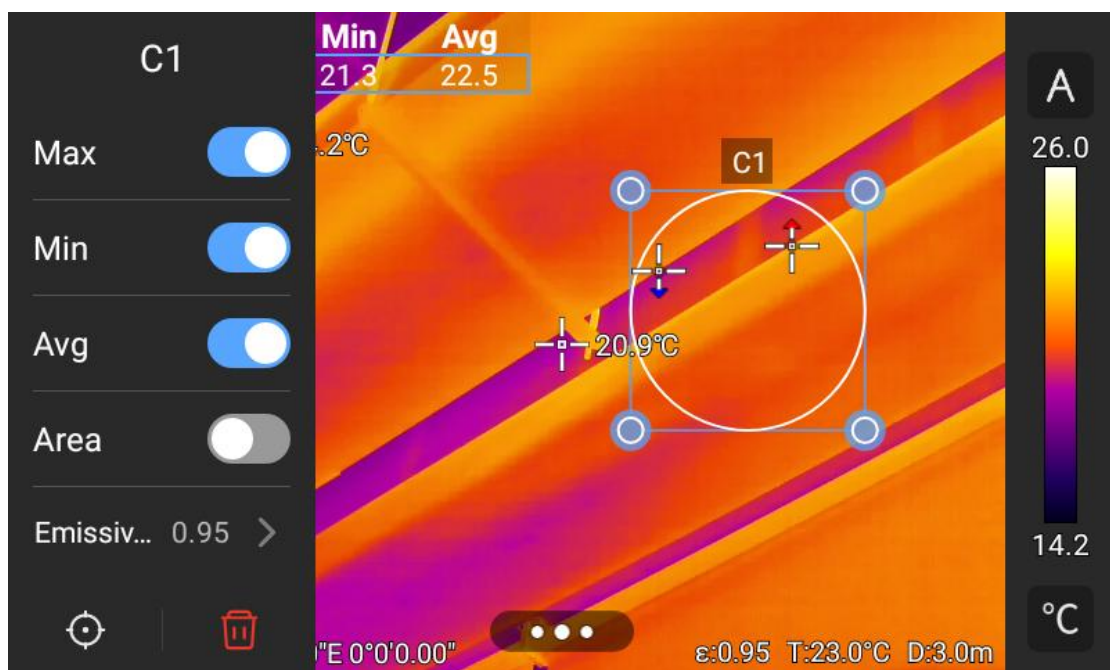
- 1) Select the analysis object;
- 2) Drag to change the size and position of the analysis object.



5.4.3. Customize the display of analytical data

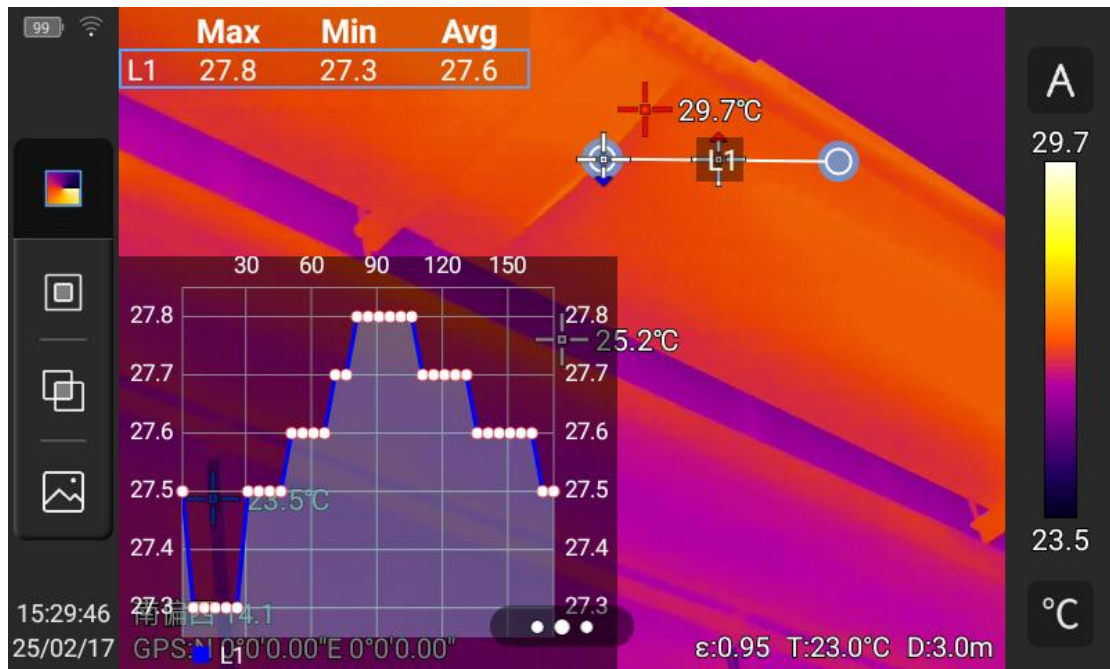
Long press the analysis object and select the data to be displayed, such as maximum temperature, minimum temperature, average temperature, and regional area (only for regional analysis objects, you need to press and hold the laser ranging key when measuring the area).

Click  to delete the analysis object.



5.4.4. Line temperature trend chart

After selecting "Line Analysis Object", the temperature trend graph of the analysis object is displayed. The horizontal axis represents pixels and the vertical axis represents temperature.



5.4.5. Temperature difference analysis

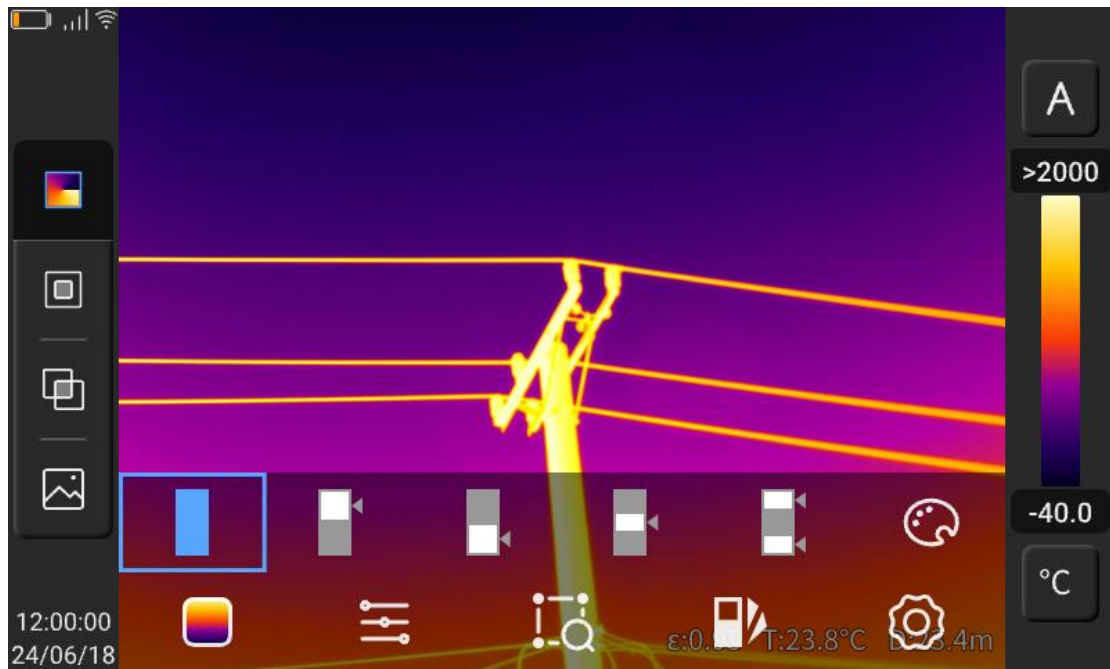
Analyze the temperature difference between two areas.

After adding at least 2 analysis objects, click the temperature difference mode " ΔT ", select any 2 analysis objects, and perform temperature difference calculation. Click " ΔT " again to exit the temperature difference mode.

5.4.6. Isotherms

Used to quickly screen the temperature abnormal area of the measured target. This device supports four isotherms: upper limit, lower limit, inside the range, and outside the range.

Note: Isotherm is only supported in A (auto dimming) mode.

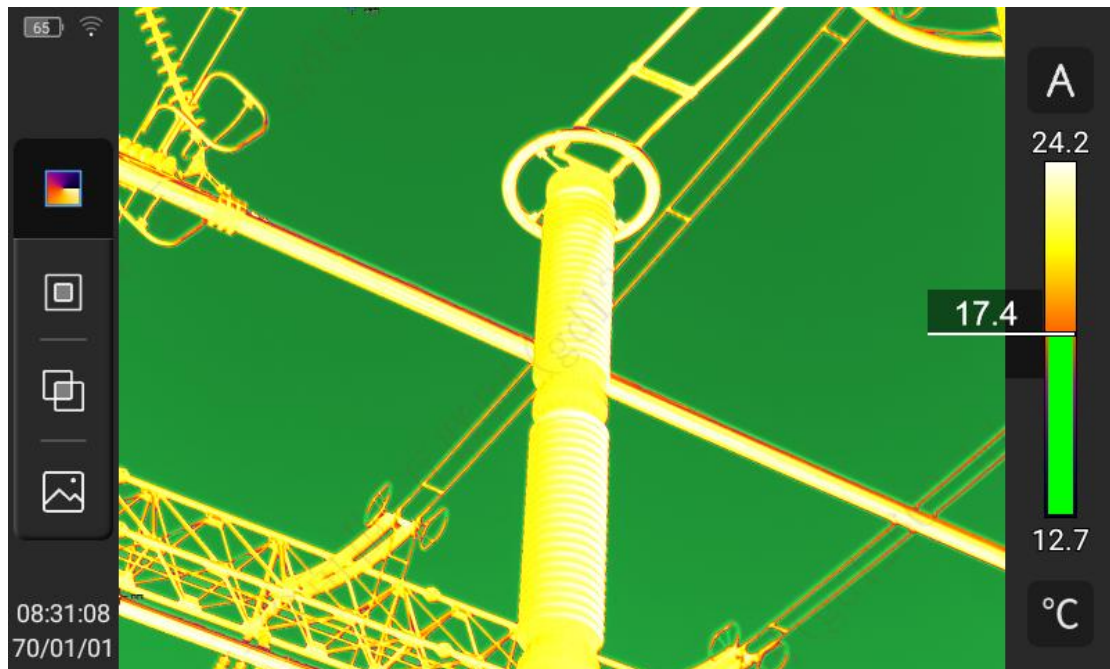


- 1) Click the bottom of the page ●●●to enter the shortcut menu page;
- 2) Click  to set isotherm ;
- 3) Click  to set the isotherm color.

Upper limit: Set the upper limit temperature threshold and color. The area above the upper limit temperature will be filled and displayed according to the set color.



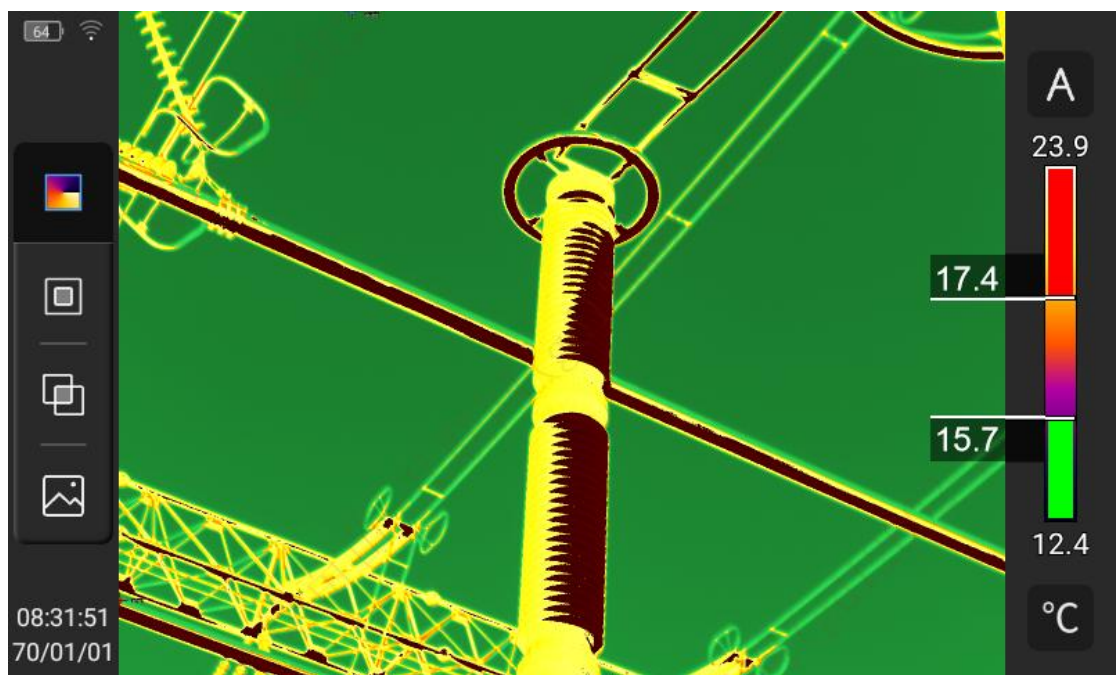
Lower limit: Set the lower temperature threshold and color. The area below the lower temperature will be filled and displayed according to the set color.



Within the range: Set the temperature threshold and color within the range, and the area within the range temperature will be filled and displayed according to the set color



Outside the range: Set the upper/lower temperature threshold and color respectively, and the area outside the temperature range will be filled and displayed according to the set color.



5.4.7. Level / Span

According to the current target heat distribution, set the Level/Span mode to obtain the best thermal image effect . Supports four modes: automatic (A), manual (M), semi-automatic (S), and regional dimming (L).

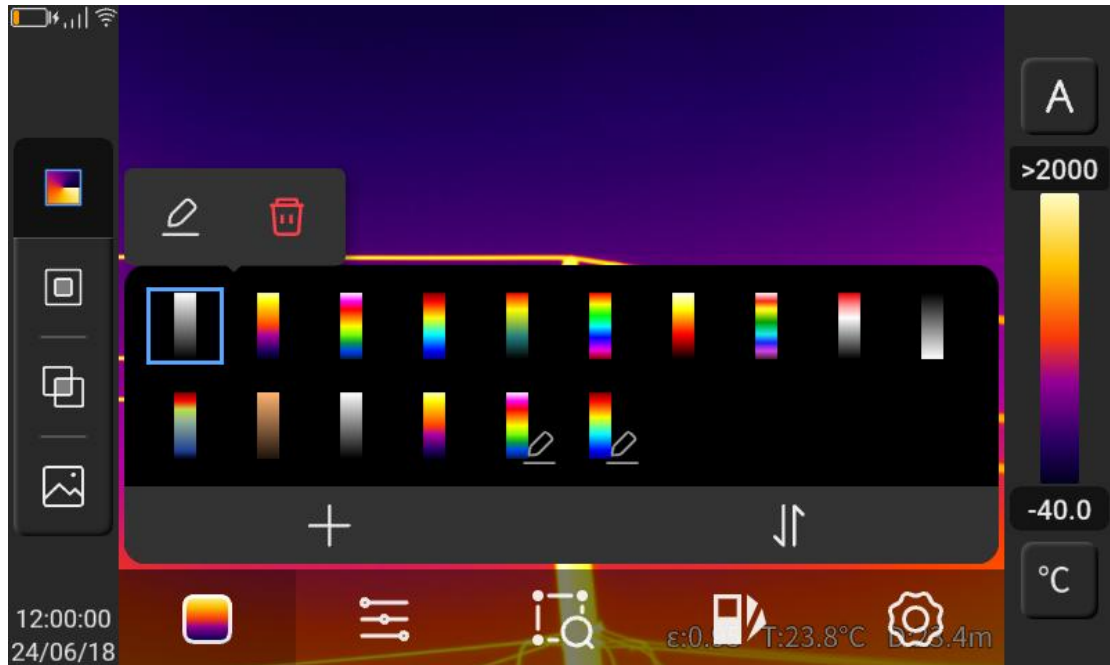


When observing, click "A"/"M"/"S"/"L" to switch modes.

- (1) Automatic (A) mode: Automatically adjusts the upper and lower limits according to the global maximum and minimum temperatures of the image to achieve the best image presentation effect.
- (2) Manual (M) mode: Manually set the upper and lower limits of the temperature width . During the adjustment process, the image dimming changes synchronously.
- (3) Semi-automatic (S) mode: Manually set the ΔT (temperature difference) value, automatically adjust the upper and lower limits of the temperature width according to the set temperature difference value, and the image dimming changes synchronously.
- (4) Local dimming (L) mode: Based on the contrast of the selected target area (automatically drawn based on the screen for the first time, the size and position can be adjusted and dragged), it is mapped to the entire image.

5.4.8. Color Palette

Different color palettes will display different temperature colors, and the colors will vary with the temperature, making it easier to analyze the details of the image.



- 1) Click the bottom of the page ●●●to enter the shortcut menu page;
- 2) Click  Set Color Palette.

(1) Color palette selection example

type		Example
Application Scenario	Power inspection/petrochemical metallurgy	Iron red palette is usually used , which has high visual contrast, especially in strong outdoor light environment, which can enhance the visibility of the image and enable inspectors to clearly see the temperature difference even in complex outdoor environment.
	Building HVAC	Typically using a rainbow 1 color palette, it provides a rich color variation that helps detect subtle temperature differences, which is critical for thermal imaging inspections in

		the building industry, where thermal defects often manifest as small temperature changes.
	Industrial temperature measurement	Rainbow 2 color palette is commonly used . In industrial applications, accurately identifying small changes in temperature is critical to monitoring equipment performance and preventing failures . Rainbow 2 helps users identify temperature differences more clearly by enhancing color contrast.
Temperature Difference	Large temperature difference environment	It is recommended to use the White Hot and Black Hot palettes . These two palettes can provide clear images and accurate temperature comparisons in large temperature difference environments, helping users better identify and distinguish different temperature areas.
	Small temperature difference environment	It is recommended to use Rainbow 2 and Arctic palettes . These two palettes can enhance the contrast of the image and help accurately locate objects in environments with small temperature differences.

(2) Custom color palette

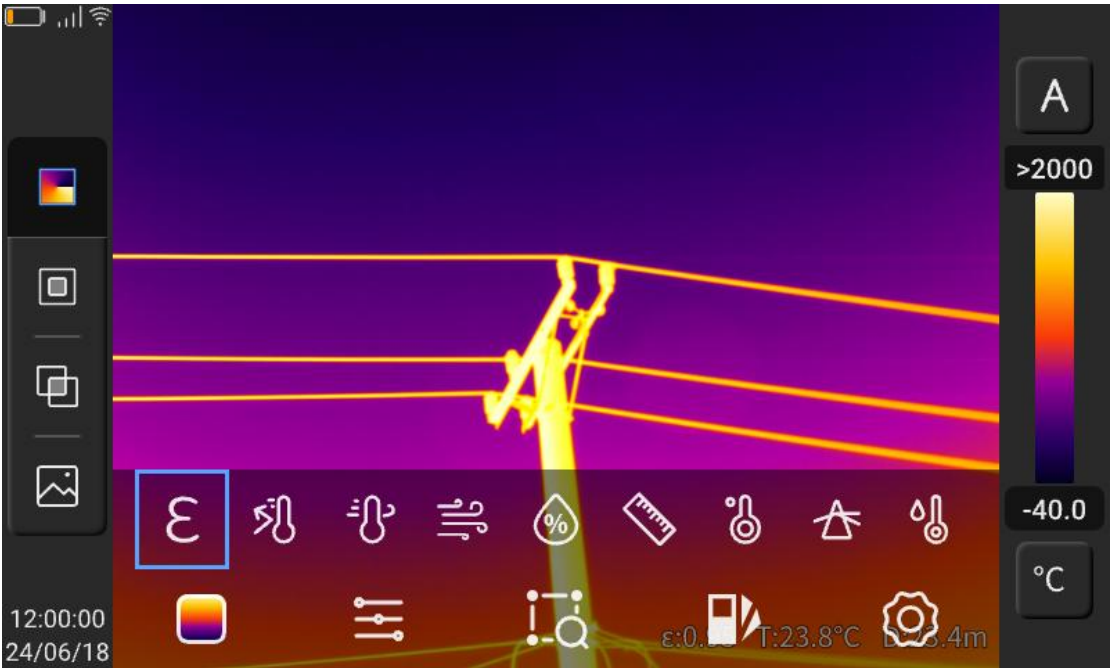
Long press the color palette to move, edit or delete; click "+" to add a new color palette and customize the color type; click "↕" to invert all color palettes.

(Supported by some models)

5.4.9. Temperature measurement parameters

The temperature measurement parameters include emissivity, reflection temperature, atmospheric temperature, atmospheric transmittance, relative humidity, target distance, external optical temperature, and optical transmittance. To obtain more accurate temperature

measurement, the parameter values can be modified manually, and the modified parameters will take effect immediately.



- 1) Click the bottom of the page ●●●to enter the shortcut menu page;
- 2) Click to set the temperature measurement parameters.

icon	Functional Description
	Emissivity: refers to the ratio of the energy radiated outward by the measured object to the energy radiated by a black body at the same temperature and wavelength, and the value is between 0 and 1. The higher the emissivity, the stronger its infrared radiation ability; conversely, the lower the emissivity, the relatively weaker the infrared radiation ability; Set different emissivity values according to the target being measured ; set custom emissivity values when the values in the standard emissivity table are not suitable for measurement Reference: See "8.1. Common Object Emissivity Table" in this document for details.
	Reflected temperature: the temperature corresponding to the infrared radiation reflected by other objects in the target environment; If the emissivity of the target is low and the actual temperature is

	much lower than the temperature of its reflection source , the reflection temperature value should be set to the temperature value of the reflection source (if the on-site test conditions permit, avoiding reflection interference as much as possible can greatly improve the measurement accuracy)
	Atmospheric temperature: the air temperature between the thermal imager and the target object ; atmospheric temperature value is usually set to the default value. This parameter needs to be set only when the atmospheric temperature is higher than the actual temperature of the measured target.
	Atmospheric transmittance: Atmospheric transmittance refers to the different attenuation degrees caused by the interaction between the target's infrared radiation and the absorption and scattering of atmospheric components (gas molecules such as water, carbon dioxide, aerosols) when it is transmitted in the atmosphere; Intelligent correction, does not support modification
	Relative humidity: relative humidity of the ambient air where the target is located; In case of short distances and normal humidity, relative humidity is usually the default value.
	Target distance: The actual distance between the thermal imager and the target being measured . At short distances or less than the maximum accurate temperature measurement distance of the thermal imager, the target distance is usually set to the default value.
	External optical temperature: The external optical temperature setting is used to compensate or correct the influence of the temperature of the external optical device itself on the measurement target; The external optical temperature is set to the default value. The setting is considered only when the temperature of the external optical device is higher than the temperature of the measured target.

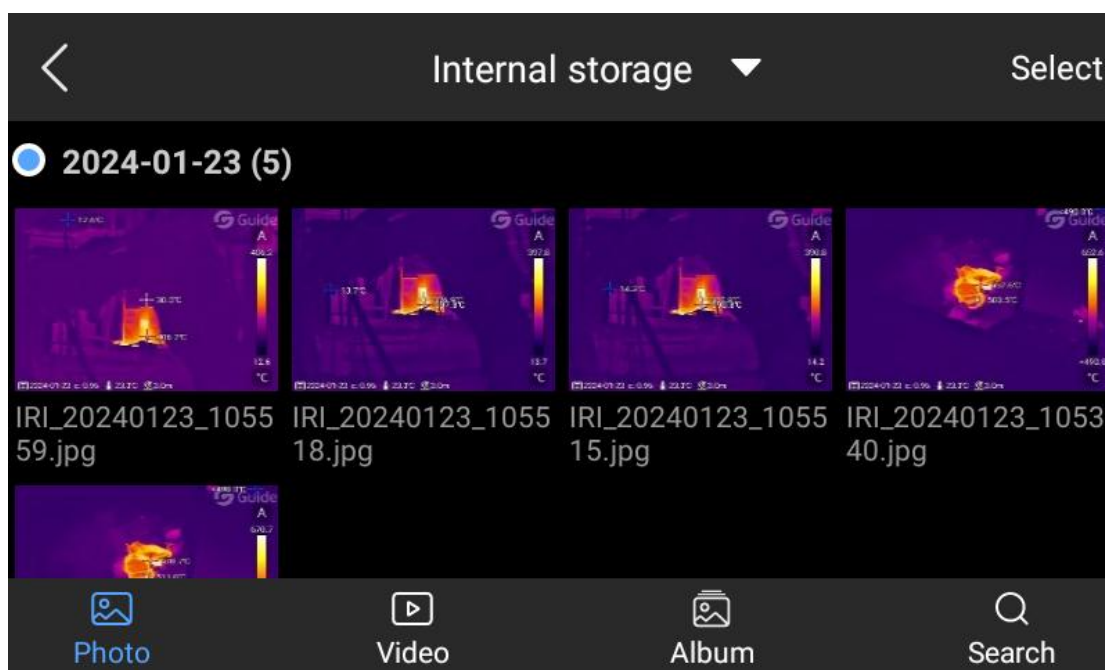
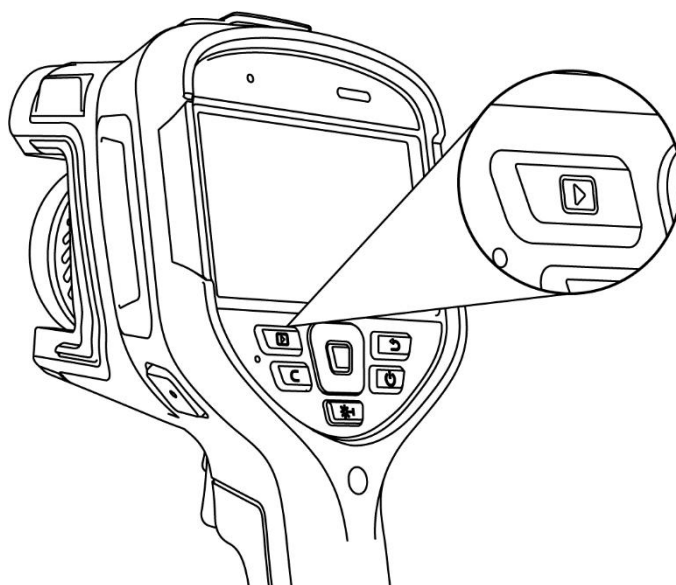
	Optical transmittance: Optical transmittance refers to the transmittance of any external lens or infrared window used in front of the device lens; If the optional external optical lens has been calibrated at the factory, or there is no external infrared window , the optical transmittance is usually set to the default value.
	The temperature at which the air is cooled to saturation while the water vapor content in the air remains unchanged and the air pressure remains constant is called the dew point temperature. dew point value is automatically calculated by the formula and cannot be modified.

If you are unsure which values to use, the following values are recommended :

Emissivity	0.95
Reflected temperature	23°C
Atmospheric temperature	23°C
Relative humidity	70%
Target distance	3.0m
External optical temperature	20°C
Optical transmittance	100%

5.5. Gallery

View all the images that have been saved . Press the "Gallery Key" to enter the gallery preview interface.



Click "Local" at the top to switch between viewing files on the local device, SD card, and cloud disk.

5.5.1. Select image

In the gallery interface, click the "Select" button in the upper right corner or long press the image to select the image for Bluetooth transmission, generate PDF report, etc.

5.5.2. Image Editing

- 1) In the gallery interface, click any picture to enter the editing interface;
- 2) Click     to add text, voice, picture, or graffiti annotations to the current picture;

- 3) Click        to save, rename, transfer via Bluetooth, generate PDF report, upload to cloud, cut to SD card, delete, etc.
- 4) Click "" to modify the current image analysis object, isotherms, temperature difference and temperature measurement parameters. The operation is the same as "5.4. Temperature Measurement Analysis" in this document.

Zoom in and out of an image

In picture editing mode, pinch two fingers together to zoom in or out. When the image is zoomed in, slide anywhere on the screen to move the image .

5.5.3. Video Editing

- 1) Click  to enter the video preview interface;
- 2) Click any video file to view the video details;
- 3) Click  to play the video;
- 4) The operations of collection, renaming, transfer, cutting to SD card, deletion, analysis (only supports videos in irgd format) are the same as those for pictures;
- 5) When playing a video, click  to capture the current frame.

5.5.4. Photo Album

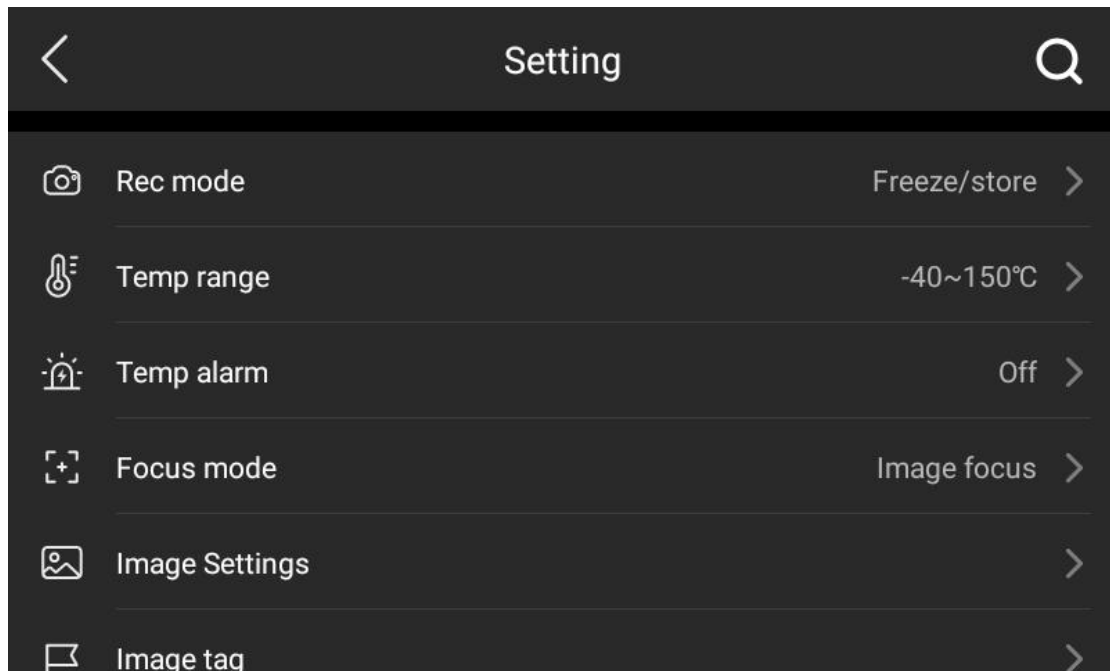
Click  to enter the album interface to view and edit "Personal Favorites" and user-created albums.

5.5.5. File Search

Click  to enter the file search interface, enter the picture name, time, tag and other information, and search for the corresponding picture/video.

5.6. System Settings

- 1) Click the bottom of the page ● ● ● to enter the shortcut menu page;
- 2) Click  to enter the settings interface.



5.6.1. search

Click  to search for the function items that need to be set by keyword .

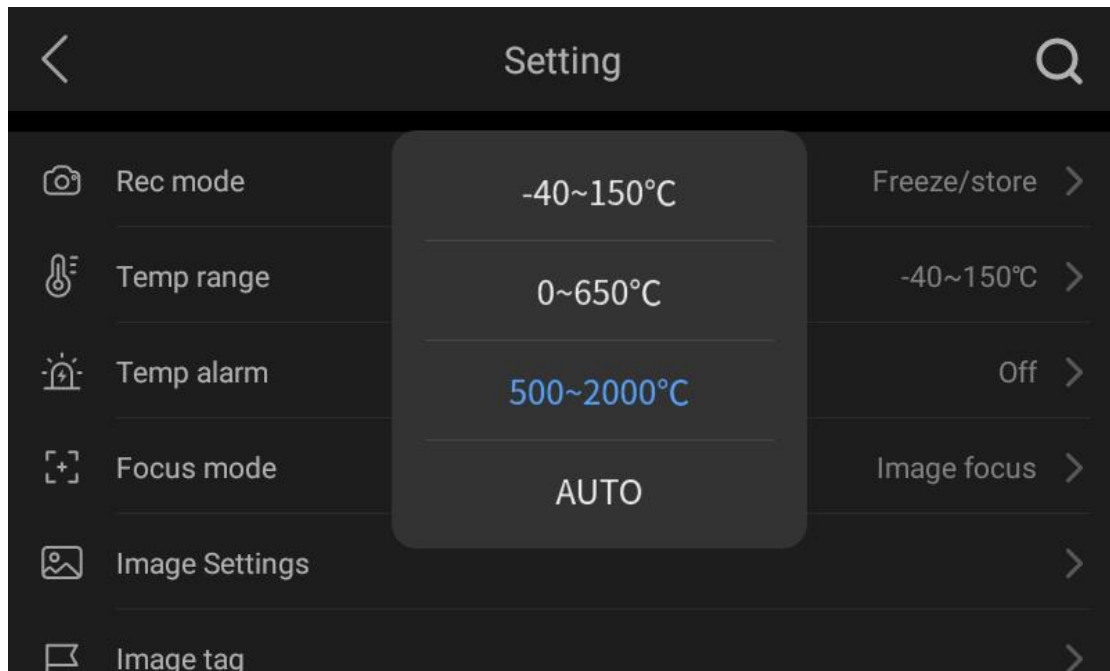
5.6.2. Shooting Mode

For details, please refer to "7. Taking Photos" and "8. Recording Videos" in this document.

5.6.3. Temperature measurement range

Set the appropriate temperature measurement range according to the temperature requirements of the measurement target.

Note: The temperature measurement range varies with the device model .



5.6.4. Temperature alarm

Set high temperature alarm and low temperature alarm, and support three kinds of reminders: light, sound and color.

- (1) High temperature alarm: triggered when the target temperature exceeds the high temperature threshold;
- (2) Low temperature alarm: triggered when the target temperature is lower than the low temperature threshold;

5.6.5. Focus Mode

For details, see "5.1.2 Focus Mode" in this document.

5.6.6. Image Settings

Set the color highlighting switch and highlighting mode.

Color highlighting: Through image processing technology, the color of a specific temperature area is highlighted for easy observation and identification. It supports three modes: upper limit, lower limit and interval. (Not effective in visible light mode)

Upper limit: Set the upper limit temperature. The screen above the upper limit temperature will be mapped with the corresponding color palette, otherwise it will be mapped in the form of visible light.



Lower limit: Set the lower limit temperature. The picture below the lower limit temperature will be mapped with the corresponding palette, otherwise it will be mapped in the form of visible light.



Within the interval: Set the upper and lower temperature limits. The images within the set temperature range will be mapped with the corresponding color palette, and those outside the range will be mapped in the form of visible light.

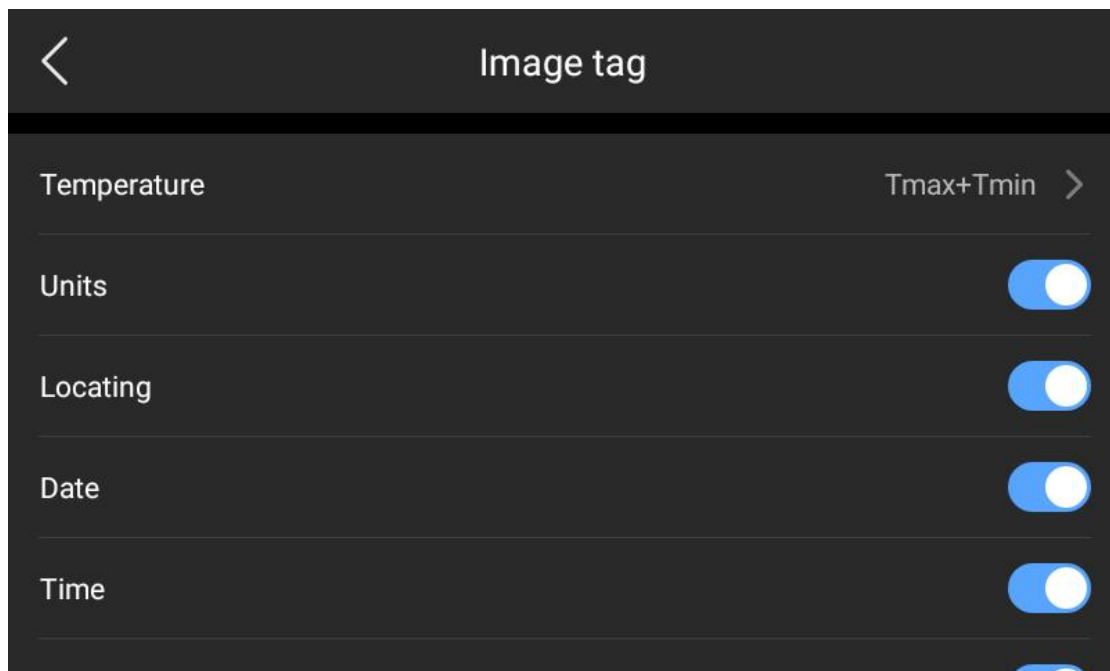


Outside the interval: Set the upper and lower temperature limits. The screen outside the set temperature range will be mapped with the corresponding color palette, and the screen within the range will be mapped in the form of visible light.



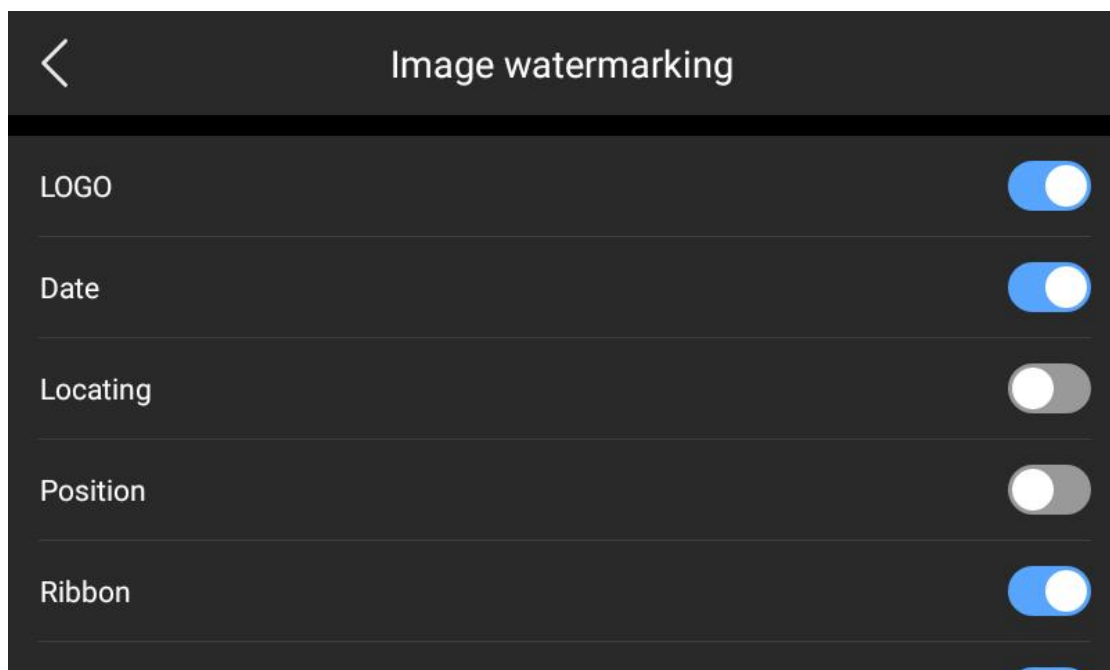
5.6.7. Image tagging

Watermark information displayed on the preview screen during real-time observation .



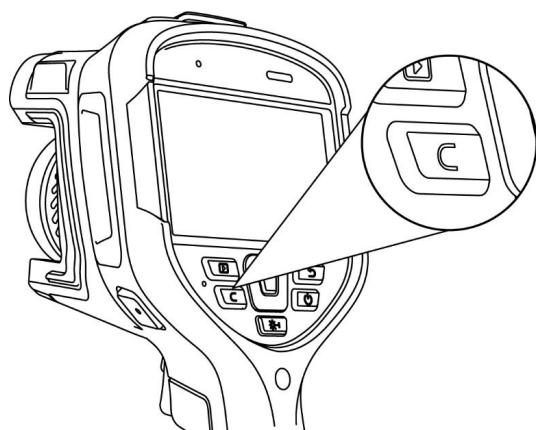
5.6.8. Image Watermark

Watermark information superimposed when saving images.



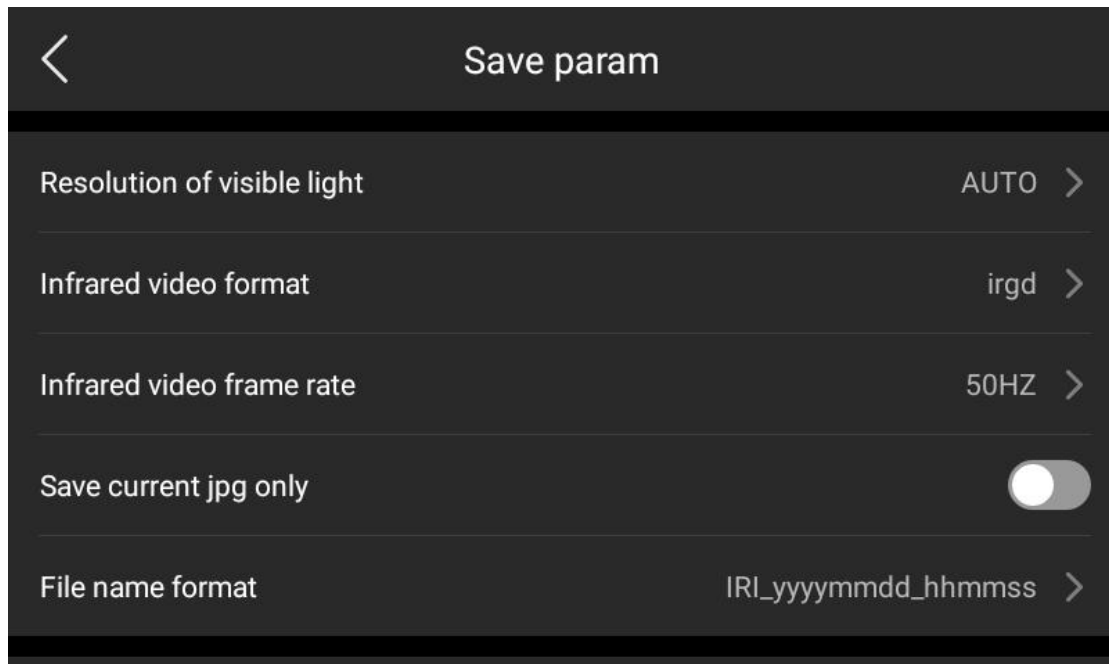
5.6.9. Key assist

Set the shortcut operation of the "C" auxiliary key on the body to support calibration, emissivity, temperature measurement range, image mode, changing color belt, temperature measurement parameters, lighting, AI voice, etc.; after the setting is completed, the "C" auxiliary key has the corresponding function .



5.6.10. Save Parameters

Save and set the image parameters of the device .



5.6.10.1. Visible light resolution

Sets the visible light resolution.

5.6.10.2. Infrared video formats

Set the infrared video format, including 2 types: irgd/mp4.

irgd: video encoding format with temperature data;

mp4: Video encoding format without temperature data.

5.6.10.3. Infrared video frame rate

Set the infrared video frame rate.

Frame rate: The number of frames per second that a device can capture and output.

5.6.10.4. Only save the current JPG photo

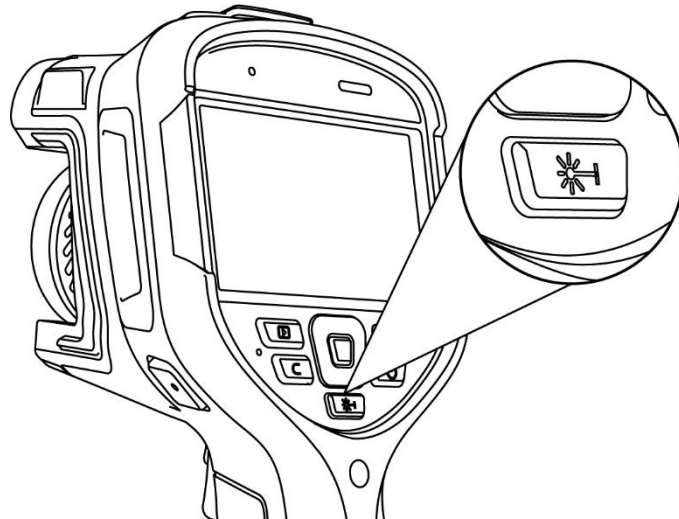
Only pictures in the current image mode are saved.

5.6.10.5. File naming

Set up file naming conventions.

5.6.10.6. Laser ranging [ID map to be updated]

When the laser ranging function is turned on, press or long press the "laser button" to emit a laser beam, start real-time ranging, and display the target distance (if area calculation is turned on, the area of the target area is calculated in real time).



Long press the laser button to calculate the distance/area in real time. Press the camera button at this time to save the corresponding distance and area data on the picture.

5.6.11. Cloud Services

Used for image uploading, storage and sharing, users upload the images and videos they take to the cloud for access and management at any time .

After the device is connected to the Internet, you can register/log in to the "Cloud Service" and upload the images of this device to the cloud.

5.6.12. Wi-Fi

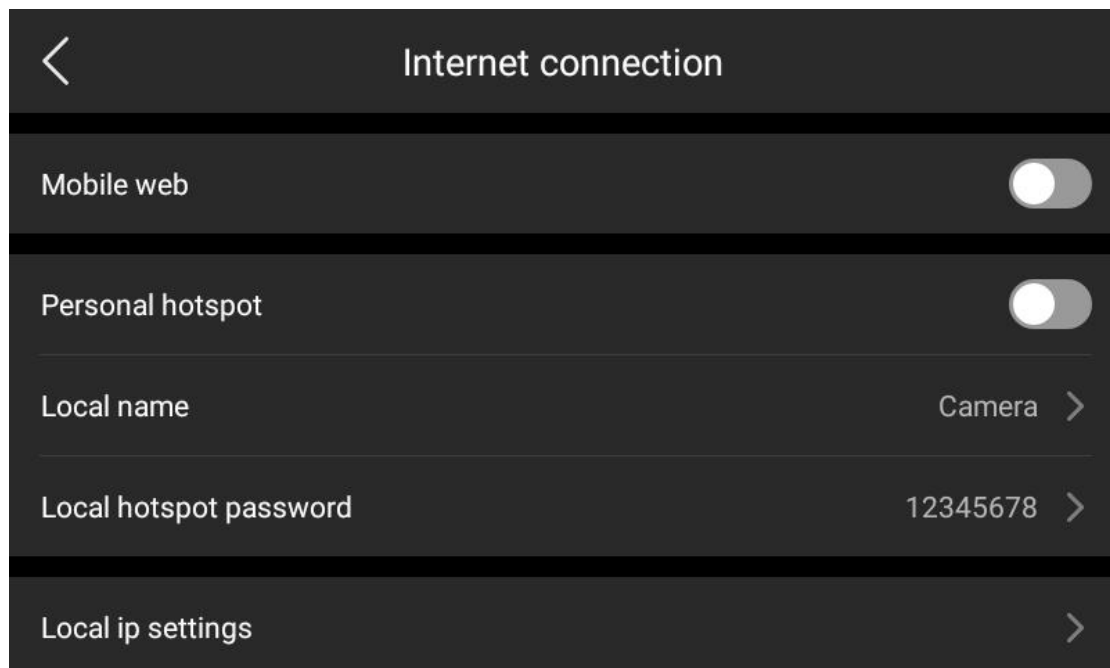
Connect the device to a wireless LAN via Wi-Fi, mainly for data transmission and OTA upgrades.

Turn on the Wi-Fi switch, search for nearby networks, select the network you want to connect to, enter the password and connect.

Note: To ensure stable WiFi signal connection and data transmission, please try to ensure that the connection distance is within 10m and there are no obstacles (such as walls, etc.)

5.6.13. Network connection

Through network connection, functions such as real-time video streaming, data transmission and OTA upgrade can be realized.



- (1) Mobile network (supported only by some models): External 4G mobile network.
- (2) Personal hotspot: Set the device hotspot name and password to enable mobile phone and PC analysis software to remotely obtain device images.
- (3) Supports connection to mobile phones and PC analysis software via AP and LAN:
 - ① AP Connection
 - 1) Enter the quick settings page and turn on the " AP " switch;
 - 2) Connect your mobile phone/computer (TCP/IP properties on the computer must be set to "Auto-acquire") to the hotspot of this device;
 - 3) Click "Connect Device" on the mobile phone or PC analysis software and select " AP " mode to load to complete video streaming and wireless connection.
 - ② LAN connection
 - 1) Enter the quick settings interface and turn on the "LAN" switch;

- 2) Set the device IP and gateway information to ensure that the device and the computer are in the same network environment, such as the device IP address is 172.16.14.216 , the DNS server address is 202.103.24.68 , the computer IP address is 172.16.14.230 , and the DNS is 202.103.24.68 ;
- 3) the device to the computer using a Type-C to RJ45 network card ;
- 4) Click "Connect Device" on the PC analysis software and select "LAN" to load to complete video streaming and wireless connection.

Note: IP addresses cannot be set in the 192.168.42.xxx network segment.

5.6.14. Bluetooth

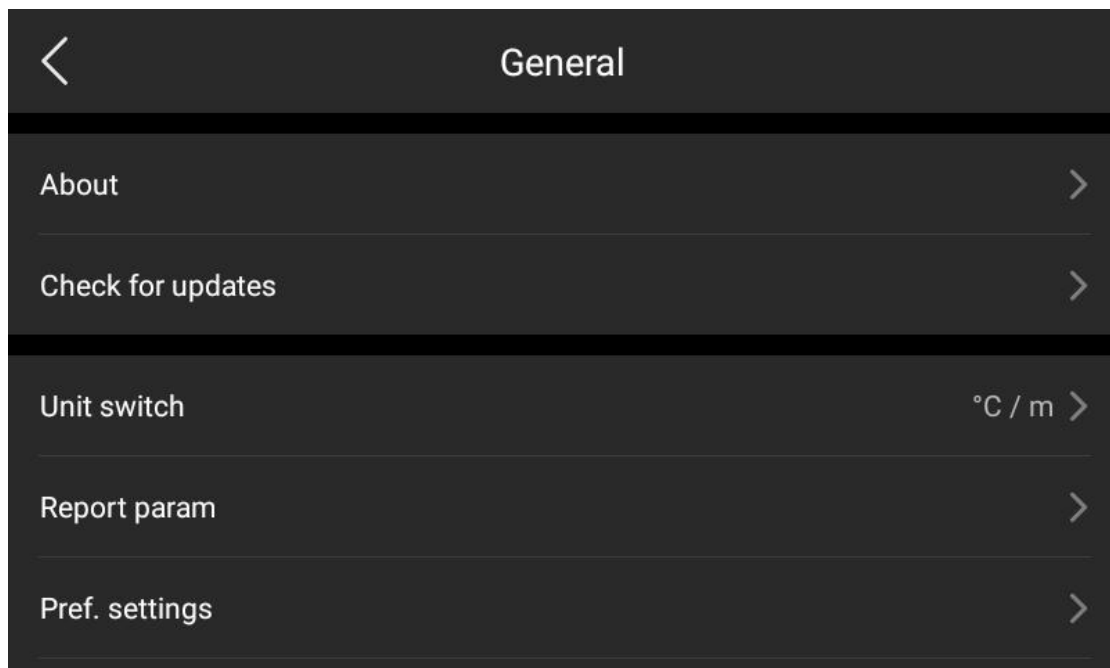
After the Bluetooth headset is connected to the device, it supports voice annotation of images, and can also be connected to other devices for Bluetooth image transmission.

- 1) Turn on the Bluetooth headset and follow the device pairing steps to enter pairing mode;
- 2) Turn on the Bluetooth switch, the system will automatically search for Bluetooth devices, and select the Bluetooth headset to pair in the device list;
- 3) Once pairing is complete, the headset will attempt to reconnect each time it is turned on.

Note: Due to compatibility issues, please try to choose mainstream brands. The model we tested is: Xiaomi.

5.6.15. General settings

Contains information such as device software version and SN, and supports changing language, time and date, storage path, and other information.

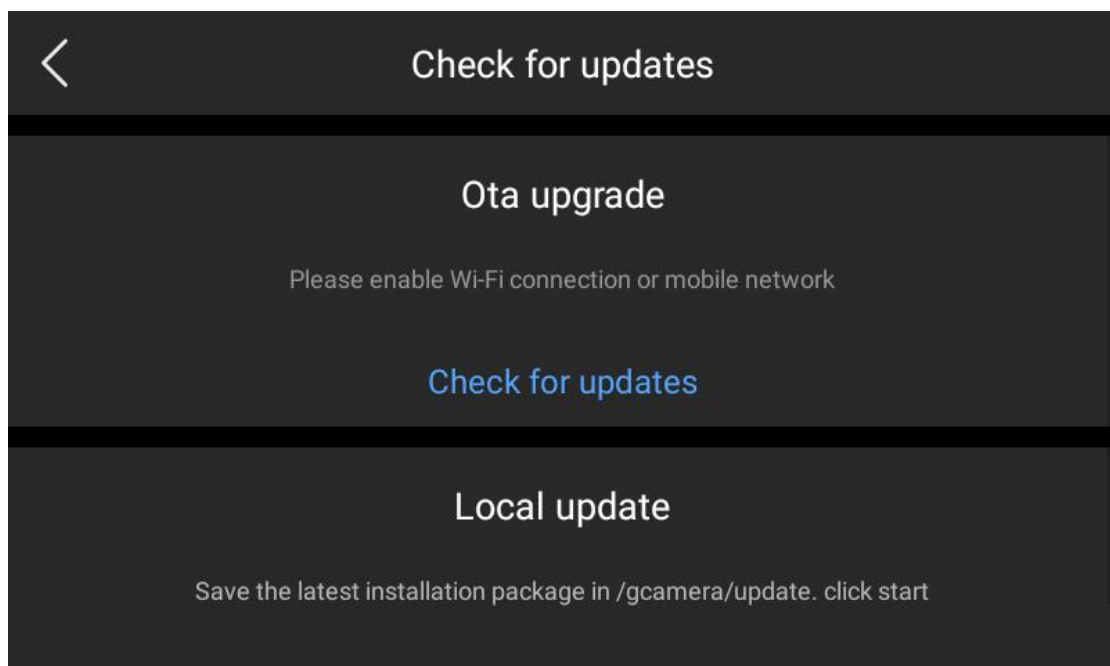


5.6.15.1. About this machine

Check the device version information.

5.6.15.2. Check for updates

Check the device version update status, supporting OTA upgrade and local upgrade.



OTA Update

- 1) After the device is connected to the Internet, click "Check for Updates" and the latest upgrade package is detected;

- 2) Click "Download and Install", restart the device after the upgrade is complete, and upgrade to the latest version.

Local upgrade

- 1) Put the upgrade package in the /GCamera/Update directory;
- 2) Click "Check for Updates" and the latest upgrade package is detected;
- 3) Click "Upgrade Installation" and restart the device after the upgrade is complete to upgrade to the latest version.

Note: OTA upgrades require an unobstructed network and sufficient battery power. If you have any questions during the upgrade process, please contact the device manufacturer in a timely manner .

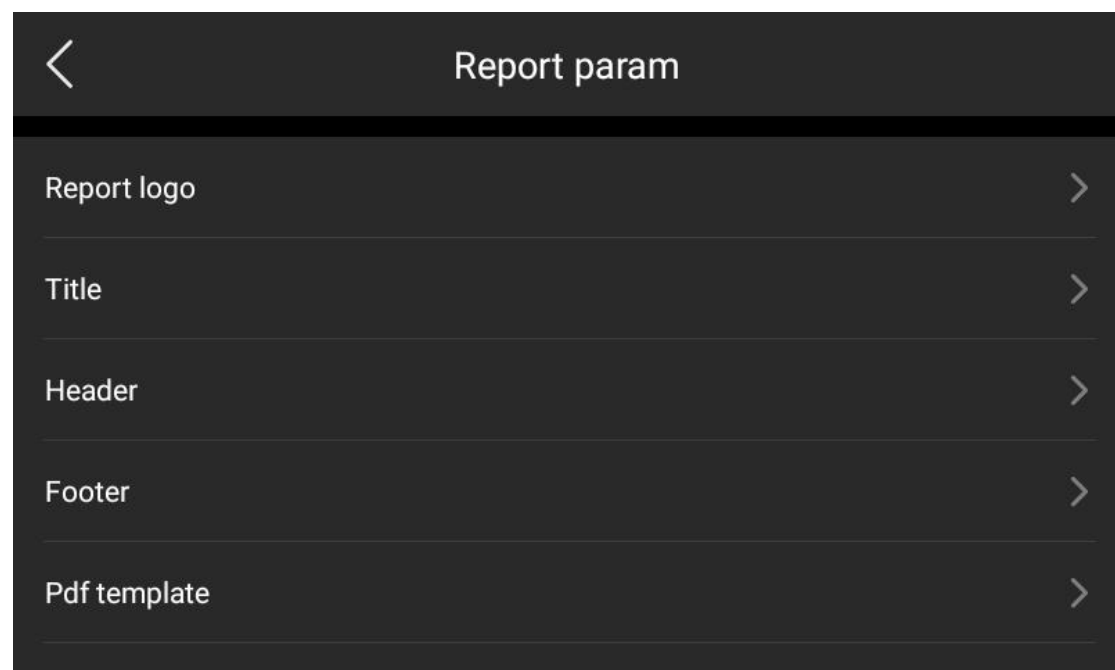
5.6.15.3. Unit Switching

Set the temperature units and distance units .

- (1) Temperature units: Celsius, Fahrenheit, Kelvin.
- (2) Distance units: meters, yards, feet.

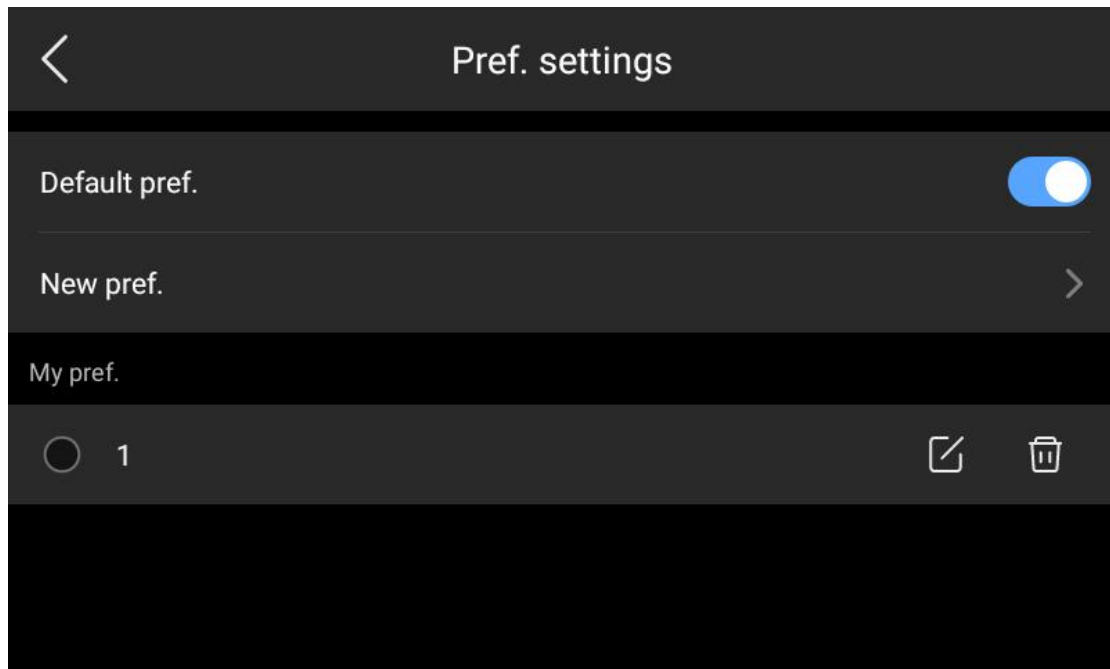
5.6.15.4. Report parameters

Set PDF report parameters .



5.6.15.5. Preferences

Users can adjust device parameters according to specific application scenarios and personal needs to optimize image quality and improve temperature measurement accuracy. Supports adding, editing, and deleting operations.



5.6.15.6. Password lock

Set a password to protect the device when it starts . If you forget the password, contact the device manufacturer.

5.6.15.7. Shutdown and hibernation

Set scheduled shutdown and sleep time.

5.6.15.8. Date and Time

Set the system date and time. "Auto Update" requires automatic synchronization after connecting to the Internet.

5.6.15.9. Language settings

Set the language.

5.6.15.10. Storage Management

Displays the capacity of internal storage devices and information of external SD cards, and supports custom settings for storage options.

Note: Due to software compatibility issues, it is not possible to adapt to all brands of SD cards on the market. It is recommended to use the SD card that comes with the device .

5.6.15.11. Factory Reset

Restore the device to factory settings. Please back up data in time and operate with caution.

5.6.15.12. format

Delete all pictures, videos and other files currently saved on the device .

Note: Formatting will permanently delete all images and other data, so please operate with caution.

5.6.15.13. Lens recognition

Automatically identify the lens information installed on the current device .

5.6.15.14. Synchronize Data

If you cannot view data after remote copying, file deletion, or SD card cross-use, you can restore the data by synchronizing the data .

5.7. Quick Operations

Support shortcut keys for screenshot and screen recording operations.

- (1) Screenshot: Press and hold the M key while pressing the Gallery key to take a screenshot and save the current image. The storage path is: This computer\Camera\Internal shared storage space\ScreenShot\Image;
- (2) Screen recording: Press and hold the M key while pressing the auxiliary key to start screen recording, click  the button on the screen to start recording, click  to end recording, click to  exit recording, the storage path is: This Computer\Camera\Internal Shared Storage Space\ScreenShot\Video.

Note: Screen capture and screen recording do not support secondary analysis.

6. Connecting with external devices

6.1. TYPE-C interface

The three-in-one interface supports dual-head Type-C data cables, USB A to Type-C data cables, and Type-C to RJ45 network cards . You can use the data cable to charge the device battery or connect to external devices.

- ① Charging the device battery
 - 1) Open the silicone cover on the top of the device;
 - 2) Use the data cable to connect the device and the power adapter.
- ② Connect to computer for file transfer;
 - 1) Open the silicone cover on the top of the device;
 - 2) Use a data cable to connect the device and the computer;
 - 3) Open My Computer on the computer, and the list will show the device disk Camera ;
 - 4) Double-click to open the disk, enter the picture/video folder, and view/export the target picture/video;

The internal storage path is as follows:

- Image: ...Camera\Internal Shared Storage \DCIM\GCamera\SourceImage
- Video: ...Camera\Internal shared storage \DCIM\GCamera\SourceVideo

If you need to store the captured images in the SD card, please go to Settings-General-Storage Management, select SD card as the storage medium, and then save the captured images to the SD card. The SD card image storage path is as follows:

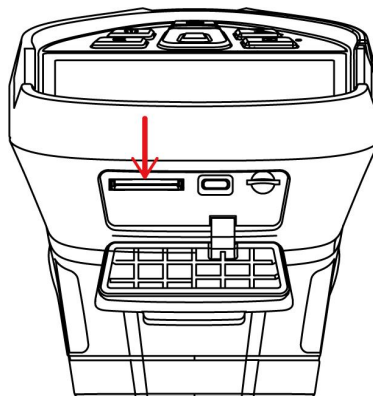
- Image: ...Camera\SDCard \DCIM\GCamera\SourceImage
- Video: ...Camera\ SD card \DCIM\GCamera\SourceVideo

6.2. Installing the memory card and lens

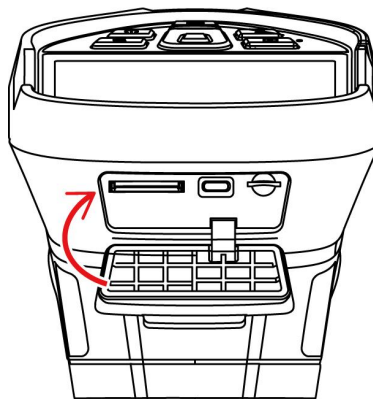
This device supports the use of SD cards. The images and videos you capture can be recorded on this device or on an SD card . Make sure the write-protect switch of the memory card is set to the upper position to allow writing/deleting.

6.2.1. Installing a Memory Card

- 1) Open the silicone cover in the direction indicated by the arrow and insert the memory card.

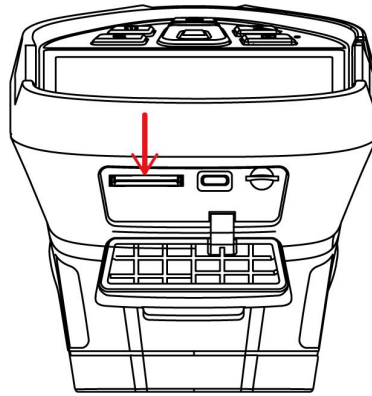


- 2) Insert the memory card until it clicks into place.
- 3) Close the silicone cover and press down to fit snugly on all sides.

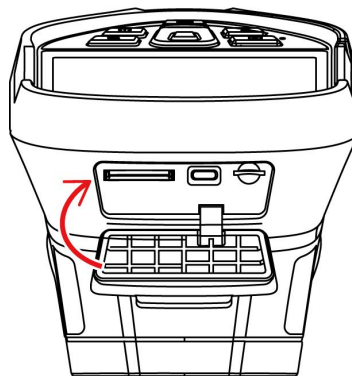


6.2.2. Removing the memory card

- 1) Power off the device first, then open the silicone cover.

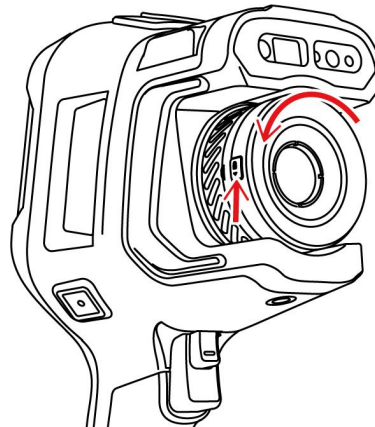


- 2) Gently push the memory card in, then release it to remove it.
- 3) Close the silicone cover and press down to fit snugly on all sides.

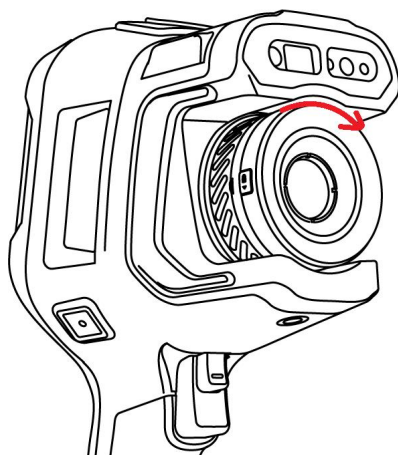


6.2.3. Changing lenses

- 1) Press the change lens button and rotate the lens counterclockwise to remove it .



- 2) Select the desired lens, place the lens U-shaped groove upwards, align it with the red dot on the machine, insert the lens, rotate the lens clockwise, and when you hear a "click" sound, it means the lens is successfully installed.



Note: Please handle with care when using it to avoid direct collision and damage to the lens. When not in use, please place the extended lens in a safe box and store it properly.

7. appendix

7.1. Table of emissivity of common objects

Material	Emissivity
wood	0.85
water	0.96
brick	0.75
Stainless steel	0.14
adhesive tape	0.96
Aluminum Plate	0.09
Copper Plate	0.06
Black Aluminum	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

earth	0.93
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7.2. Common Troubleshooting Guide

Fault phenomenon	reason	measure
Unable to turn on	Low battery	Recharge the battery before using it
	Bad battery contact	Remove the battery, put it back into the battery compartment and install it in place
	The external power plug is not plugged in properly	Unplug the power plug, reinsert and push until it clicks into place
deviates greatly from the actual usage	Battery drain	Replace the battery with a fully charged one
	Battery life has expired	Replace the battery with a new one
Infrared image is not clear	Out of focus	Manual focus or auto focus for a clear image
	The lens is fogged or contaminated	Use professional equipment to clean the lens
Visible light images are not clear	The environment is too dark	Take appropriate lighting measures
	The visible light lens is foggy or contaminated	Use professional equipment to clean visible light lenses
Inaccurate temperature measurement	No focus on target	Focus manually or automatically to make the image clear, then read the temperature.
	The temperature measurement related parameters are incorrectly set.	Change parameter settings, or directly restore default parameter values
	Long time without non-uniformity correction	Set the button assist to calibration in the menu, press the button assist, hear the shutter sound, and perform a non-uniformity correction.

	Measure temperature immediately after power on	To ensure the accuracy of temperature measurement, we recommend that you wait 5 to 10 minutes after turning on the thermal imager before starting temperature measurement.
	Long time without calibration	To obtain accurate temperature measurement results, we recommend that you calibrate once a year.
File cannot be stored	Insufficient storage space	Delete pictures and videos from the gallery
	SD card corruption	Unplug the SD card and insert it into the computer to format it or replace it with a new SD card

Names and contents of hazardous substances in products						
Part Name	Hazardous substances					
	lead (Pb)	mercury (Hg)	cadmium (Cd)	Hexavalent cadmium (Cr6+)	Polybrominated biphenyls (PBB)	Polybrominated diphenyl ethers (PBDE)
Lens protection window	○	○	○	○	○	○
Infrared module	○	○	○	○	○	○
shutter	○	○	○	○	○	○
PCBA	○	○	○	○	○	○

This form is prepared in accordance with the provisions of SJ/T11364

○: Indicates that the content of the hazardous substance in all homogeneous materials of this component is below the limit required by GB/T 26572 .

×: Indicates that the content of the hazardous substance in at least one homogeneous material of the component exceeds the limit requirement specified in GB/T26572.



☐ Product name: Lens protection window
☐ Product name: infrared module
☐ Product name: Shutter
☐ Product Name: PCBA
☐ Environmental protection period: 10 years

is only valid when the product is used normally according to the instructions for use .