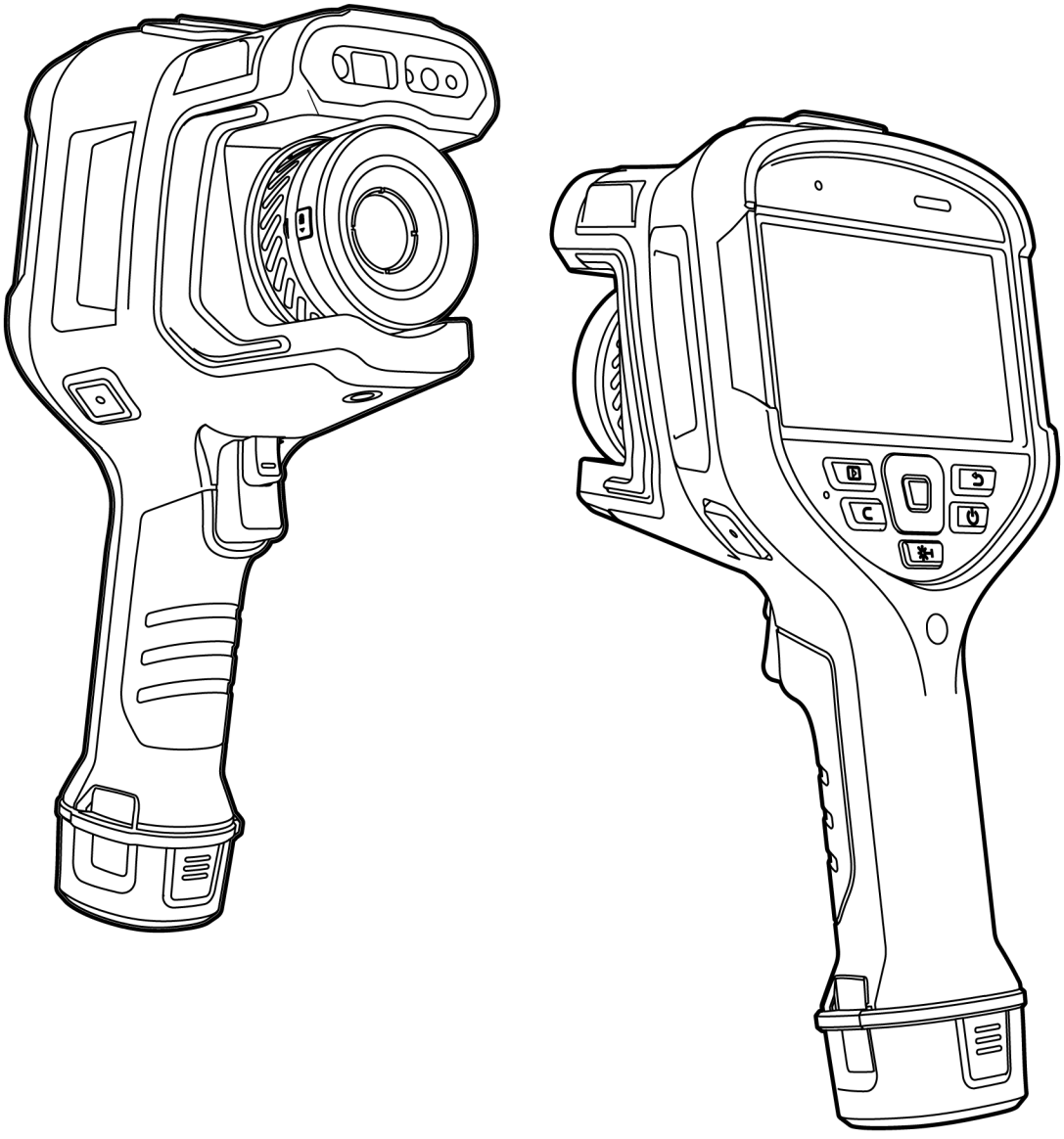
INTELLIGENT
THERMAL CAMERA

USER GUIDE v1.0



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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Important Notes

This Guide is a general guide for a series of products, which means that the specific model you receive may differ from the pictures in this Guide. Please refer to the actual product you receive.

This Guide is organized for the convenience of users to use and understand our products. We will do our best to ensure the accuracy of the contents of this Guide. However, we still cannot guarantee the completeness of the contents thereof. As our products are subject to continuous upgrading, we reserve the right to modify this Guide from time to time without prior notice.

Precautions

Danger

1) Please charge the battery with the method described in this Guide and follow the charging procedure and precautions. Improper battery charging will cause heating, damage and even physical injury;
2) Do not try to open or disassemble the battery at any time. Once the battery leaks and the spill enters the human eye, wash the eyes with clean water immediately and take medical care.

Warning

1) When using the device, please try to keep it stable and avoid violent shaking;
2) Do not use or store the device in an environment that exceeds the allowable operating temperature or storage temperature of the device;
3) Do not directly aim the device at high-intensity thermal radiation sources, such as the sun, lasers, spot welding machines, etc.;
4) Do not block the holes on the device;
5) Do not knock, throw or vibrate instruments and accessories to avoid damage;
6) Do not disassemble the device by yourself, which may cause device damage and loss of warranty rights;
7) Do not use soluble or similar liquids on the device and cables, which may cause damage to the device;
8) Please do not use the device in an environment that exceeds the operating temperature of the device, which may cause damage to the device;
9) Please observe the following measures when wiping this device:

- Non-optical surface: use a clean soft cloth to wipe the non-optical surface of the thermographic camera when necessary;
- Optical surface: when using the thermographic camera, please avoid polluting the optical surface of the lens, especially avoid touching the lens with your hands, because the sweat on your hands will leave traces on the lens glass and may corrode the optical coating on the glass surface. When the surface of the optical lens is polluted, use special lens paper to wipe it carefully;

10) Do not place the battery in a high temperature or near a high-temperature object;
11) Do not short circuit the positive and negative poles of the battery;
12) Do not expose the battery to moisture or water.

Notice

1) Do not expose the device to dust or moisture. Avoid water splashing to the device when being used in an environment with water. Cover the lens when not using the camera;
2) Please put the ranger and all accessories in the special packaging box when not using it;
3) Avoid using SD cards for other purposes.

Introduction

The product is designed for professional infrared temperature measurement. The infrared detector of high sensitivity and resolution provides clearer infrared image and higher accuracy of temperature measurement. The Android operating system, large-size screen and detachable lens make the product powerful and easy to use. Visible light and infrared image can be captured synchronously and the key observation positions can be displayed in PIP or MIF. It can be used as a multipurpose mobile infrared thermography application platform through the open Android Platform.

Storage and Transportation

Storage:

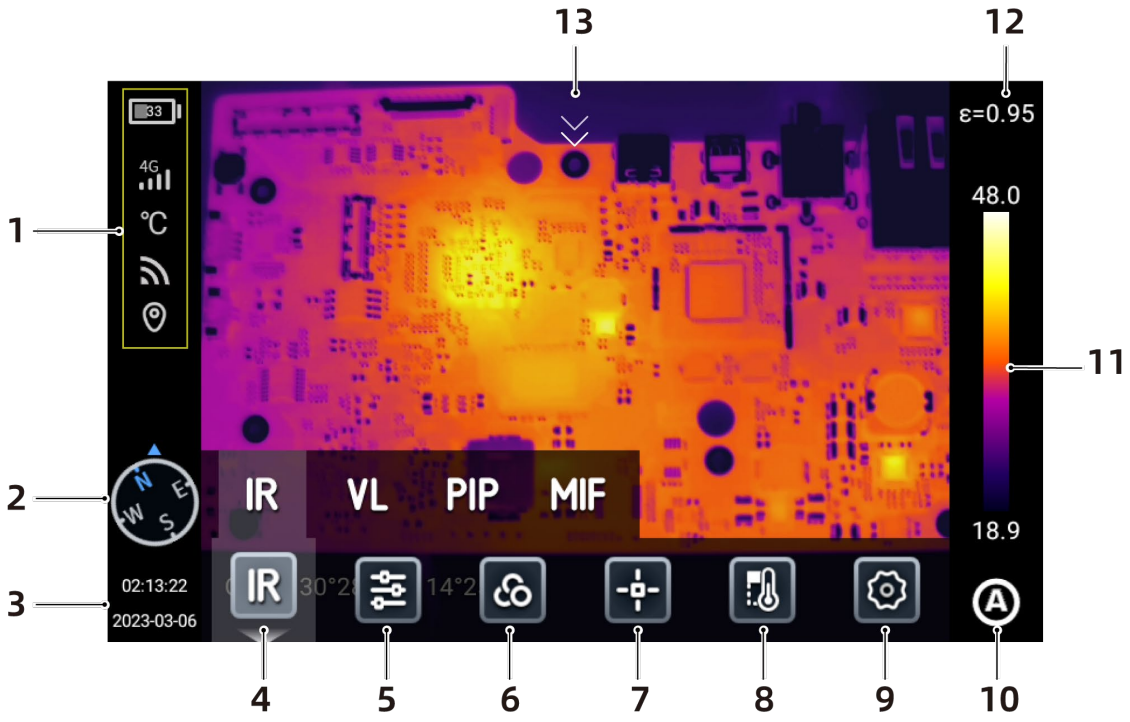
The packaged products shall be stored in a well-ventilated and clean indoor place with an ambient temperature of -40℃~60℃, a relative humidity of not more than 95% and free of condensation and corrosive gas.

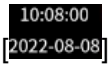
Transportation:

The products shall be protected from rain, water, inversion, violent vibration and impact during transportation, and shall be handled with care. Throwing is not allowed.

Interfaces

Real-time image interface

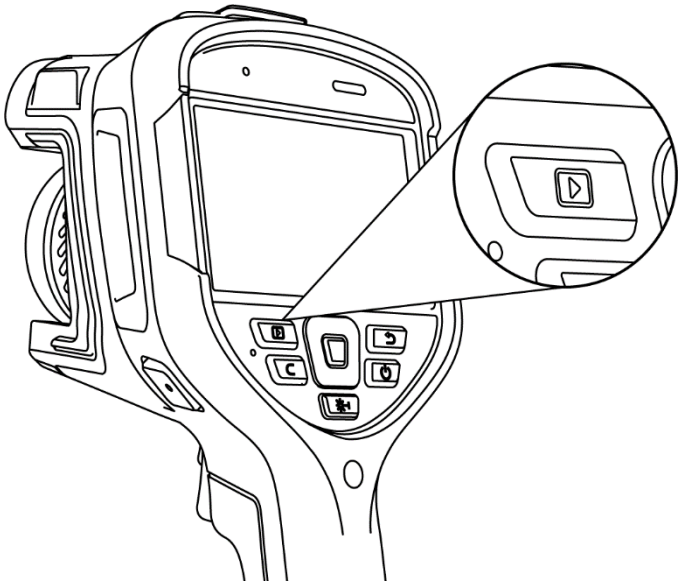


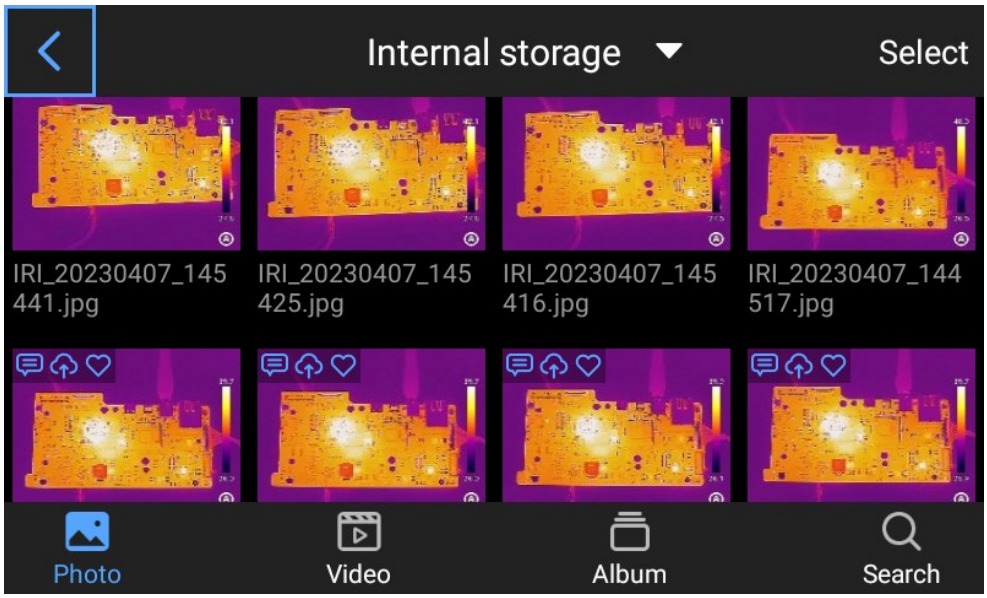
1. Status bar: battery capacity, WiFi, 4G network (support some models), location;
2. Compass information: Go to Settings - Image Tags to turn on/ff, or long press [] in the real-time interface to go to Image Tags to turn on/off.
3. Time and date: Go to Settings - General – Date & Time, or long press [

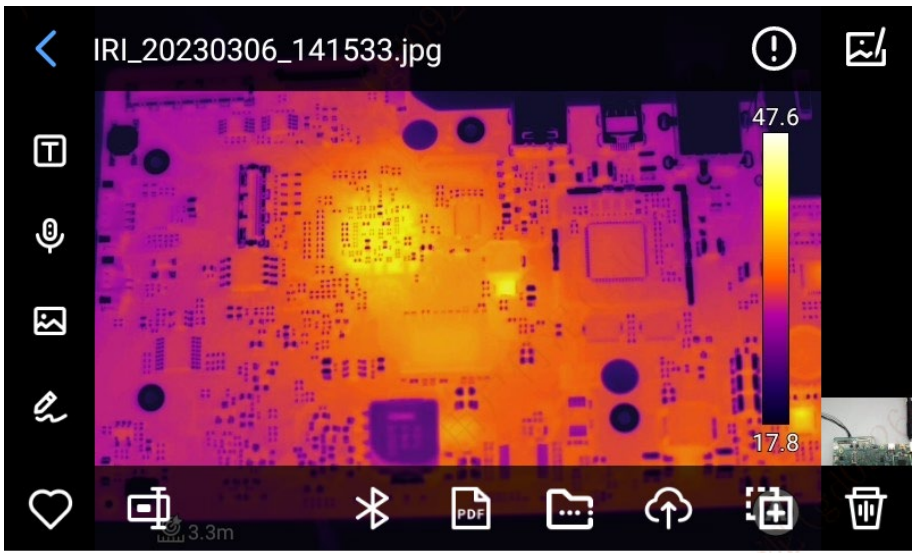
] in the real-time interface to go to Date & Time interface.
4. Image mode: infrared, visible light, MIF, PIP;
5. Temperature measurement parameters: set the reflected temperature, atmospheric temperature, relative humidity, target distance, atmospheric transmissivity, etc.;
6. Palette: set and add custom colors;
7. Analysis target: set the analysis target, such as the point, line, circle, rectangle, outline and temperature difference;
8. Isotherm: upper isotherm, lower isotherm and isotherm within the range;
9. Settings: conduct system settings;
10. LEVEL SPAN mode: switch between automatic, semi-automatic and manual modes through the buttons or touch screen;
11. Switch the basic colors and custom colors in real time;
12. Emissivity: set the emissivity based on the target;
13. Shortcut menu: slide down the touch screen in the main preview interface to go to the Shortcut menu.

Main interface of the gallery

Press the "Gallery" button on the device to go to the gallery to view or edit the photos or videos.



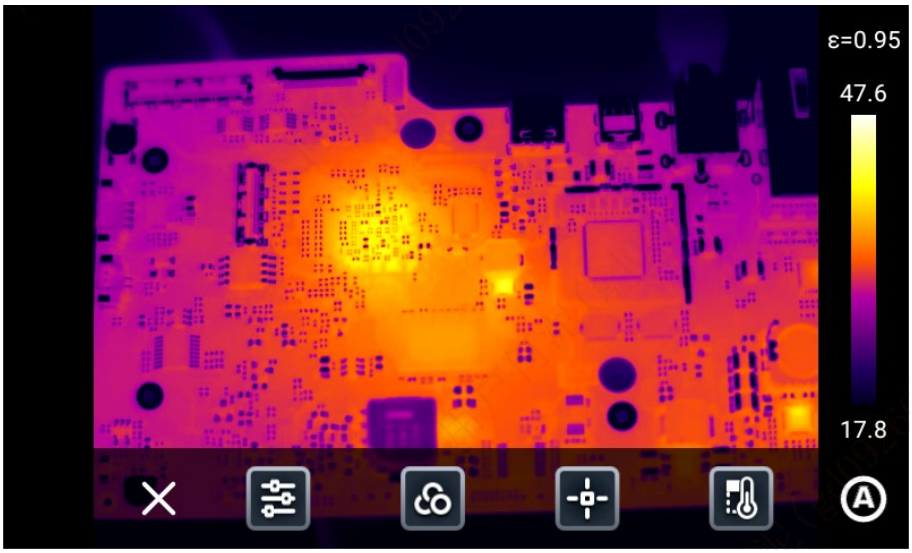




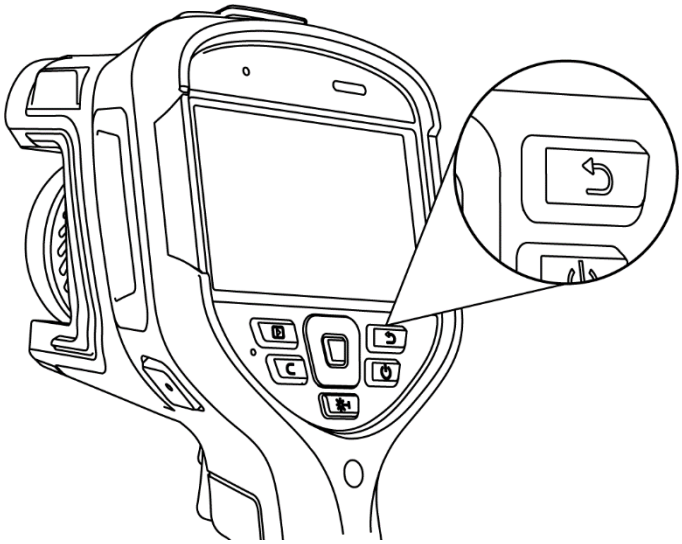
1. Click any photo in the photo preview interface to go to the photo editing interface, and click the area outside the menu to preview the current infrared photo in full screen;
2. Click [♡] to add the current photo to your Favorites;
3. Click [⊡] to edit the name of the current photo. The device support text recognition, keyboard input and voice input;
4. Click [ⓘ] to view the detailed information of the current photo;
5. Click [T] to add text notes to the current photo;
6. Click [🎙] to add voice notes to the current photo;
7. Click [🖼] to add visible light notes to the current photo;
8. Click [✎] to add scribbling notes to the current photo;
9. Click [📈] to add or change the analysis object, change the isotherm and change the temperature difference between two points;
10. Click [ᛒ] to transfer the current photo via Bluetooth;
11. Click [PDF] to make a PDF report of the current photo;
12. Click [📁] to move the current photo to the specified album folder;
13. Click [☁] at the lower right corner to upload the current photo to the cloud server;
14. Click [⧉] at the lower right corner to move the current photo to other storage path;
15. Click [🗑] at the lower right corner to delete the current photo;
16. Click the visible light thumbnail at the lower right corner to preview the corresponding visible light photo in full screen.

Photo editing

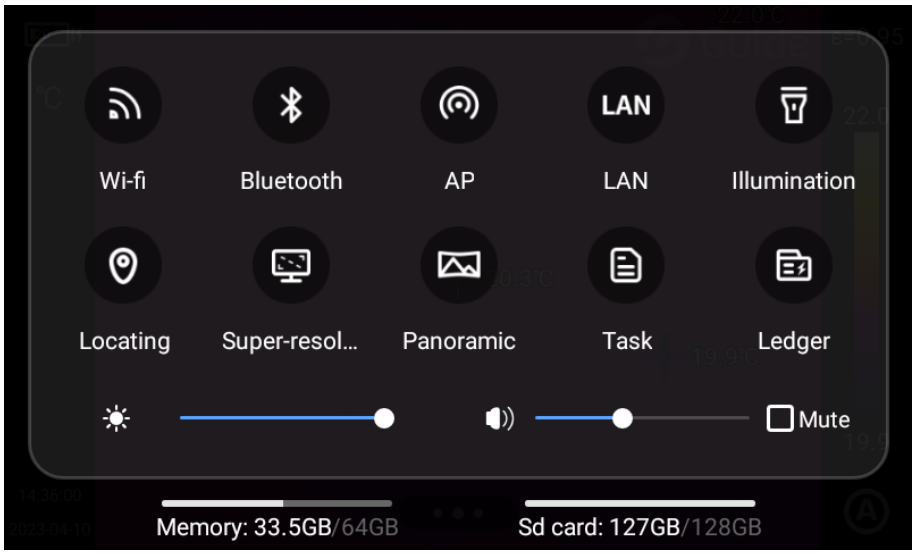
This function is to edit the saved photos, including photo analysis, thermometric analysis, parameter modification, photo outline, isotherm, temperature difference, etc.



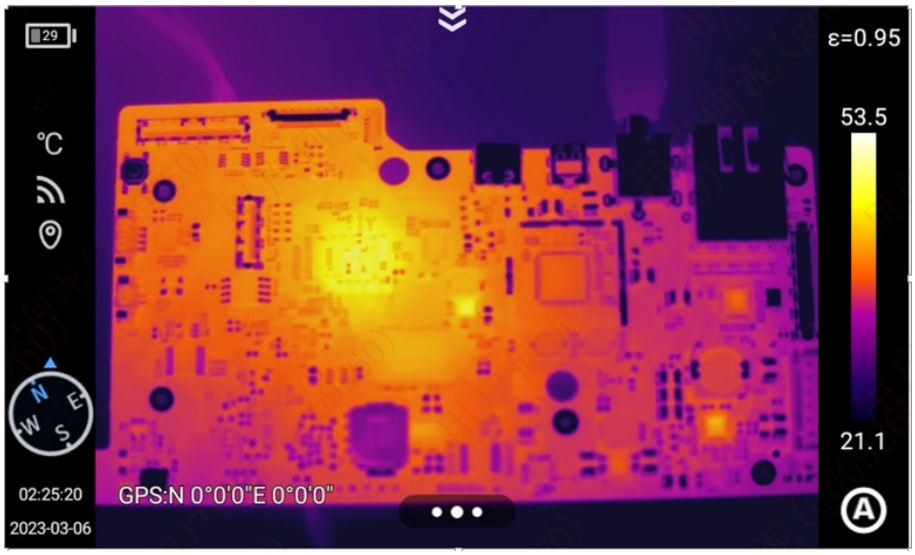
Click [X] or press the [Back] button on the device to exit the edit menu and back to the real-time preview interface.



Shortcut drop-down menu



In the real-time image interface, slide down from the top of the screen to pop up the shortcut menu. You can view the capacity internal storage or the external SD card or do some shortcut actions, including the brightness, volume, Bluetooth, WIFI, panorama, super-resolution, etc.

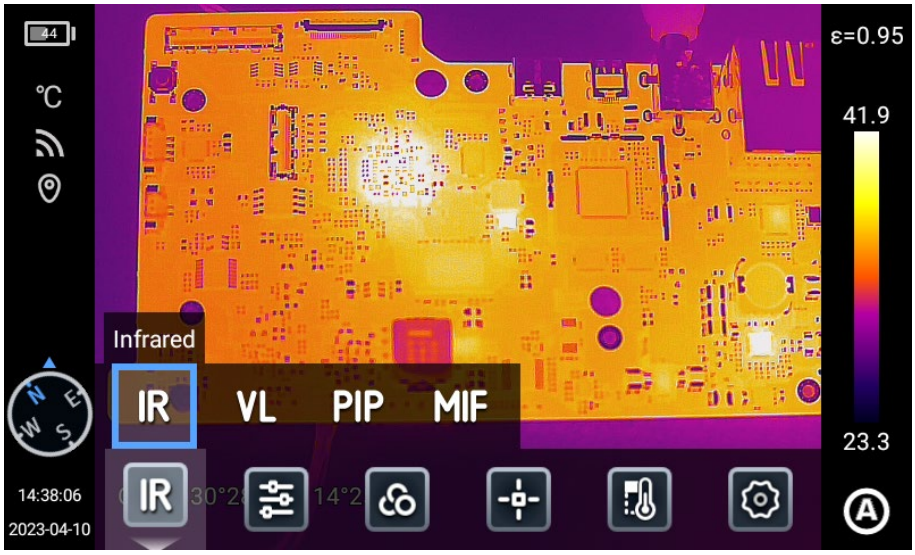


Observation

Switch the image mode

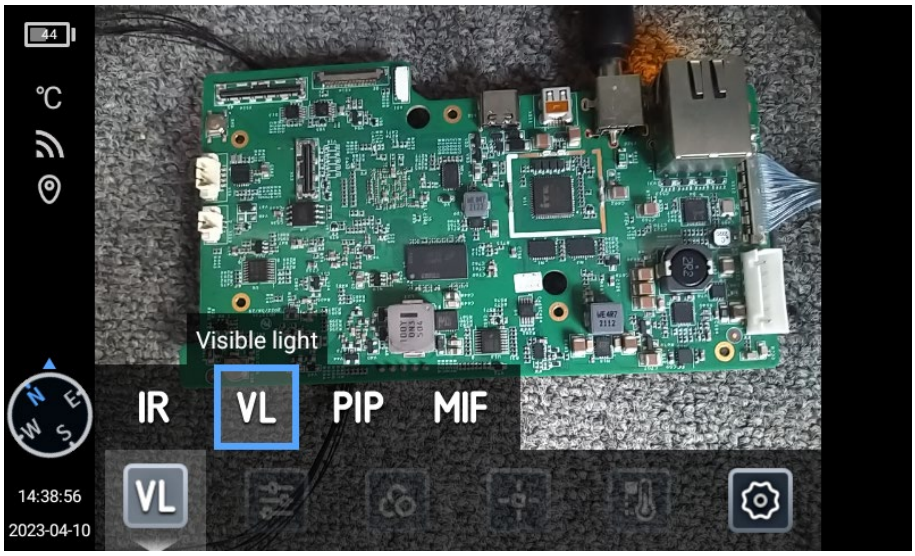
Infra-Red mode

Select the "IR" icon to switch the real-time preview screen to Infra-Red mode.



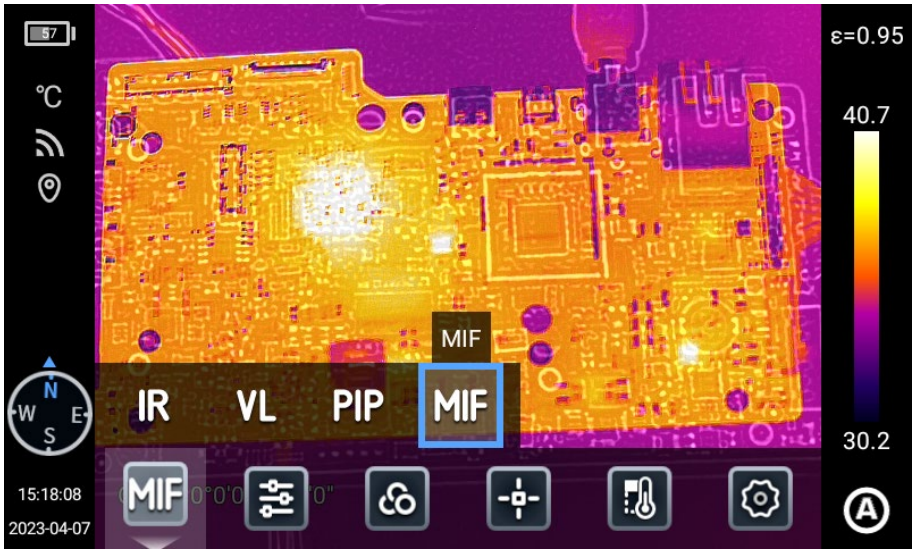
Visible light mode

Select the "VL" icon to switch the real-time preview screen to visible light mode.



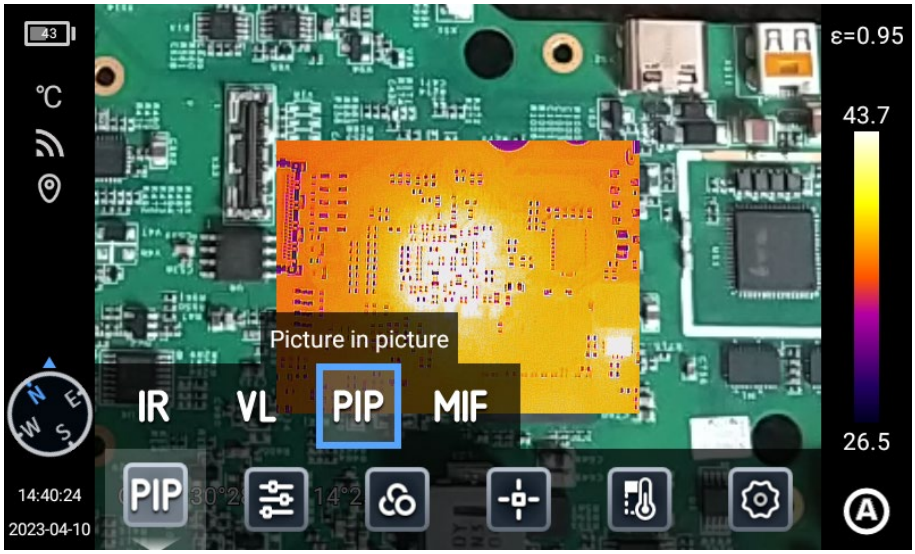
MIF mode

Select the "MIF" icon to switch the real-time preview screen to MIF mode, which can achieve the fusion of VL and IR photos.



PIP mode

Select the "PIP" icon to switch the real-time preview screen to PIP mode.

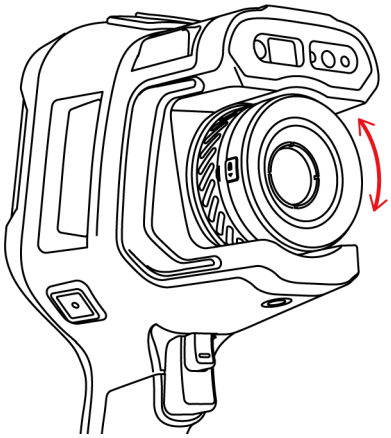


Manual focus/Semi-auto focus/Touch focus/Continuous auto-focus

There are two focus modes: image contrast focus and laser focus:

Manual focus:

Manually rotate the [Focusing ring] to conduct manual focus and keep the image in the observation interface is clear.



Touch focus:

In the real-time preview interface, tap the screen to focus.

Semi-auto focus:

Press the auxiliary trigger button to turn on focus, and the image will sharpen automatically.

1. Go to [Settings] - [Focus Mode], set the corresponding focus mode (laser focus and image focus), and press the [Focus] button in the real-time preview interface to realize auto focus;
2. When the image focus is selected, press the [Focus] button in the real-time image interface to realize fast focus based on the scene;
3. When the image focus is selected, press the [Focus] button in the real-time image interface to display laser points and realize fast focus.

Laser focus

This function is recommended for ranging of targets that can effectively reflect the light in non-strong light exposure (such as the white paper, cable, indoor scenes). Ranging of targets that cannot reflect the light or directly absorb the light or lessen the light is not recommended (such as the transparent glass, sky, etc.).

Image contrast focus

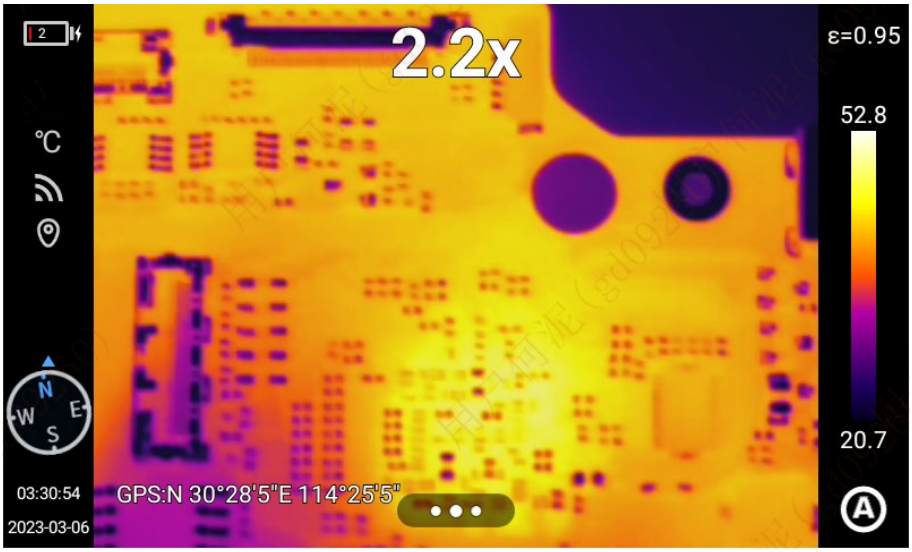
This function enables the thermographic camera to focus the target by comparing the image brightness and contrast parameters in the observation interface to keep the image in the observation interface clear.

Continuous auto focus:

1. The thermographic camera automatically focuses the target based on the changes of the observation interface to keep the image in the observation interface clear, which is suitable for use when the thermographic camera is still;
2. Notes: Auto focus shall be turned off when moving the thermographic camera, otherwise the normal use of the device will be affected;
3. Manual focus cannot be performed during auto focus;
4. Go to [Settings] - [Save Parameters] and enable [Continuous Auto Focus] to realize continuous and fast focus.

Digital zoom

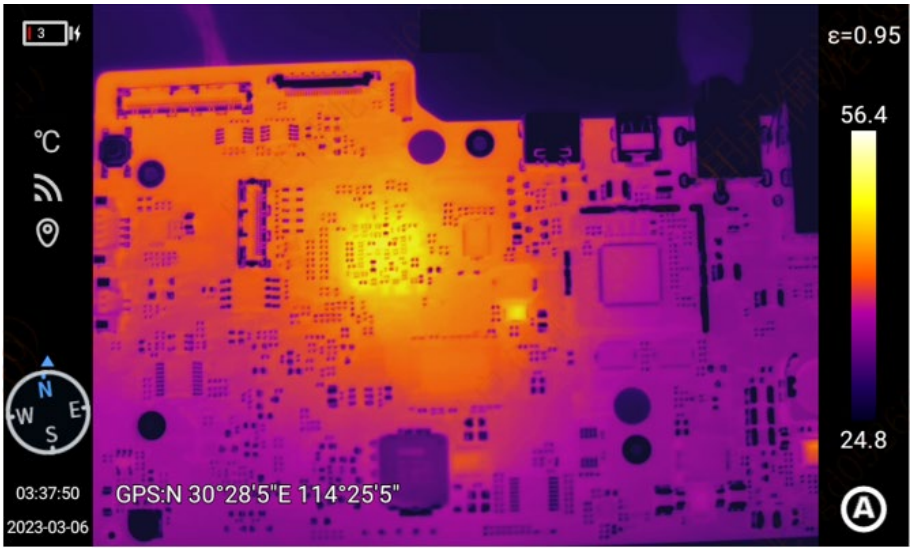
Touch the screen with two fingers to zoom in/out to view the image details.

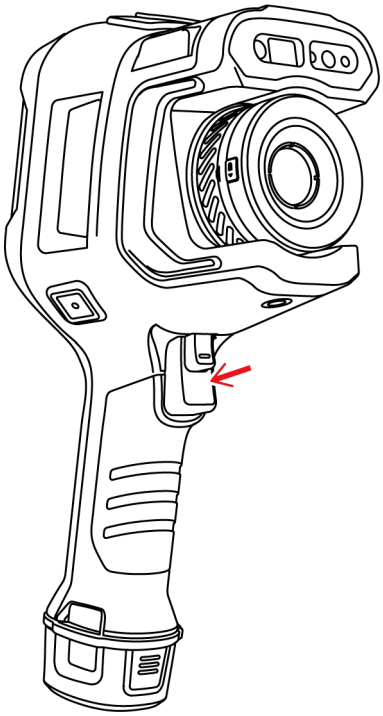


Shooting

This function includes: photo, panoramic stitching, timed photo, video recording, timed video recording, super-resolution.

Photo





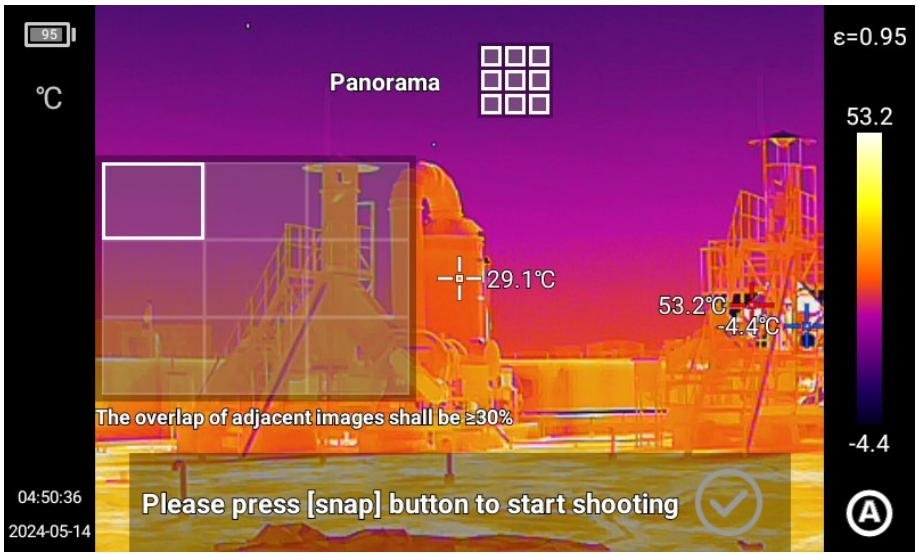
Go to [Settings] - [Photo Mode] and click [Photo] to go to [Single Frame] and select the corresponding photo mode, and then back to the main interface to adjust the imaging to the clearest state and press [Photo] button, and save the target scene.

Panoramic stitching

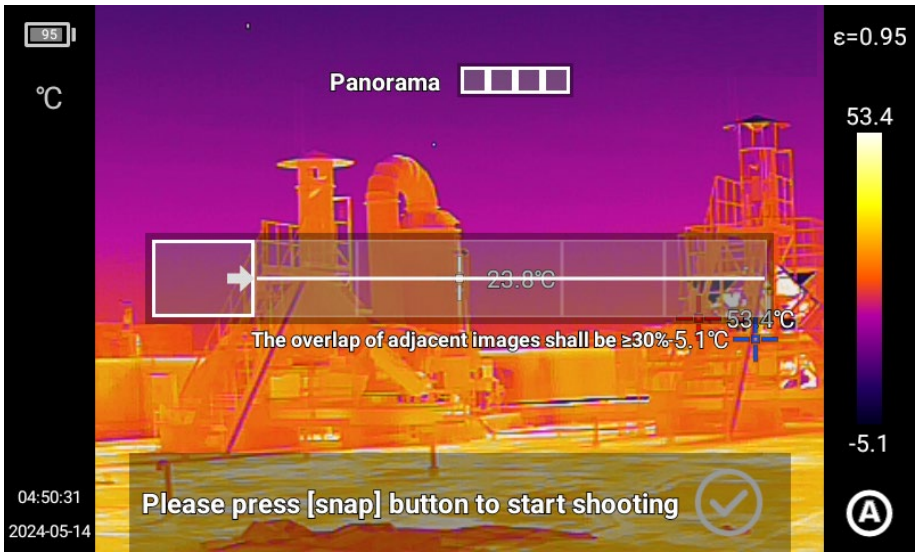
Panoramic stitching: Stitch two or more photos taken by the device into one panoramic photo to keep the details of the original images and provide better image of the scene.

In real-time image interface, slide down from the top of the screen to pop up the shortcut menu. Touch to open [ ] and the device automatically backs to the main interface and enters "Panoramic" mode, and click [ ] or [ ] to select the photo mode and stitching will be completed after photos are taken.

Horizontal shooting [ ]:



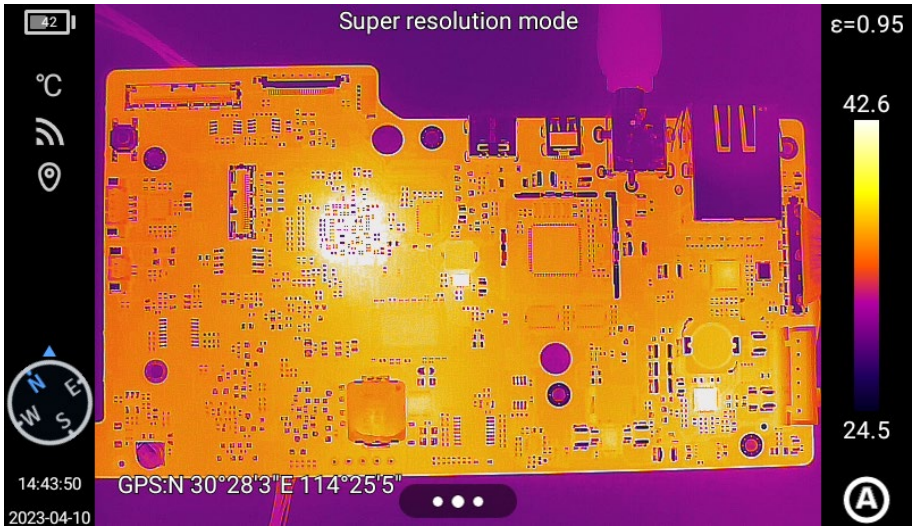
Gridview shooting [ ]:



Super-resolution

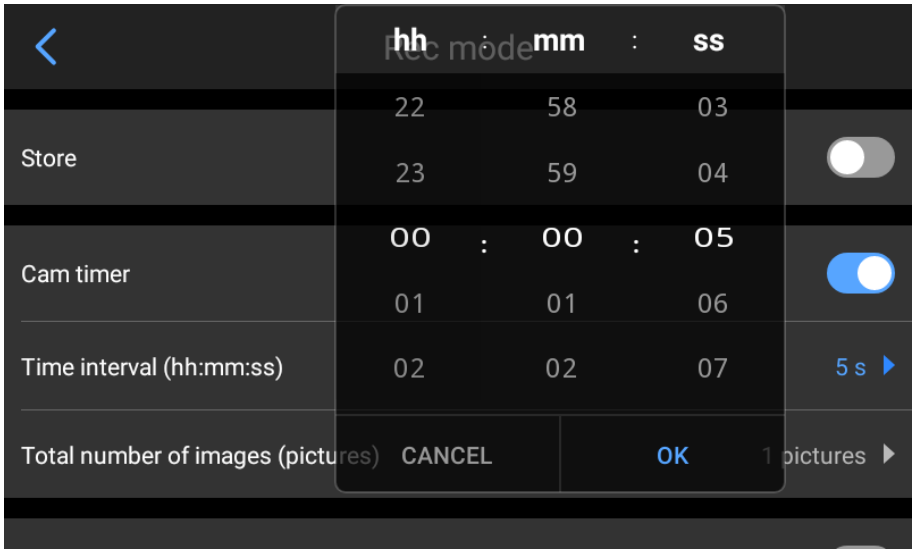
Super-resolution: Zoom in the original image to a high resolution image that can be edited.

In the real-time image interface, slide down from the top of the screen to pop up the shortcut menu and click "Super-Resolution" to enter the "Super-Resolution" mode.



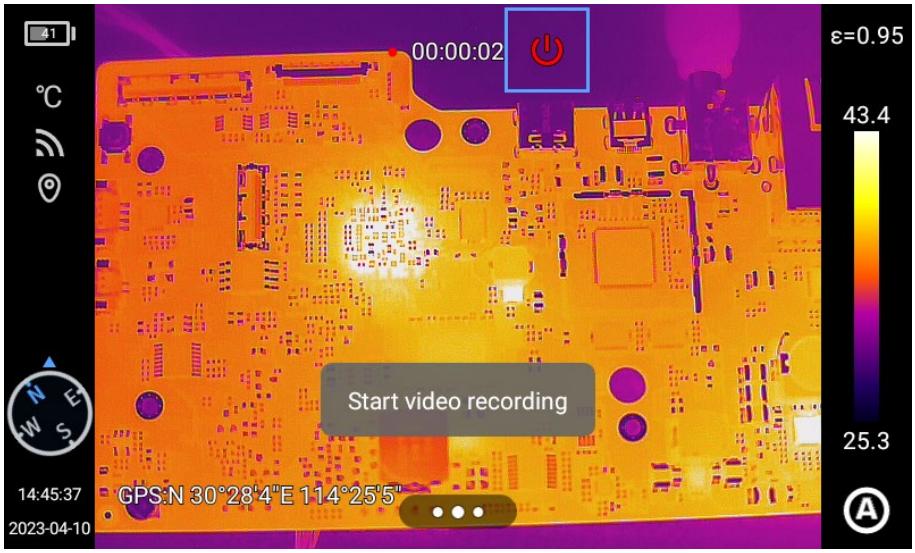
Timed photo

Go to [Settings] interface, click [Photo Mode] and select [Timed Photo] to set the interval and total number of photos. Press the Back button to go back to the real-time preview interface, and press [Photo] to take a photo and save the target scene.



Video recording

Go to [Settings] interface and click [Video Mode]. Touch to start [Video Recording] and press the "Back" button to go back to the real-time preview interface. Press [Trigger Button] to record the current target scene and press [Trigger Button] again to end recording.



Timed video recording

Set the latency and duration for different demands and scenes to record videos;

Go to [Settings] interface, click [Video Mode] and select [Timed Video Recording] to set the latency and duration. Press the Back button to go back to the real-time preview interface, and press [Trigger Button] to start video recording.

Latency:



Duration:

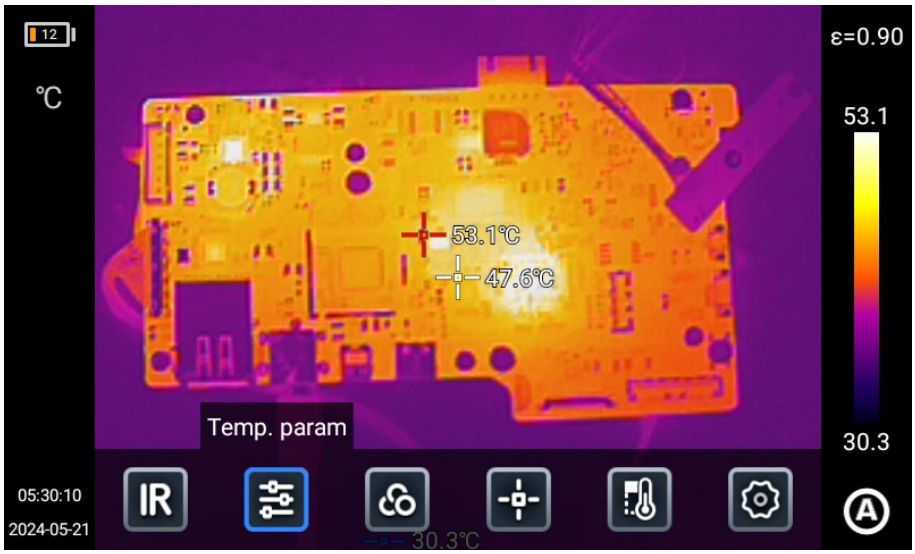

Rec mode
Record video
Video timer
Time lapse
10 s
Duration
1 min
60 min
30 s
1 min
5 min
10 min

Analysis Operation

Temperature measurement parameters

The temperature measurement parameters include: emissivity, reflected temperature, atmospheric temperature, relative humidity, target distance, optical transmittance and dew point;

Click [ ] in the real-time interface to go to the secondary menu and change the parameters as demanded.



Parameters

Emissivity

Users can set the emissivity based on the target material to ensure the temperature measurement accuracy;

Click [ ] to go to the emissivity settings and select "Materials" and [User Defined]. Slide to change the values within 0.01-1.00, and touch other areas or press [Back] to exit and save.

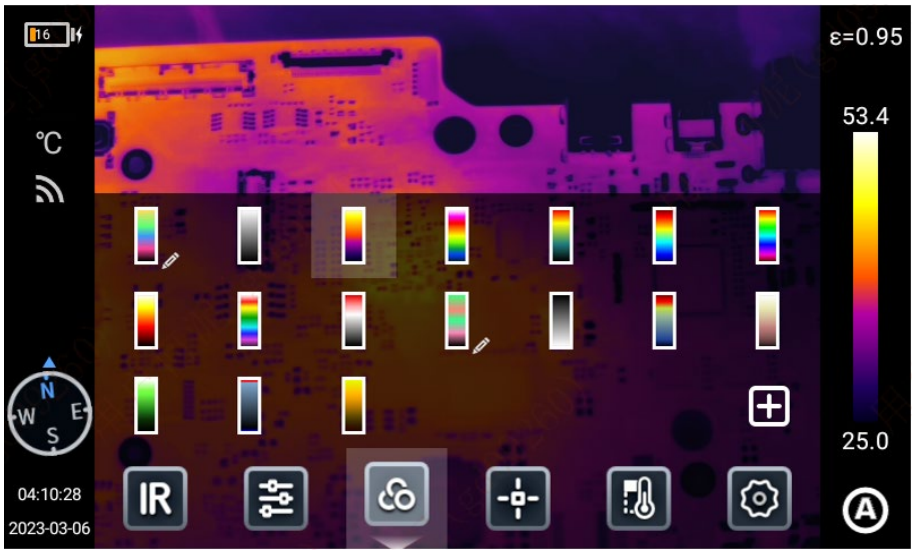


Reflected temperature: When there is a high-temperature target in the scene and the emissivity of the observed target is low, and the observed target reflects the high-temperature target, the reflected temperature needs to be set. The reflected temperature shall be set at the temperature of the high-temperature target. Users can change the parameters (-40-~2,000) based on the actual conditions.
Atmospheric temperature: The atmospheric temperature of the current observation environment. Users can change the parameters based on the actual conditions, and the range is -40-2,000.
Relative humidity: Users can change the parameters based on the actual conditions, and the range is 0-100;
Target distance: The distance between the observation target and the thermographic camera. Users can set the distance parameters as demanded. Users can set the close-up, distant and general distance based on the actual conditions, and the range is 0.1-1,000;
Optical transmittance: The transmittance of the germanium glass between the thermographic camera and the observed target, and the range is 1-100;
Dew point: The temperature required for the vaporous water in the current ambient air to condense into liquid water. This temperature shall be calculated with the corresponding formula and cannot be changed.

Palette

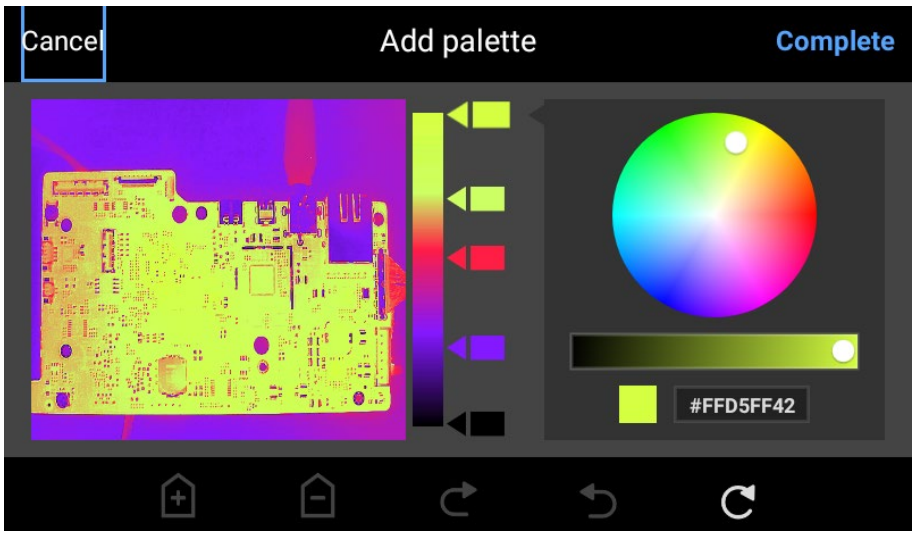
Users can select different colors for different application scenarios.

1. Click the palette area on the right of the screen in real-time image status to pop up the palette options, and select the color for the scene from White hot, Oxide red, Arctic pole, Hot iron, Rainbow 1, Rainbow 2, Lava, Medical, Red tint, Black hot, Blue hot, Dark brown, Green hot, Fire and ice, Amber and Custom colors (the options vary for some models).
2. Long touch to move and adjust the color.



3. Click [ ] to create custom colors.

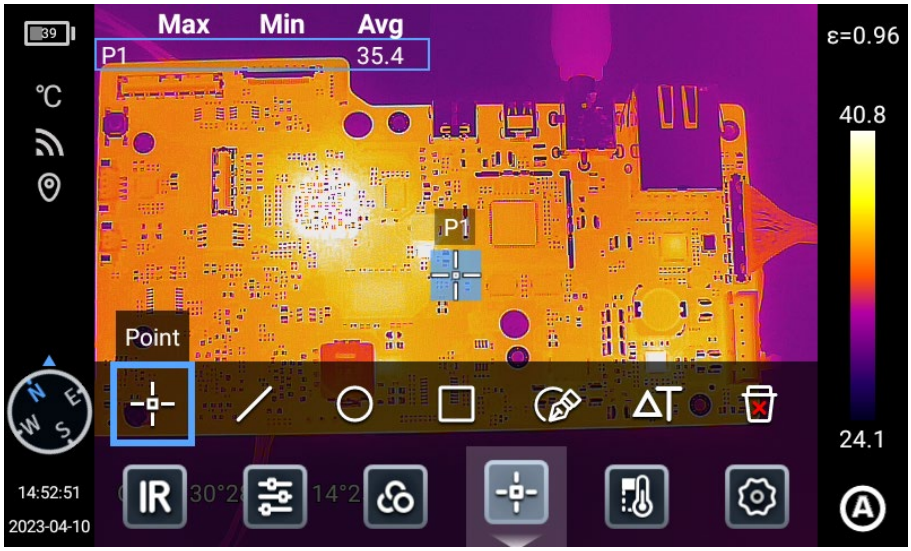
1) In real-time image mode, click in the color options interface to go to the palette adding interface. The image on the left automatically maps the effect based on the settings.
2) Two color codes are displayed by default to map the colors of low temperature to high temperature from the bottom to top. Select the first color code and zoom in by default.



Real-time analysis

Add/Delete analysis object

1. Click [ ] at the bottom of the screen in real-time image status to open the analysis object menu interface;



2. This device supports the temperature measurement of various analysis objects, such as the dot, line, circle and rectangle, and supports the customized display of the maximum temperature, the minimum temperature and the average temperature.
3. Long touch any analysis object on the screen and the system will automatically pop up the analysis object editing page;

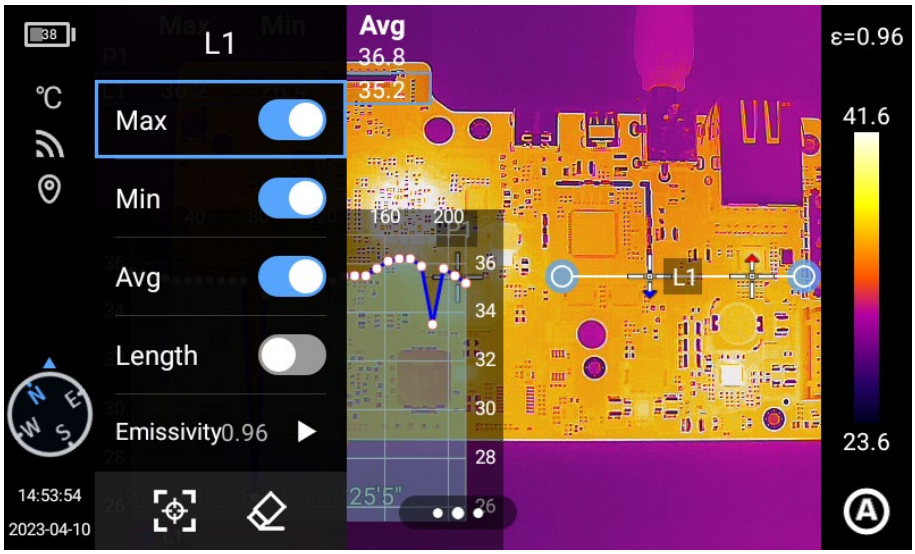
   Temperature mark: Maximum temperature, minimum temperature, average temperature;

   Emissivity: The emissivity of the analysis object;

   Area/Length: Enable the laser ranging function to obtain the target distance to analyze the area or length of the analysis object;

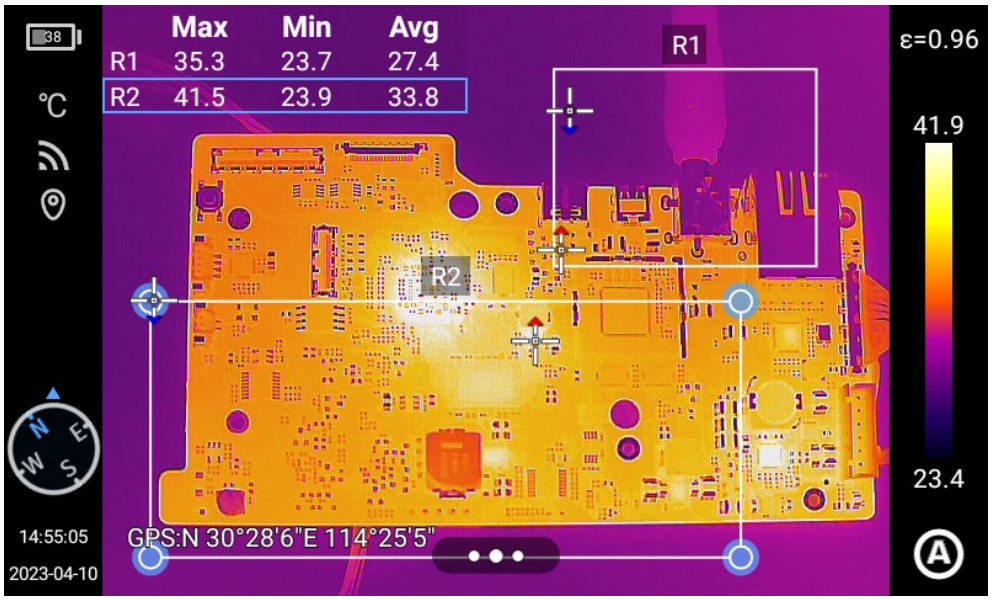
   Center: Center the analysis object;

   Delete: Delete the current analysis object.



Change the analysis object size

1. Touch to select the line, circle, rectangle or polygon analysis object and the selected points will be marked blue;
2. Move any point to change the area of the analysis object.



Line analysis object

Add a line analysis object and select to display the temperature trend of it.

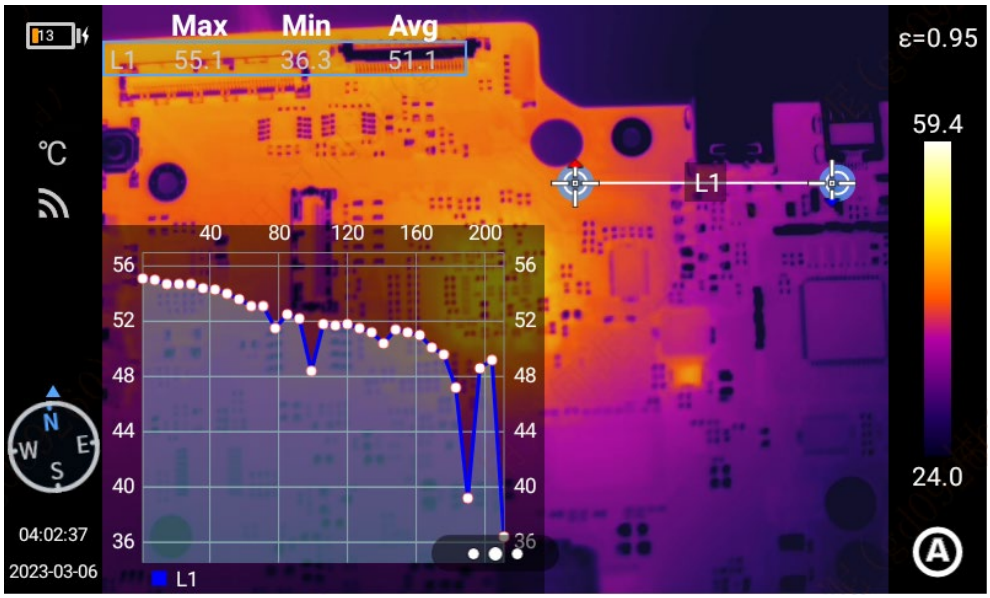
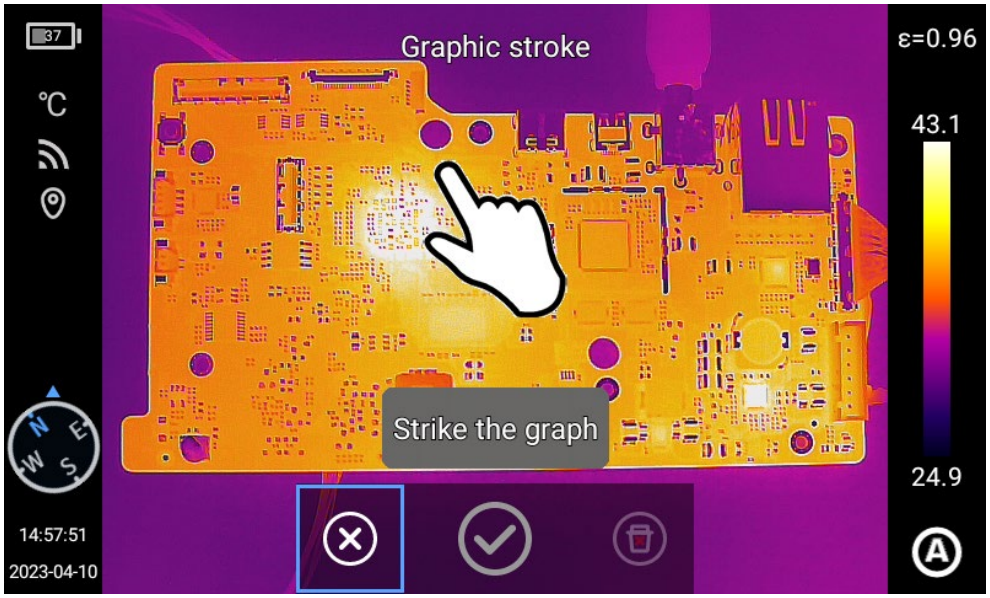
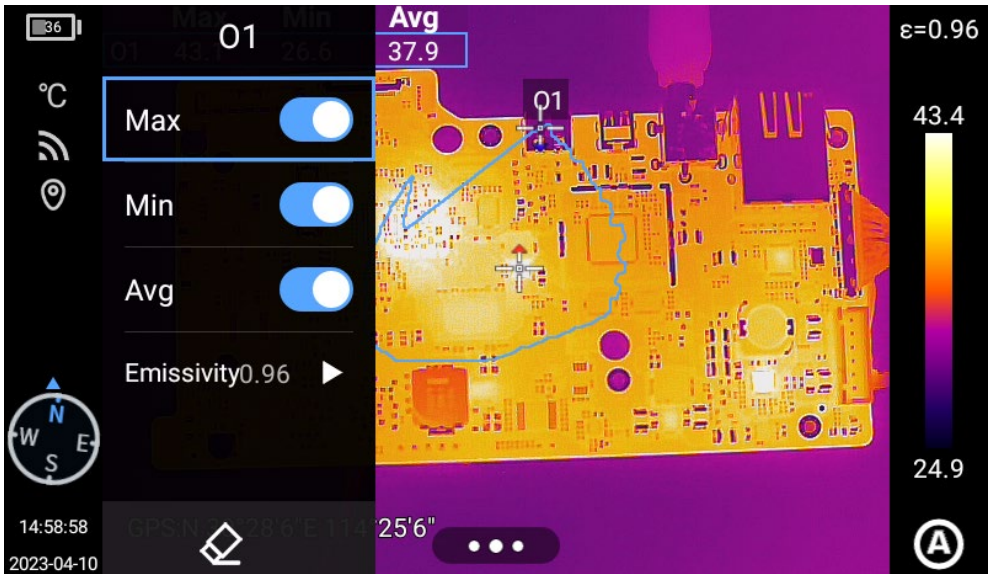


Image outline

1. Click [ ] to go to image outline and manually draw the interested target outline, and click "✔" to complete. You can also analyze the selected object;



2. Long press the outline object to pop up the object menu;
   Temperature mark: Maximum temperature, minimum temperature, average temperature;
   Emissivity: The emissivity of the analysis object;
   Delete: Delete the current analysis object.



Isotherm

Set the "Upper isotherm", "Lower isotherm", "Isotherm within the range" and "Isotherm beyond the range" to make the target temperature area matches the set color. The high temperature value and low temperature value can be adjusted by moving or by the five-way button.

The manual/semi-automatic mode does not support isotherms. Notes: Isotherms cannot be added in manual mode.

Upper isotherm

1. Click the shortcut menu [•••] at the bottom of the interface and click [ ];
2. Click [ ] at the isotherm column to enter the upper isotherm real-time image mode.

Lower isotherm

1. Click the shortcut menu [•••] at the bottom of the interface and click [ ];
2. Click [ ] at the isotherm column to enter the lower isotherm image mode.

Isotherm beyond the range

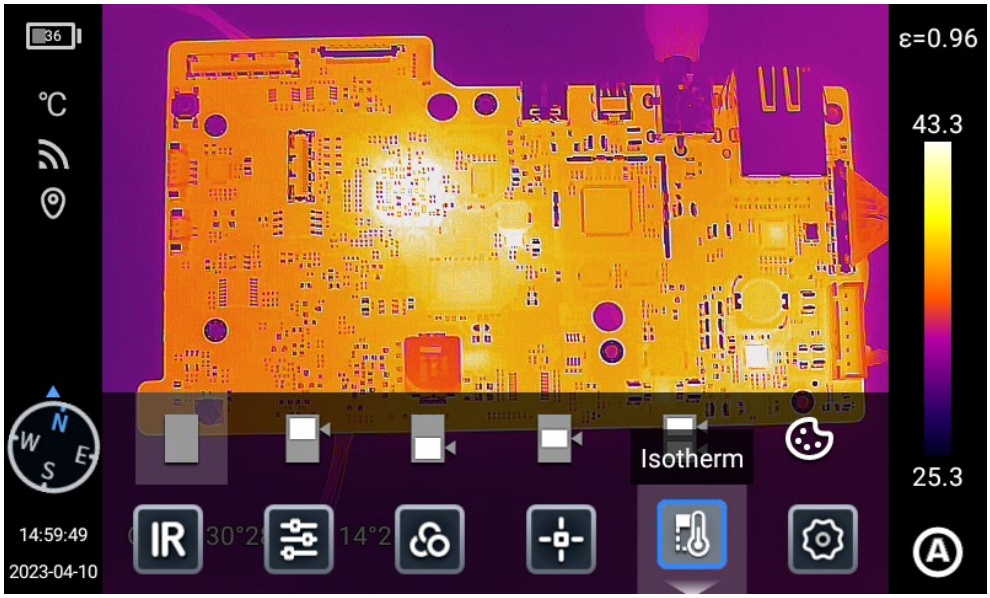
1. Click the shortcut menu [•••] at the bottom of the interface and click [ ];
2. Click [ ] at the isotherm column to enter the image mode with isotherm beyond the range.

Isotherm within the range

1. Click the shortcut menu [•••] at the bottom of the interface and click [ ];
2. Click [ ] at the isotherm column to enter the image mode with isotherm within the range.

Disable isotherm

1. Click the shortcut menu [•••] at the bottom of the interface and click [ ];
2. Click [ ] at the isotherm column to cancel the isotherm image mode.

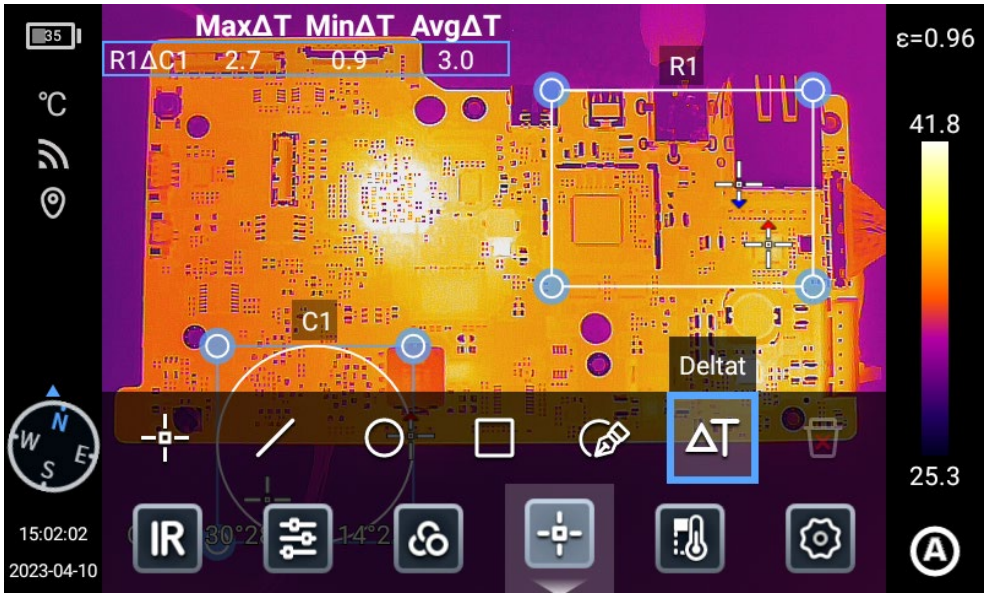


Temperature difference analysis

Add at least 2 analysis objects and click "△T" icon, and select the analysis objects of the same temperature data (such as Max, MIN) to compare.



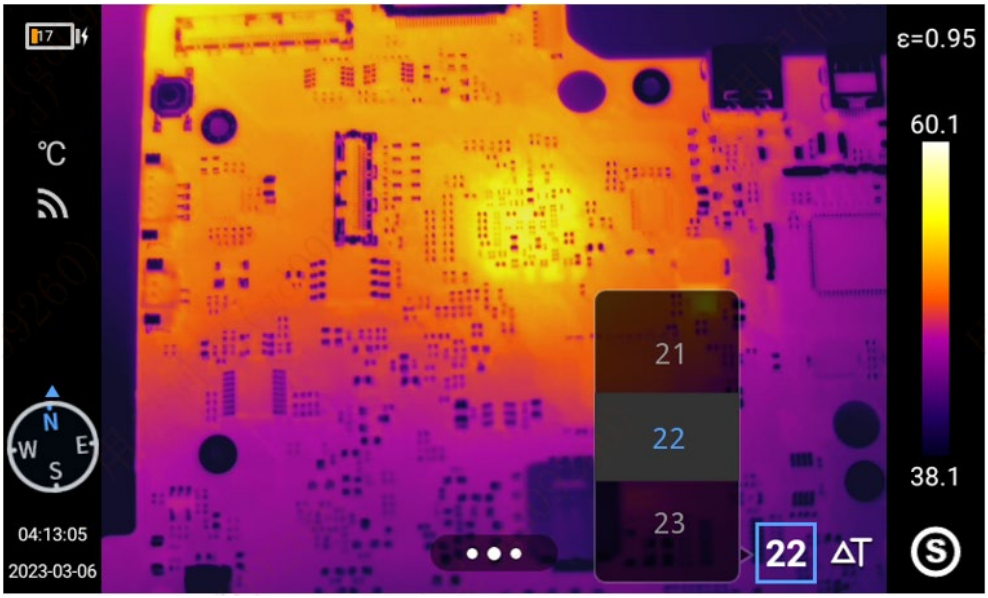
Exit temperature difference analysis: Click "△T" icon to exit temperature difference mode.



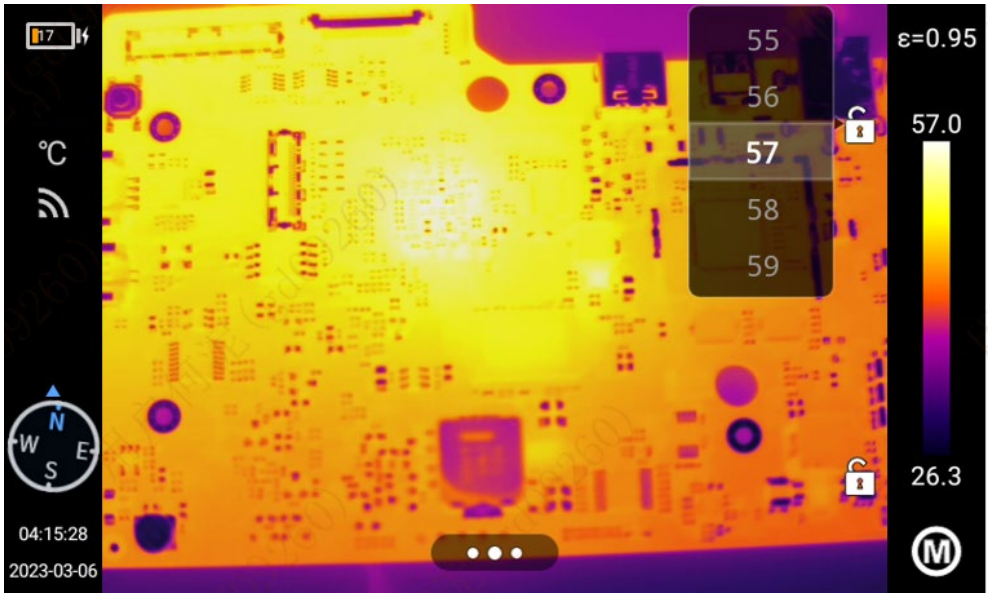
LEVEL/SPAN

Users can select different dimming type for different light conditions to achieve the best shooting effect.

1. Click [ ] [ ] and [ ] in the real-time preview status to switch among semi-auto [S], manual [M] and automatic [A];
2. When level/span is in semi-auto mode, adjust △T value with the "Up button" or "Down button" in the five-way button or set the △T value by sliding the screen, and the image dimming changes synchronously. △T=Tmax-Tmin.

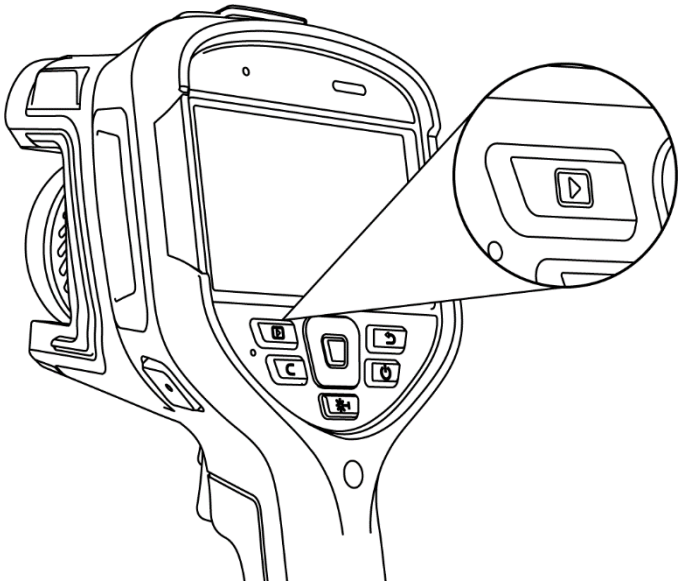


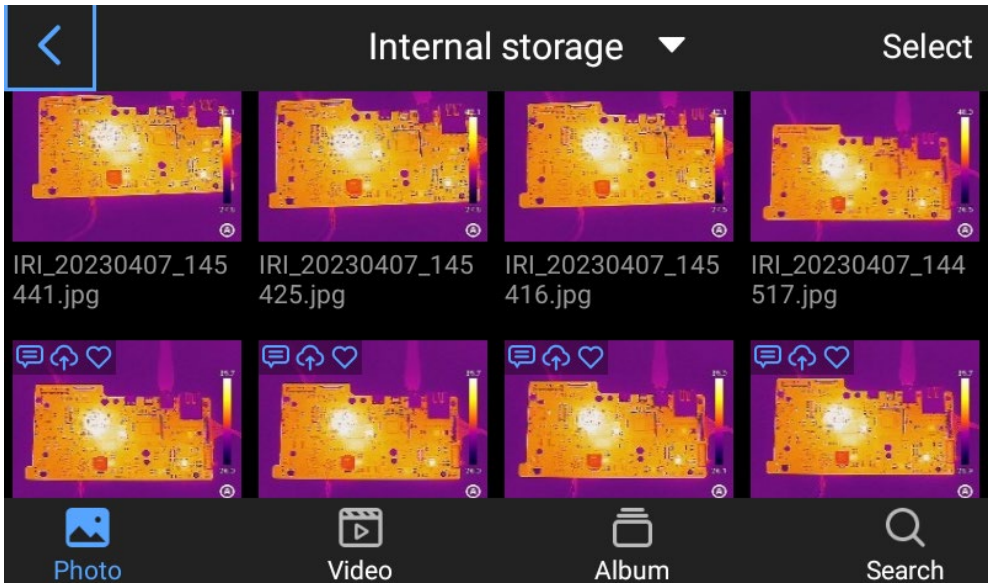
3. When level/span is in manual mode, adjust the "level" with the “Up button” or “Down button” in the five-way button. The "Up button" can also increase the Tmax and Tmin value and the "Down button" can reduce the Tmax and Tmin value. The image dimming changes synchronously;
4. Click the maximum temperature or minimum temperature value on the color bar to pop up the value options to select the appropriate maximum or minimum temperature value. The image dimming changes synchronously.



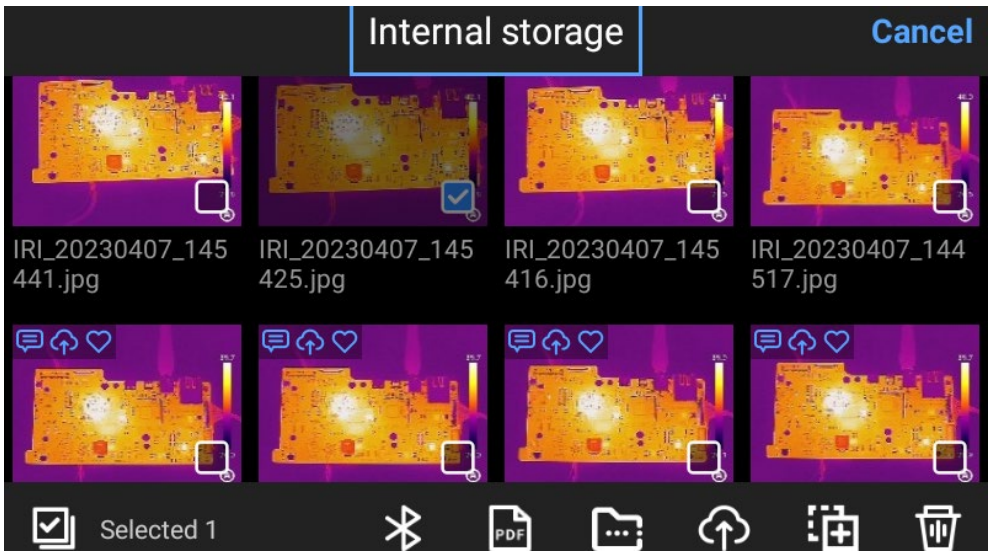
Gallery

1. Press [Gallery] button on the device to go to the gallery preview interface;





2. Click "Select" at the upper right corner to select images to transfer via Bluetooth, generate a PDF report, upload to the cloud disk, add to the album, cut and delete;



3. Select local, SD card (the device can identify the SD card only after the SD card installed) or cloud disk (the cloud disk will display after login) to display the files in the corresponding path.

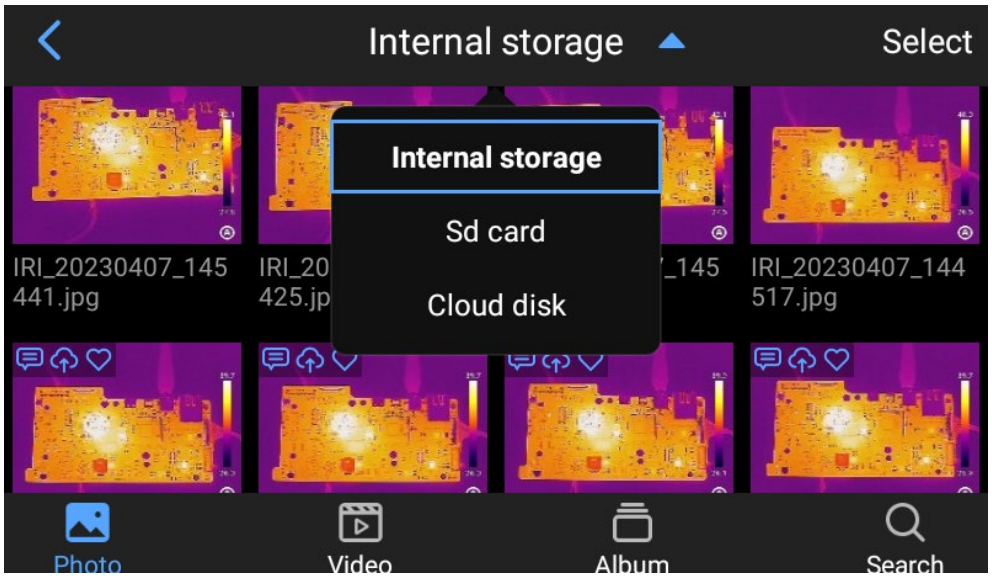
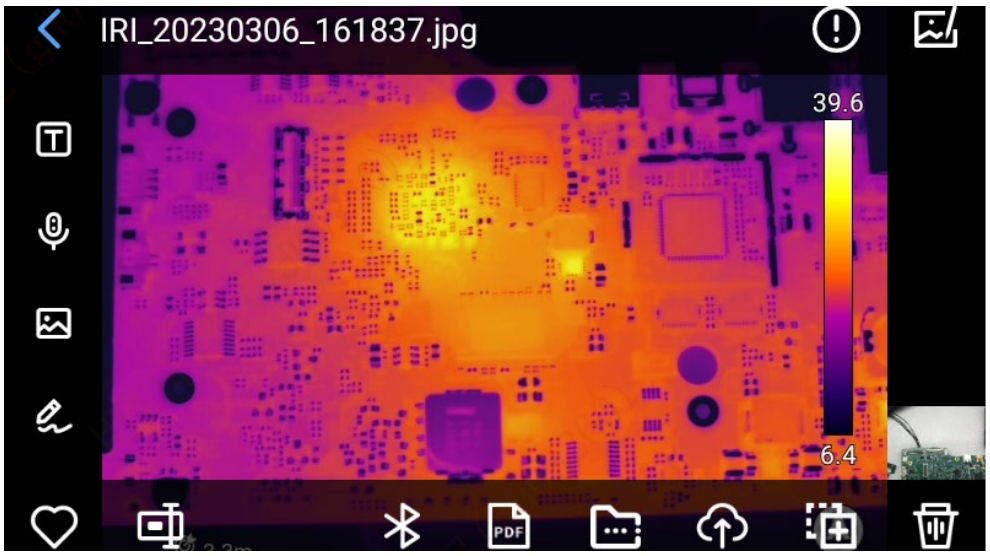


Image analysis

Photo editing

1. Click any photo in the photo preview interface to go to the photo editing interface;
2. You can add text, voice, visible light and scribbling notes to the current photo;
3. You can add the current photo to "Favorites", rename it, transfer via Bluetooth and generate a pdf report;
4. Click [] to add or change the analysis object, change the isotherm, change the temperature difference and change the temperature measurement parameters of the current photo.



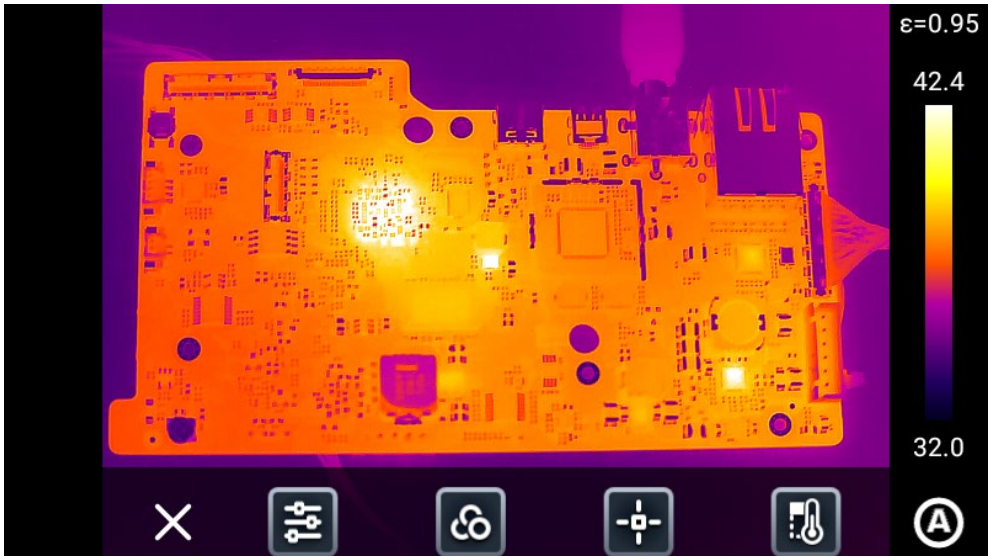
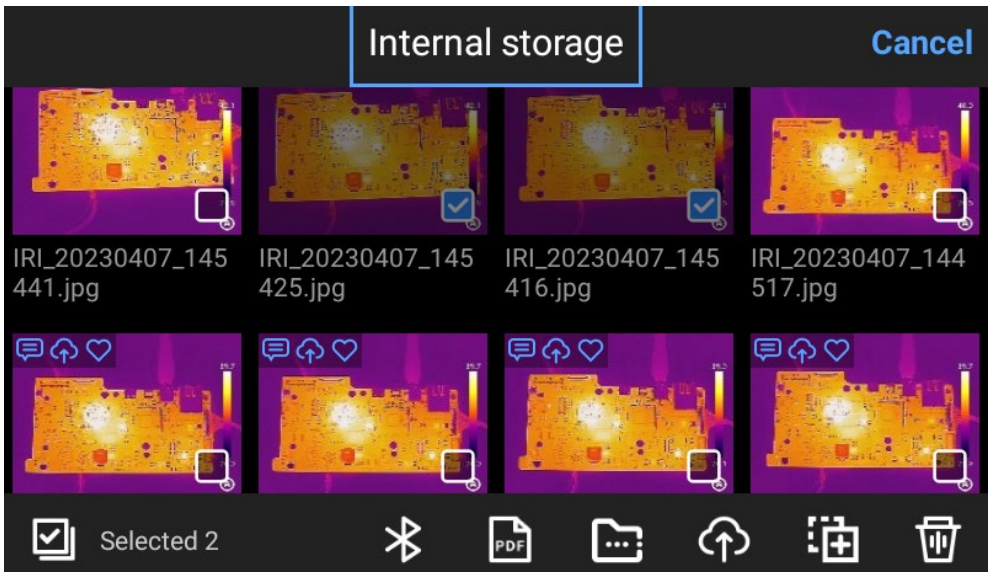


Image zoom in/out

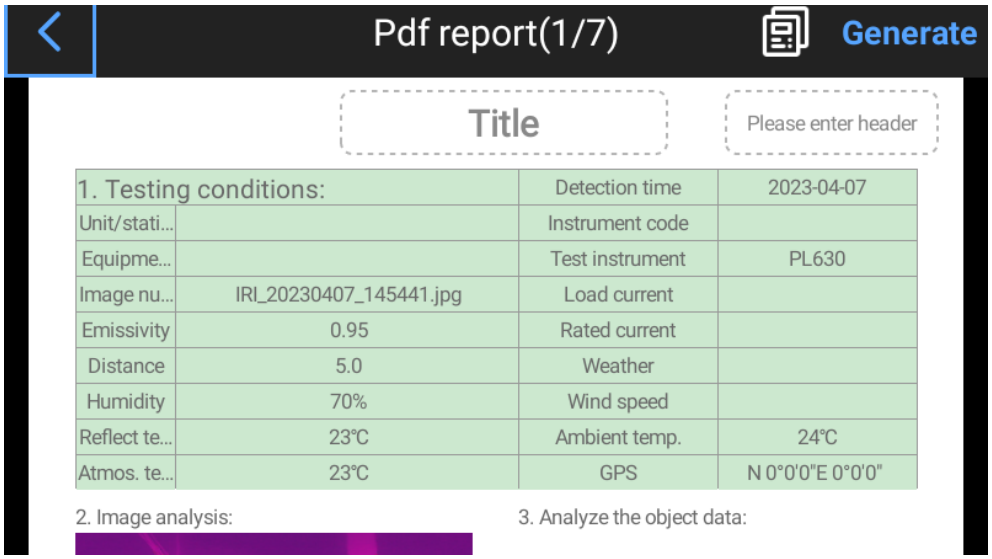
In image editing mode, touch the screen with two fingers and spread the fingers to zoom in the photo and fold the fingers to zoom out the photo. When the infrared image is zoomed in, slide on the screen with one finger to move the image.

PDF creating

1. In image preview interface;

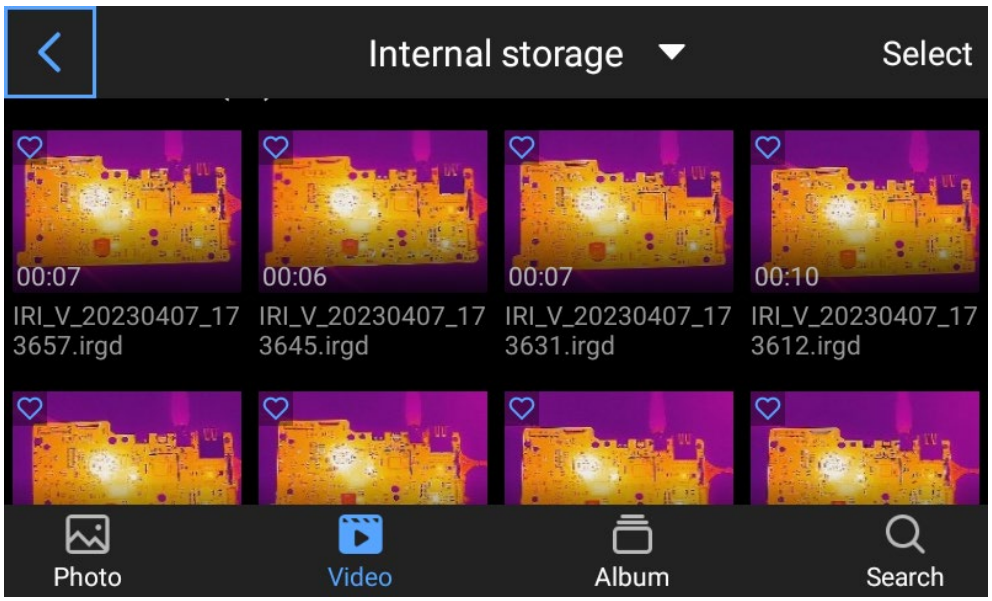


2. Click "Select" to select up to 9 images;
3. Click "PDF" to generate a PDF preview file.

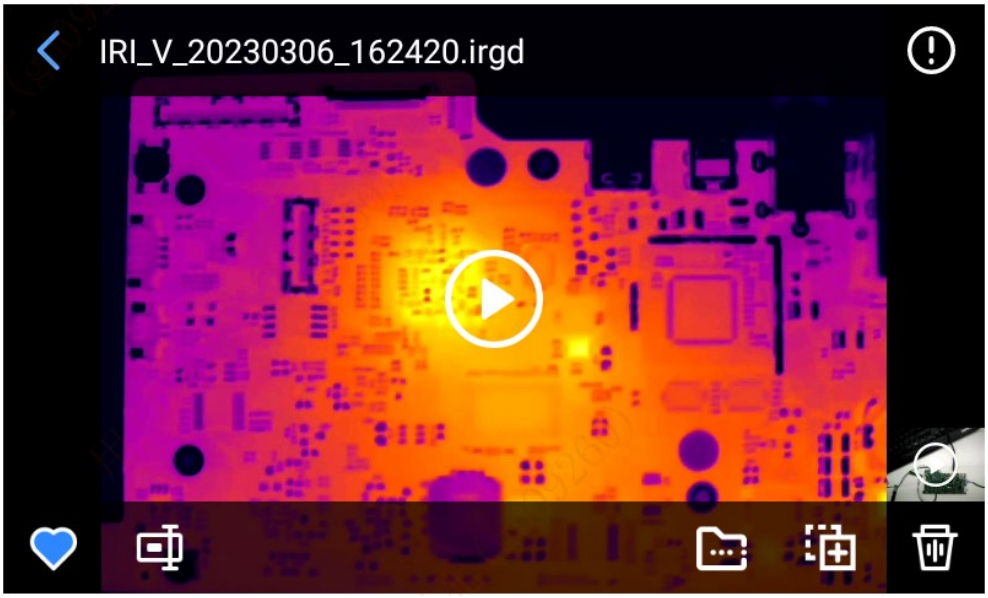


Video editing

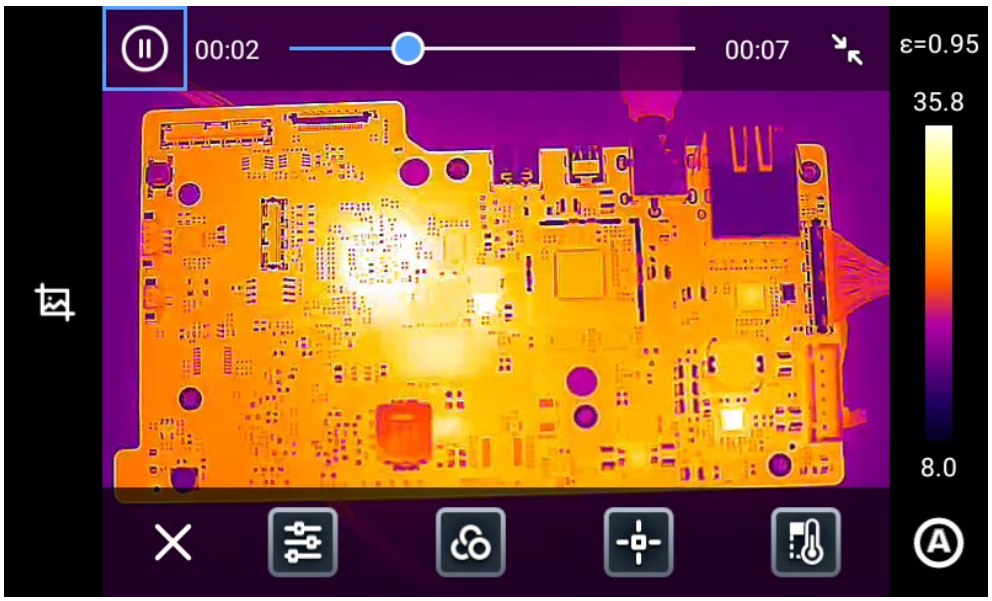
1. Click "Video" to go to the video preview interface;



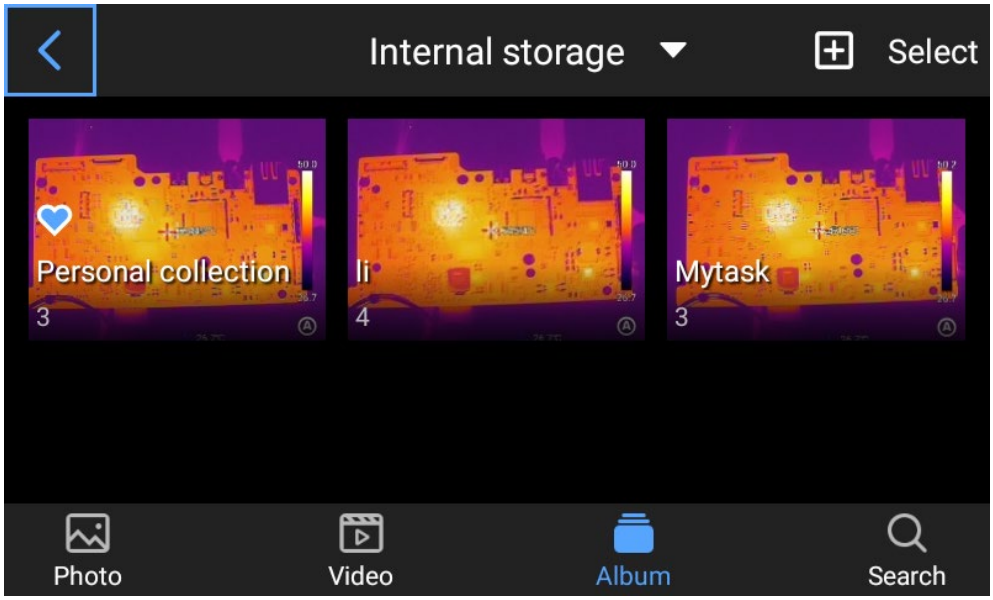
2. Click any video file to view the details;



3. Click [ ] to play the video.
4. You can change the analysis object, isotherm, temperature difference and temperature measurement parameters of the video (only support videos in irgd format).

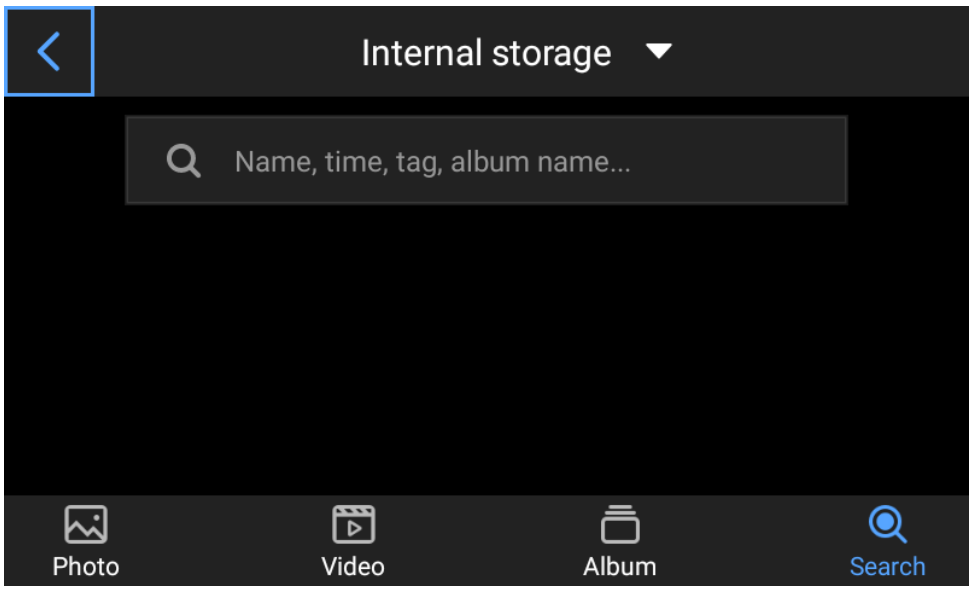


Click "Album" to go to the album gallery, and "Favorites", "My Tasks" and the albums created by the user will display.



Search

Click "Search" to go to the album interface and enter the photo name, time and tag to search for the corresponding file.

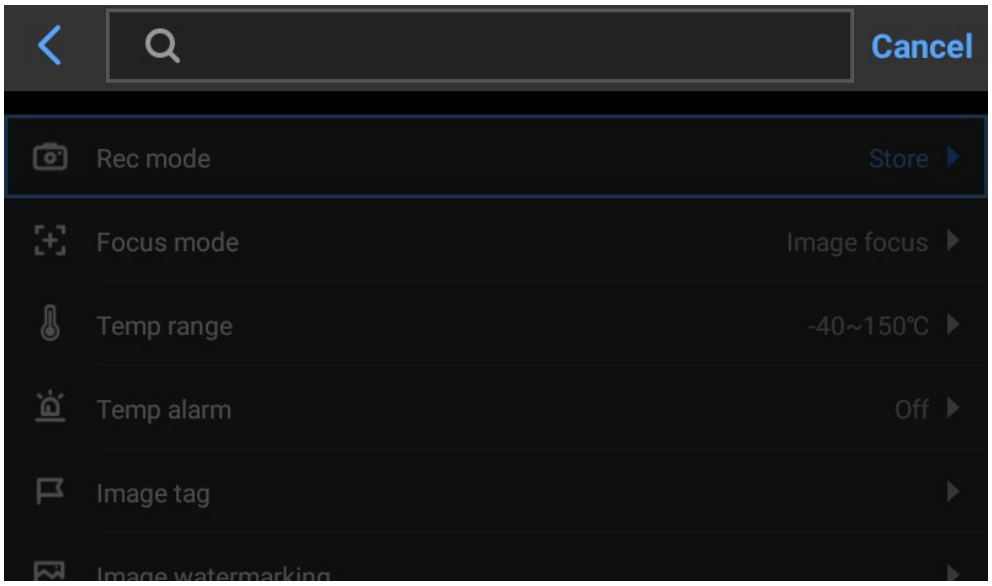


Global Settings

Click [ ] in real-time preview interface to go to the global settings interface.

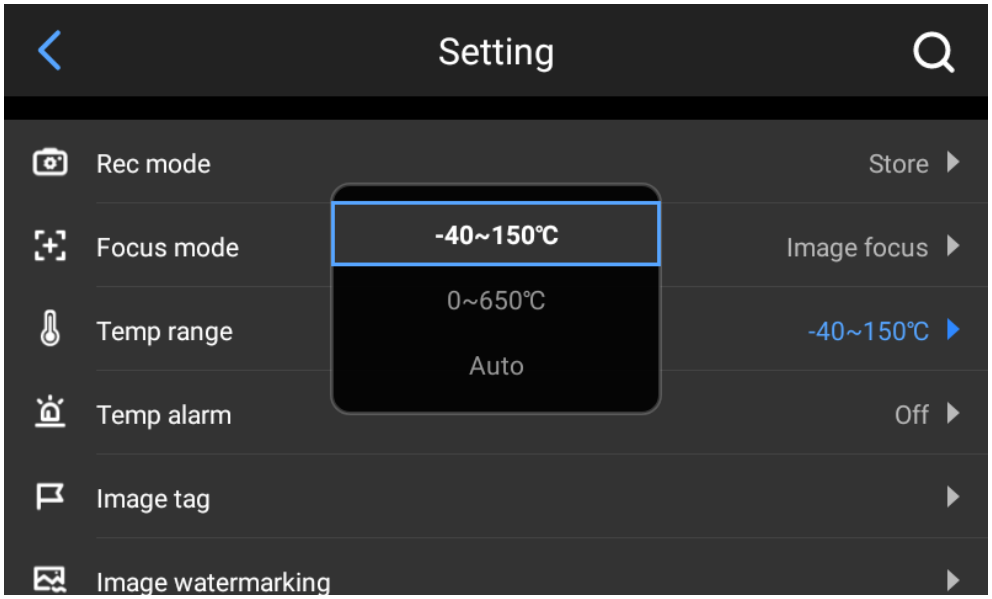
Search

Click the "search box" at the upper right corner and search for the functions to be set.



Temperature measurement range

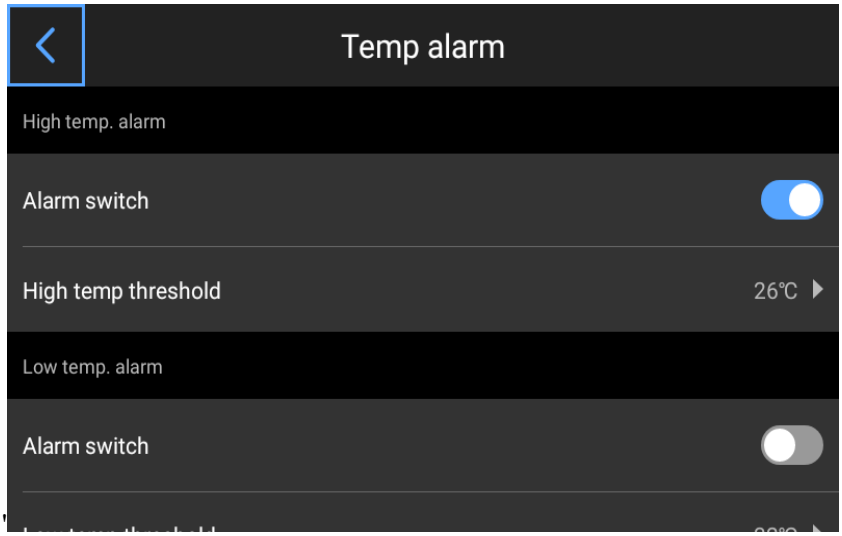
Go to [Settings] and select [Temperature Measurement Range] to pop up the selection box. Users can select the appropriate temperature measurement range for the target.

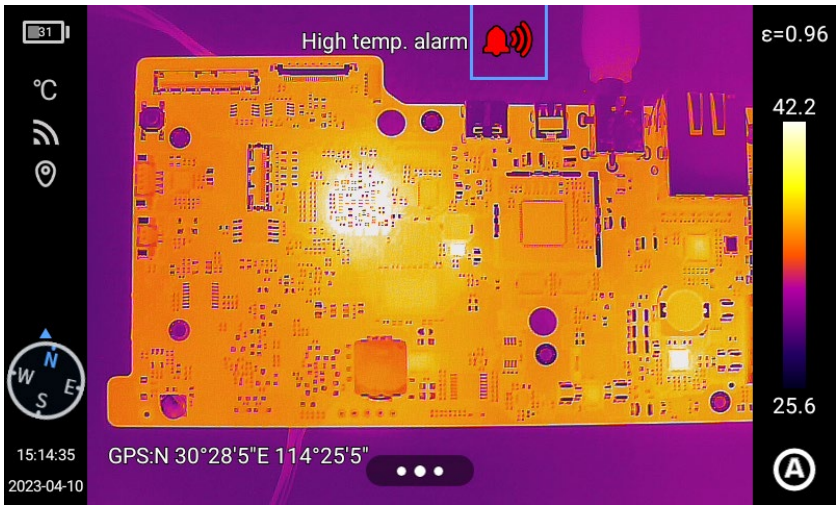


Temperature alarm

Temperature alarm includes high temperature alarm, low temperature alarm and high-low temperature alarm. The device will alarm if the alarm switch is turned on and the corresponding temperature threshold is triggered.

The alarm modes include sound alarm and light alarm.





Click the alarm icon in the real-temperature preview interface to turn off temperature alarm.

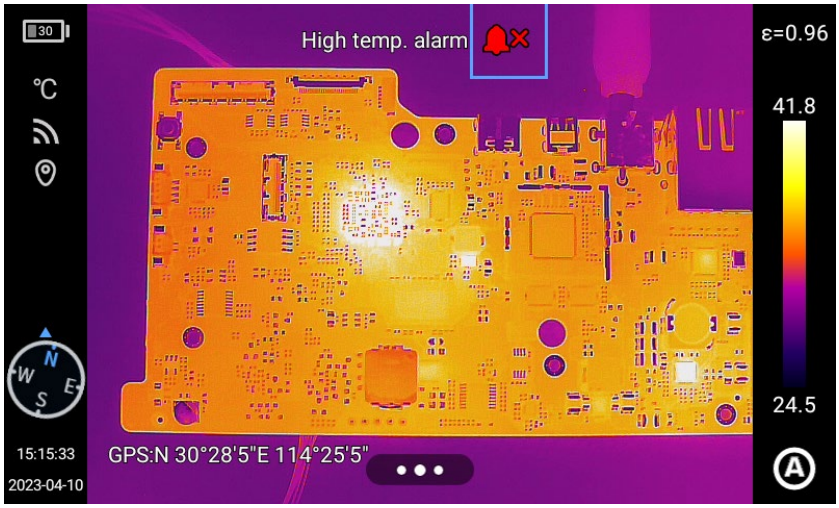
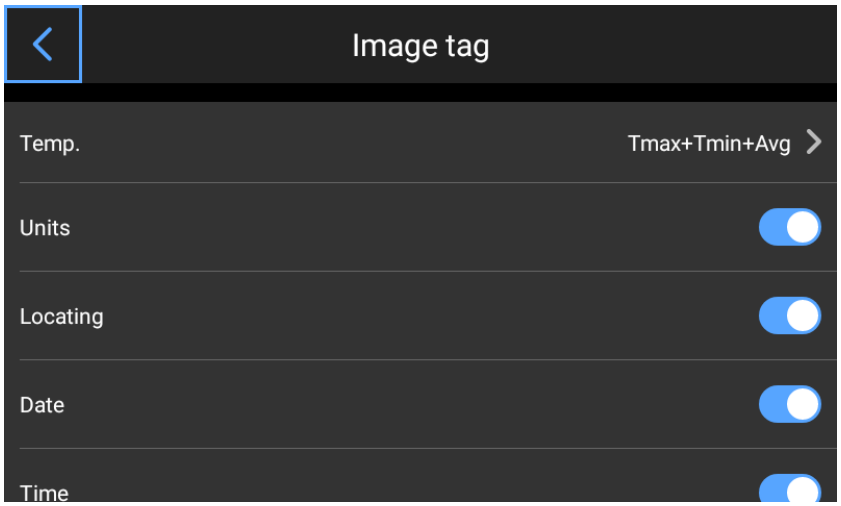
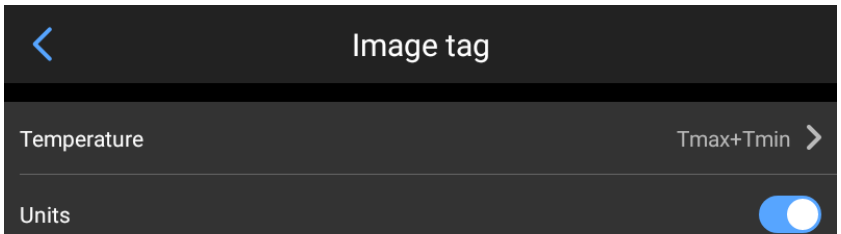


Image tags

Click "Image Tags" to display the temperature, unit, location, date, time, compass, logo, color and center cursor; users can enable the tags as demanded, which will be displayed on the real-time image;



Select to display the maximum temperature, minimum temperature or average temperature;



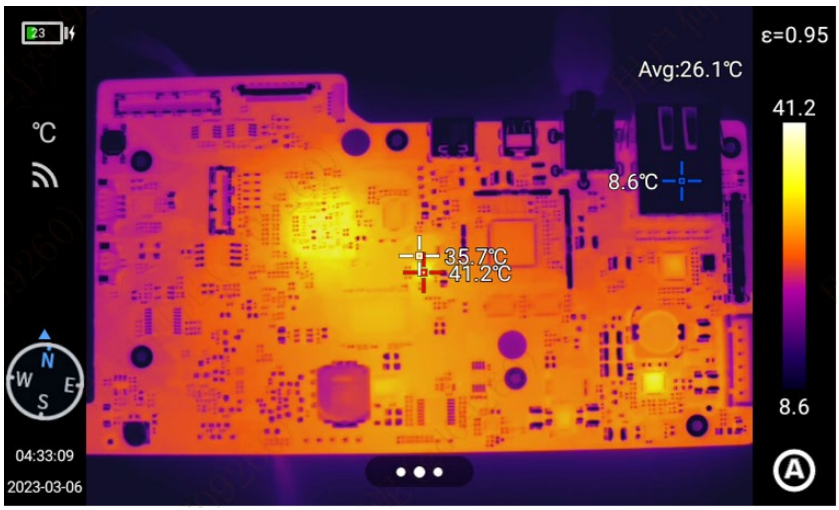
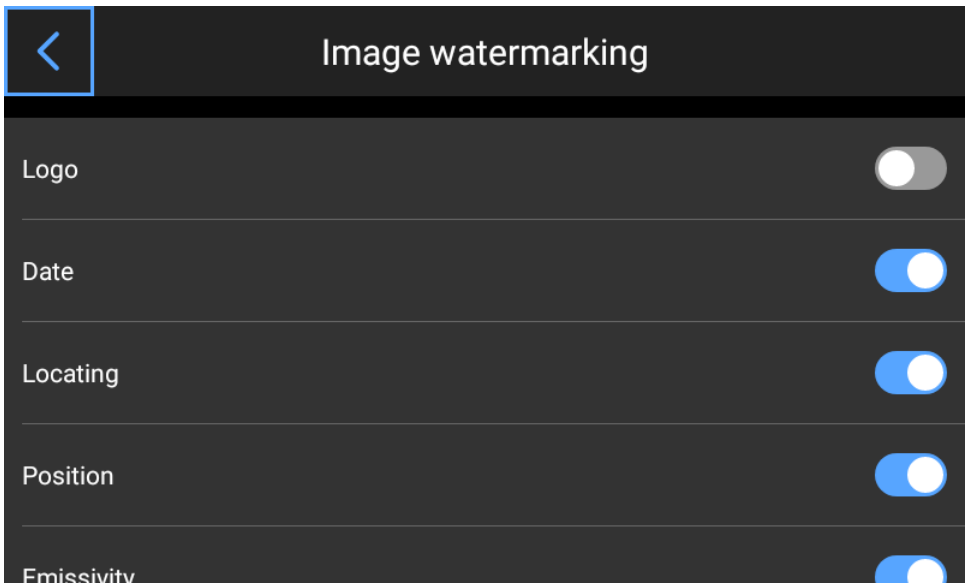
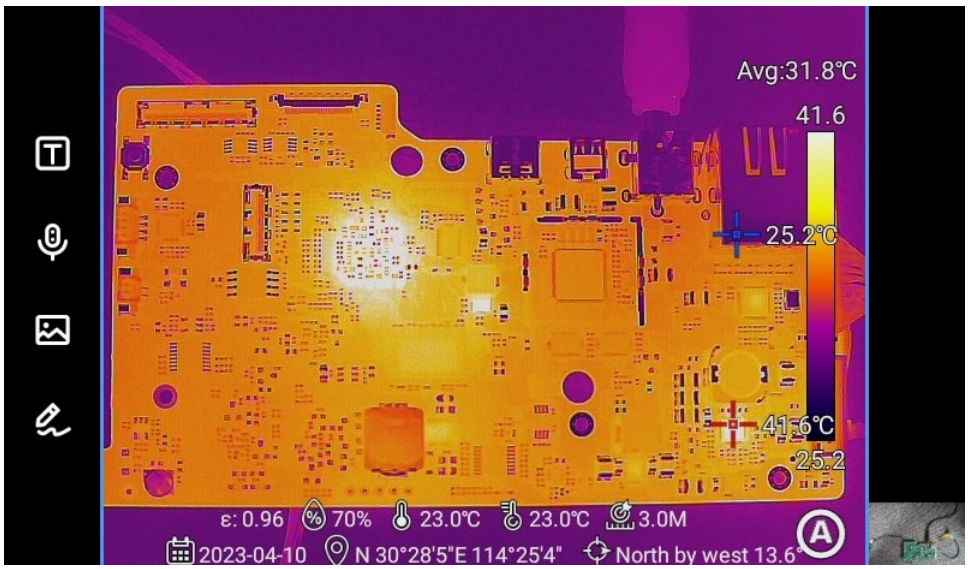


Image watermark

1. Click "Image Watermark' to display the watermark options, including logo, date, location, orientation, emissivity, relative humidity, reflected temperature, atmospheric temperature and target distance. Users can enable the options as demanded, which will be displayed on the image;
2. Back to the real-time image and take a photo;
3. Press the Playback button and go to the photo preview interface and select the photo just taken to preview;

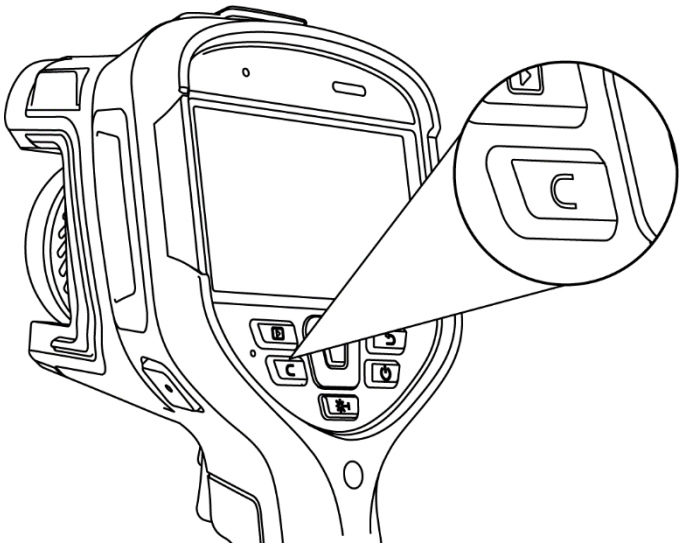


4. All enabled watermark information will be displayed at the bottom of the image.



Auxiliary buttons

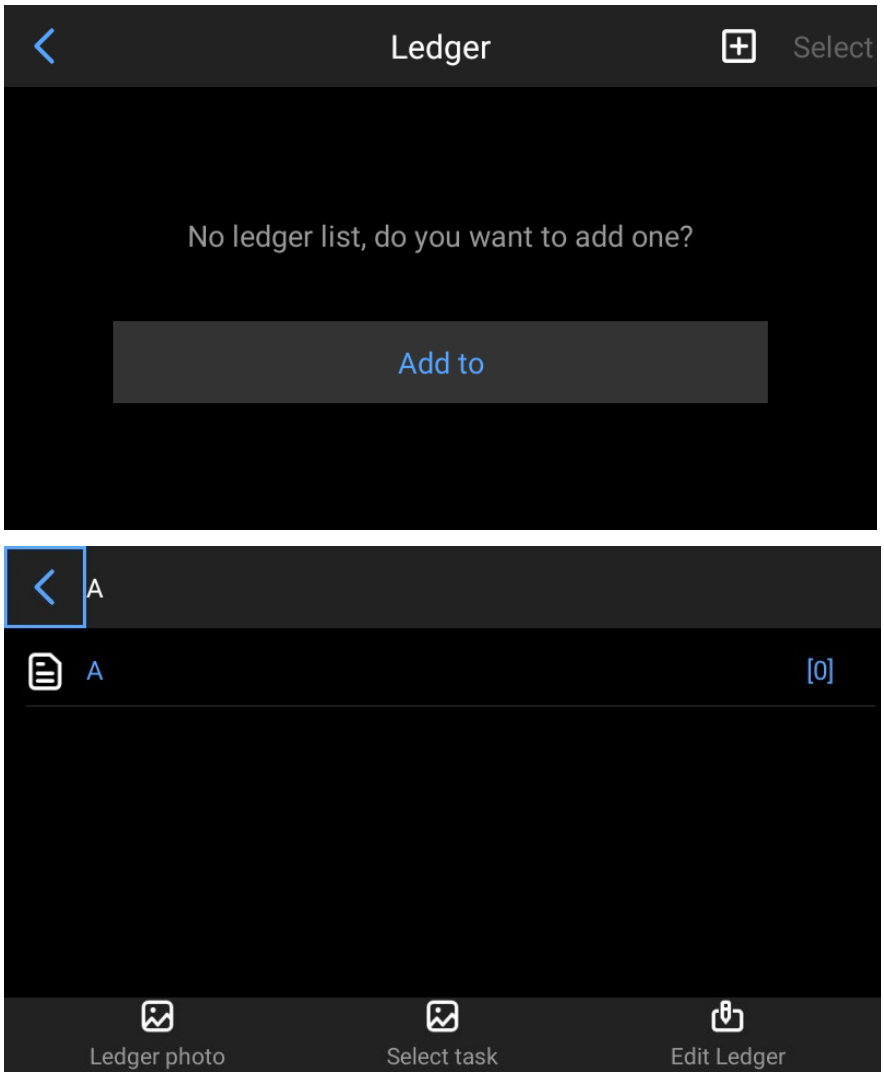
1. Set the quick actions of "C" auxiliary button on the device, including calibration, emissivity, temperature measurement range, image mode, color changing, temperature measurement parameters, floodlight, AI voice;
2. Then back to the real-time image interface and press the auxiliary button to respond to the settings;



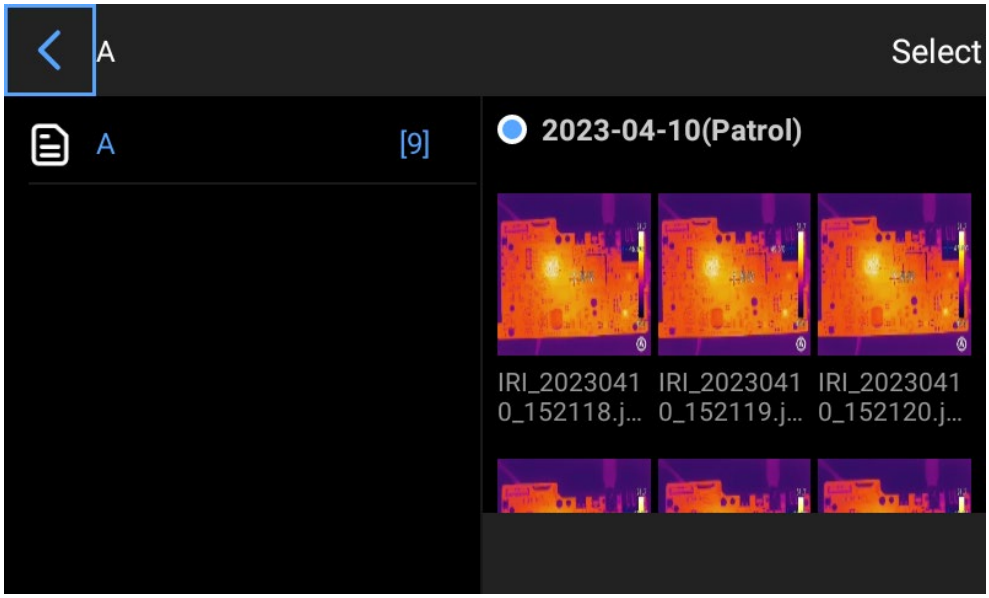


Ledger management

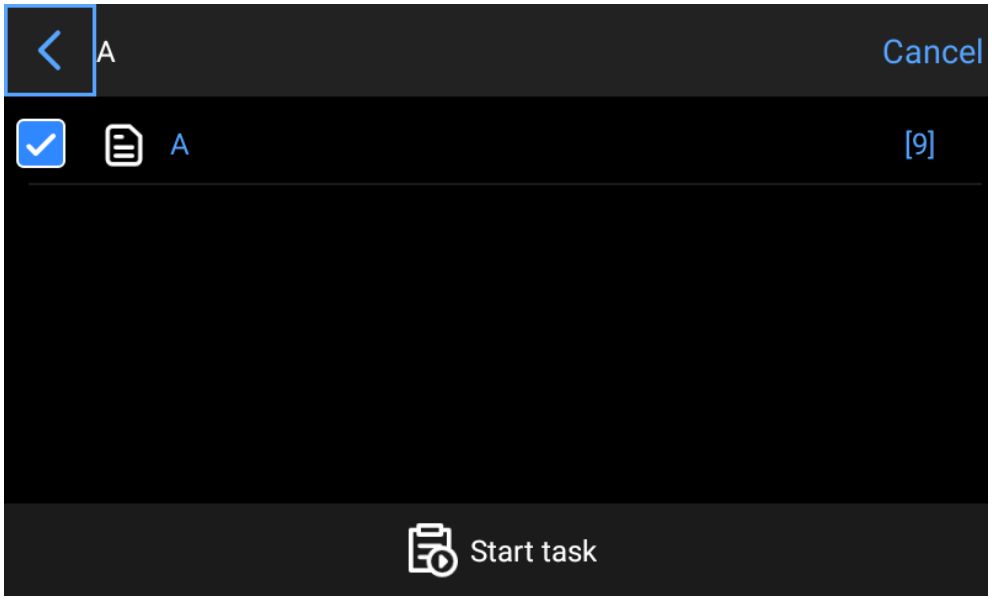
The device supports adding locally, importing local templates and downloading from the cloud. Click "Tasks" in the drop-down menu to go to the "Ledger" interface. Click "+" at the upper right corner to create new ledgers and go to a single ledger.

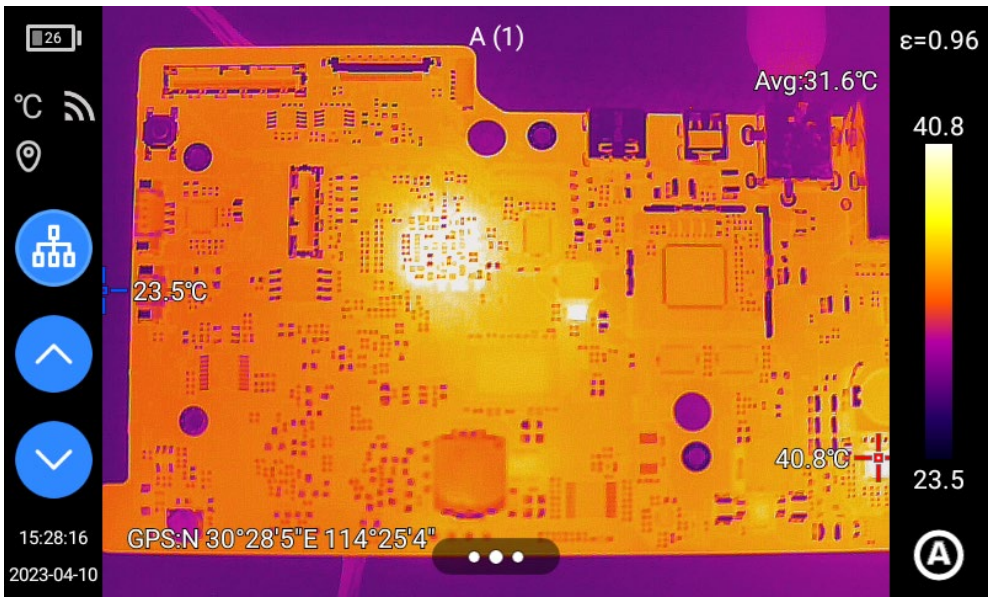


1. Click "Task Photo" to display the photos taken at this measuring point under all task modes in the current ledger;

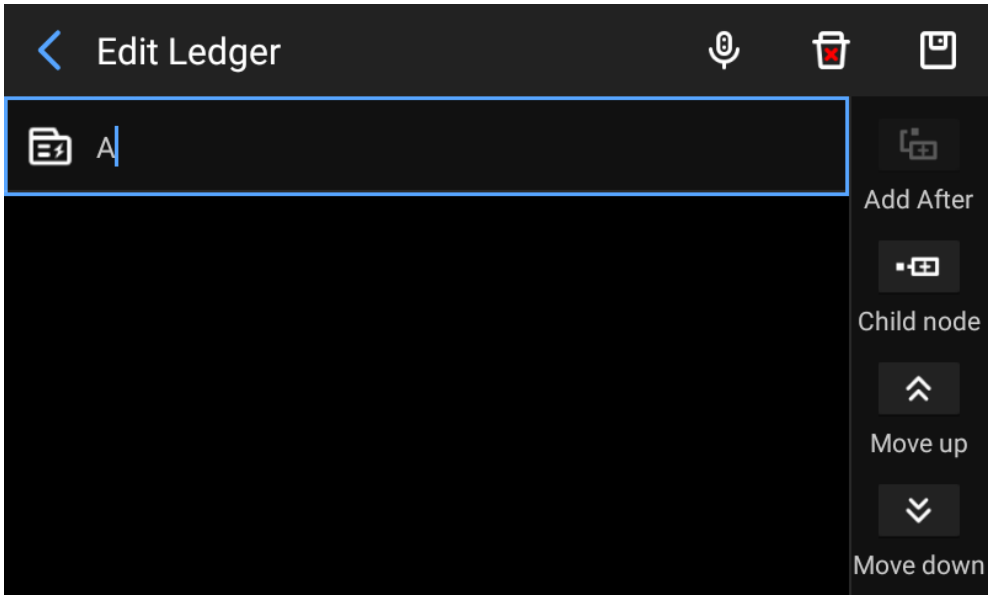


2. Click "Select Tasks" and select the points to go to the main preview interface to take photos;



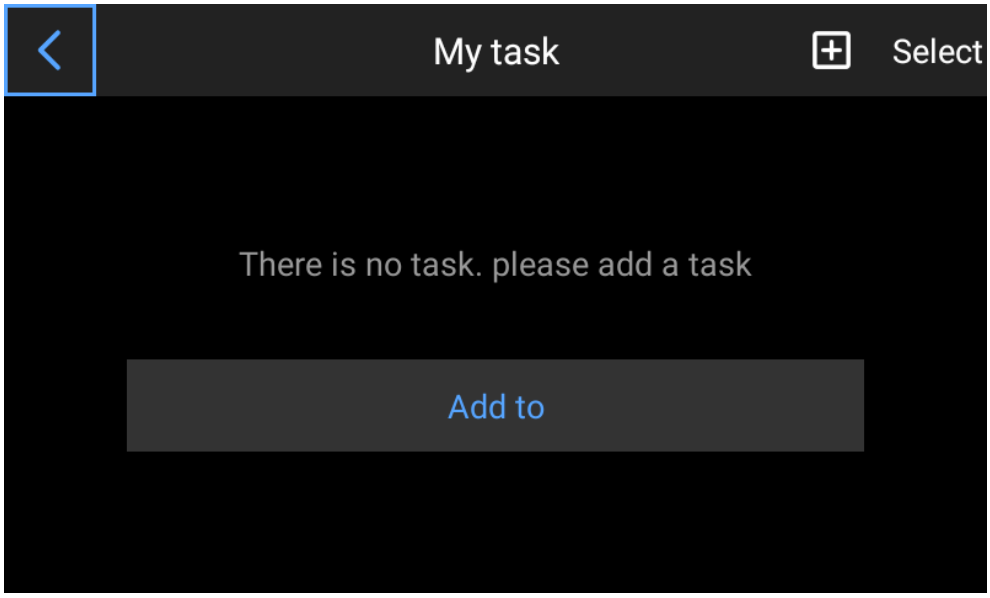


3. Click "Change the ledger" to add points, move up, move down, save and delete the ledger.

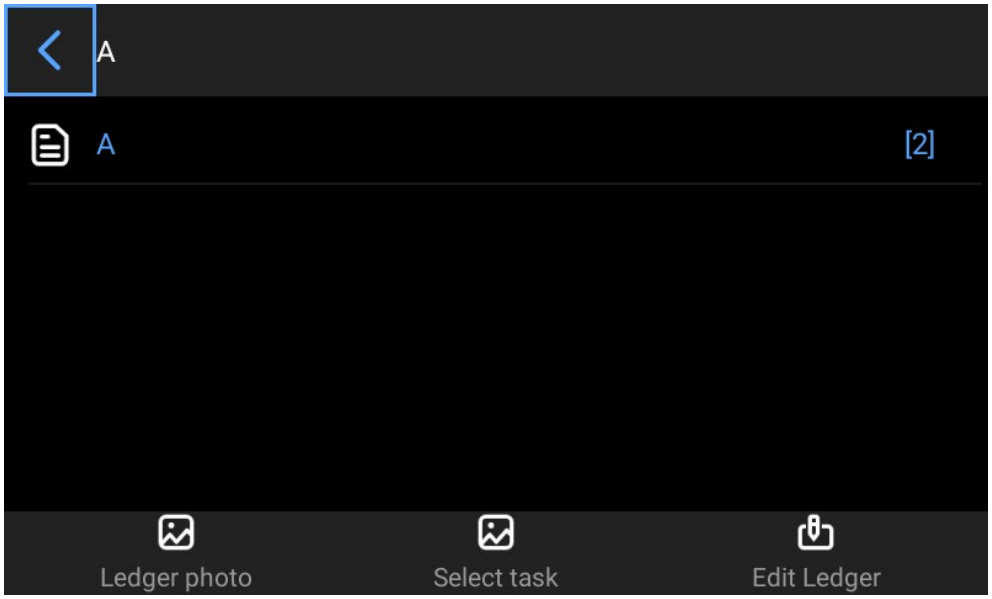


Task management

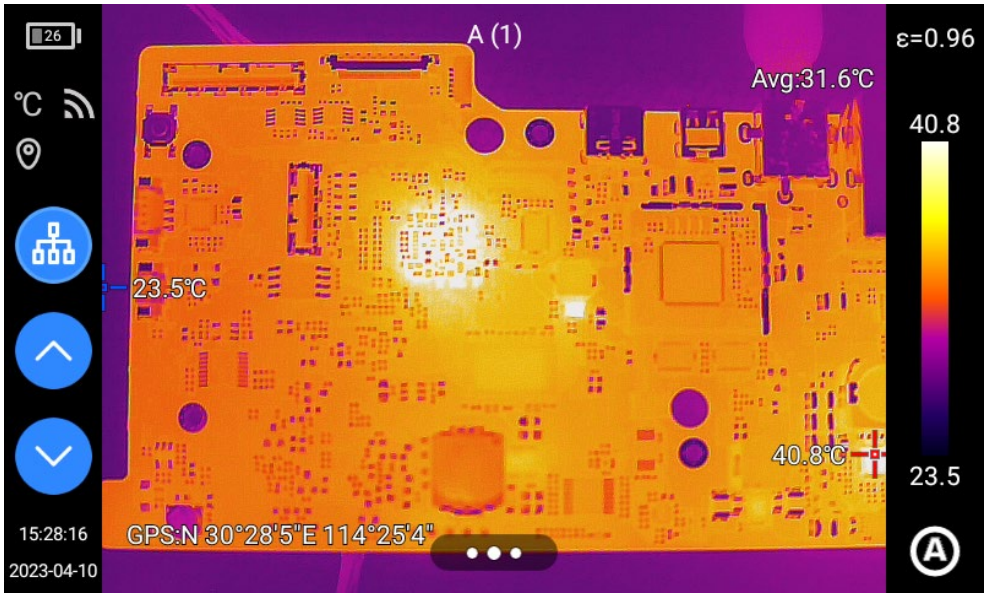
The device supports adding ledgers locally and downloading from the cloud. Click "Tasks" in the drop-down menu to go to the "My Tasks interface. Click "+" at the upper right corner to create a new task list and go to a single task.



1. Click  to view the task details, which can be edited and saved;



2. Select a point and click "Start Tasks" and go to the main preview interface to take photos;

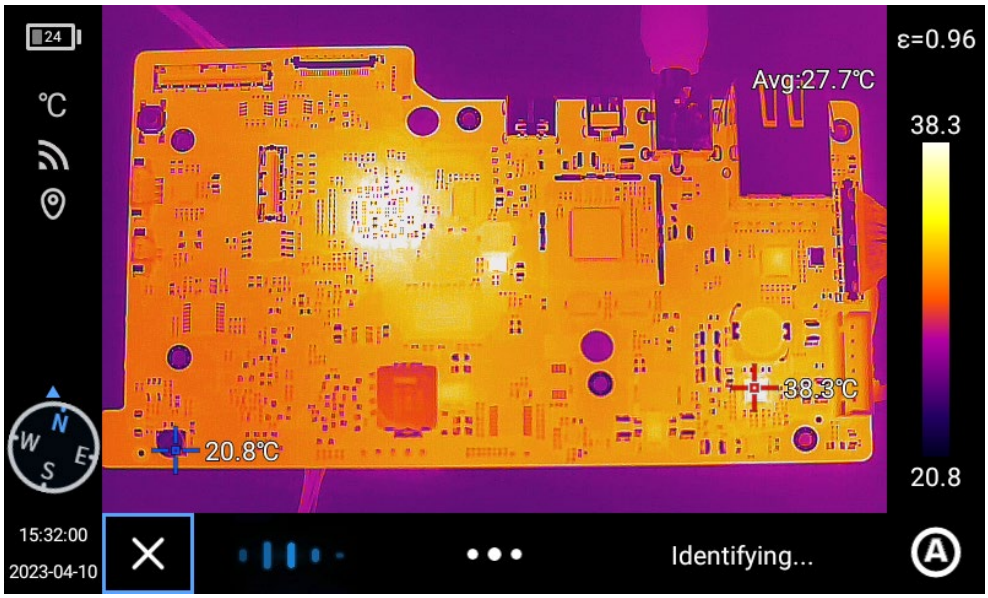


3. Click "Task Photo" to go to the photo details page to view the photo information of the selected point;
4. Click "Change Tasks" go to details of the ledger selected when creating the task and reselect a task;
5. Click "Delete Tasks" and a window pops up for reconfirmation, and the task is deleted successfully.

AI voice

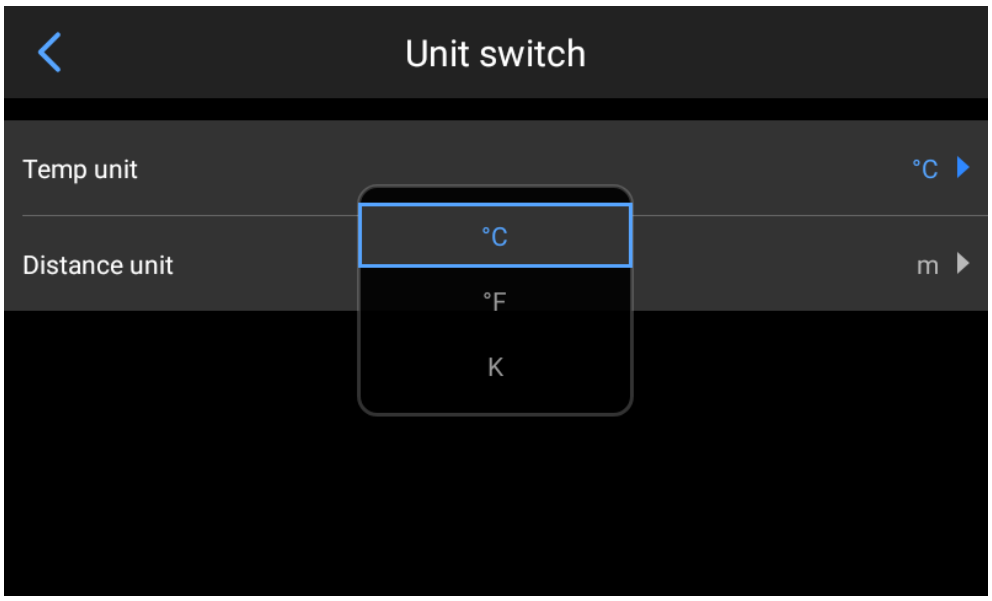
Enable AI voice with the "Auxiliary Button" function. "Identifying..." is displayed when there is a voice command. Operation stops when an AI order is identified.

The designated names include: Photo, Video, Focus, Calibrate, Change Ribbon, IR, VL, PIP, MIF, Fusion, Light On, Light Off, Start Task and End Task.

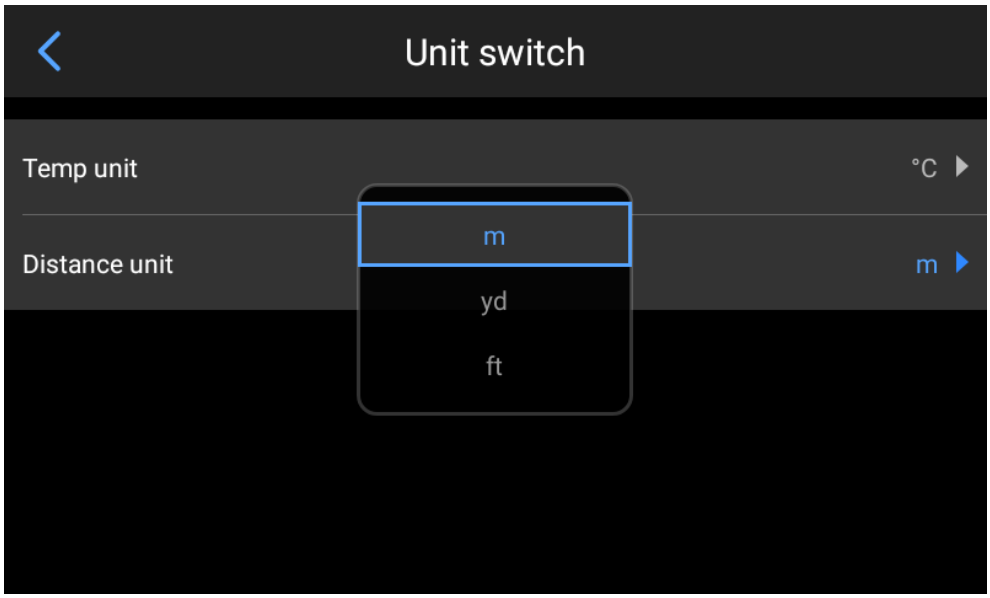


Unit switching

Users can select the temperature unit (degree centigrade, Fahrenheit, Kelvin) based on the operation habits;

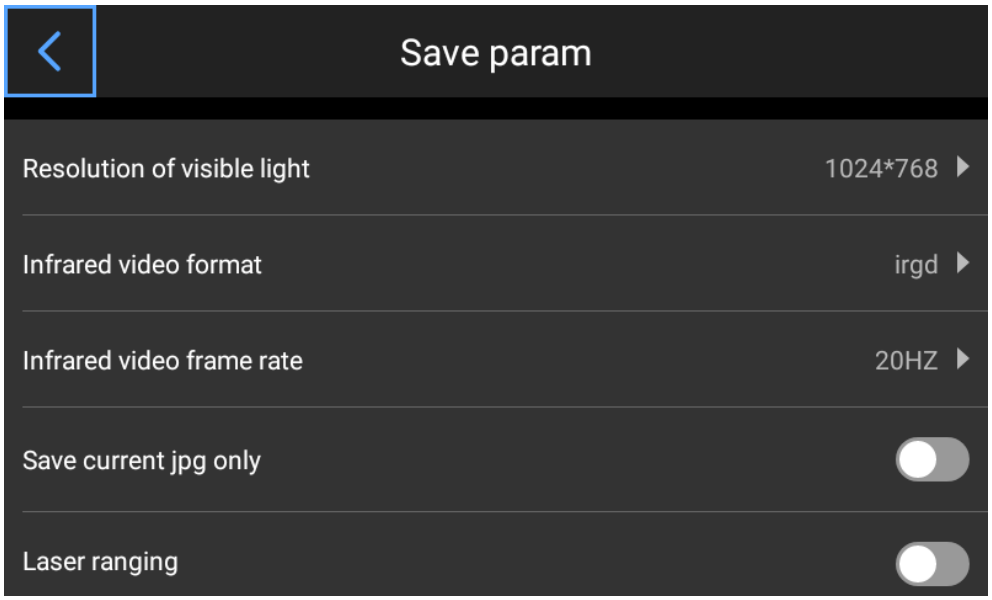


Users can select the distance unit (m, yard, foot) based on the operation habits;



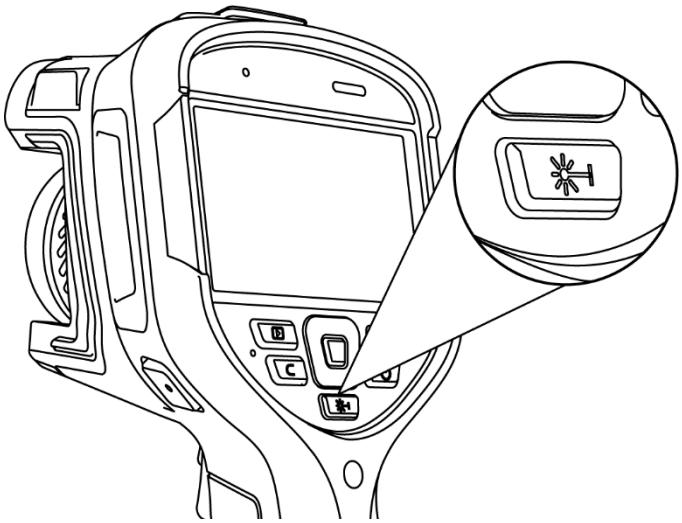
Save parameters

Device parameter settings: Visible light resolution, infrared video format, infrared video frame rate, save this JPG photo only and laser ranging;



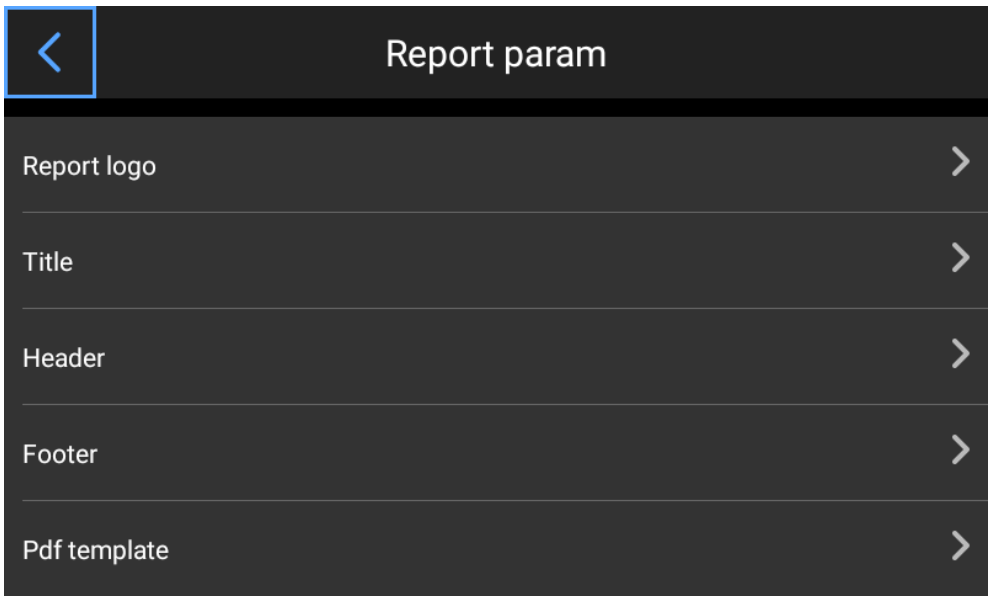
Laser ranging

Enable the laser ranging function and back to the real-time image interface. Press [ ] to obtain the distance/area information.



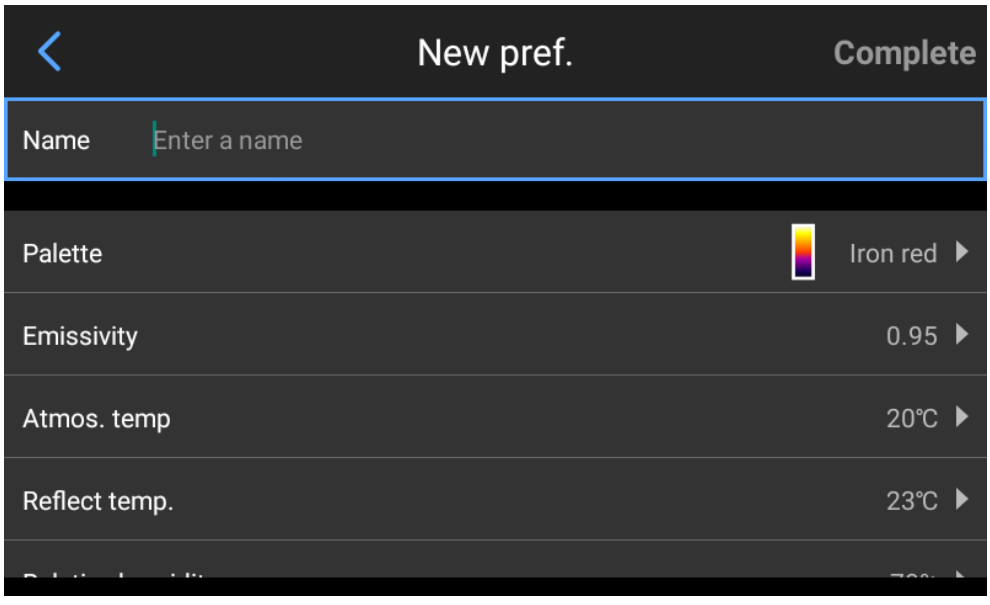
Report parameters

Set the PDF report parameters, including the Logo, title, header, footer and PDF template.



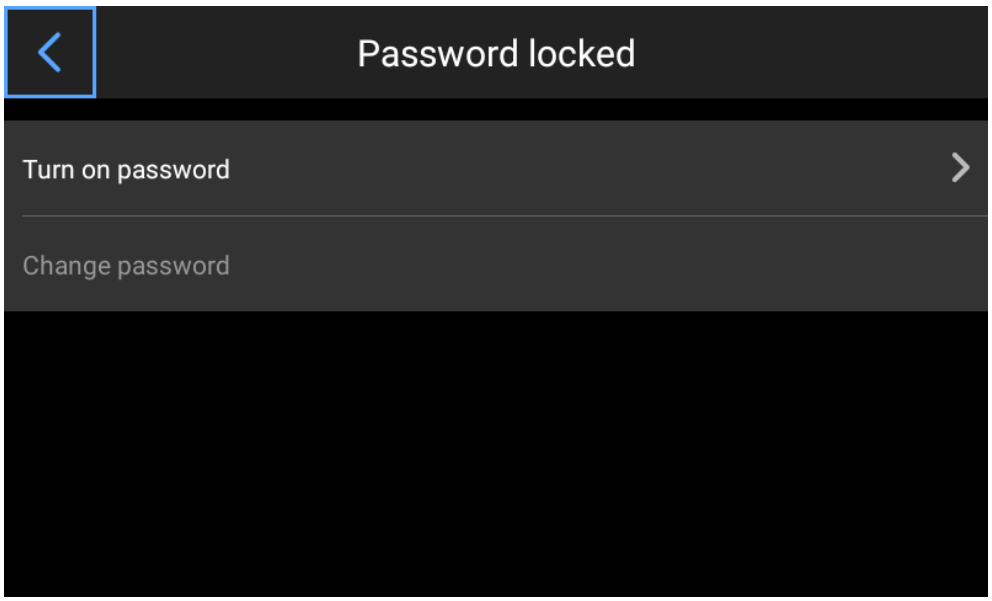
Preference settings

Users can add the preference global settings based on the operation habits, and change or delete the preference settings.



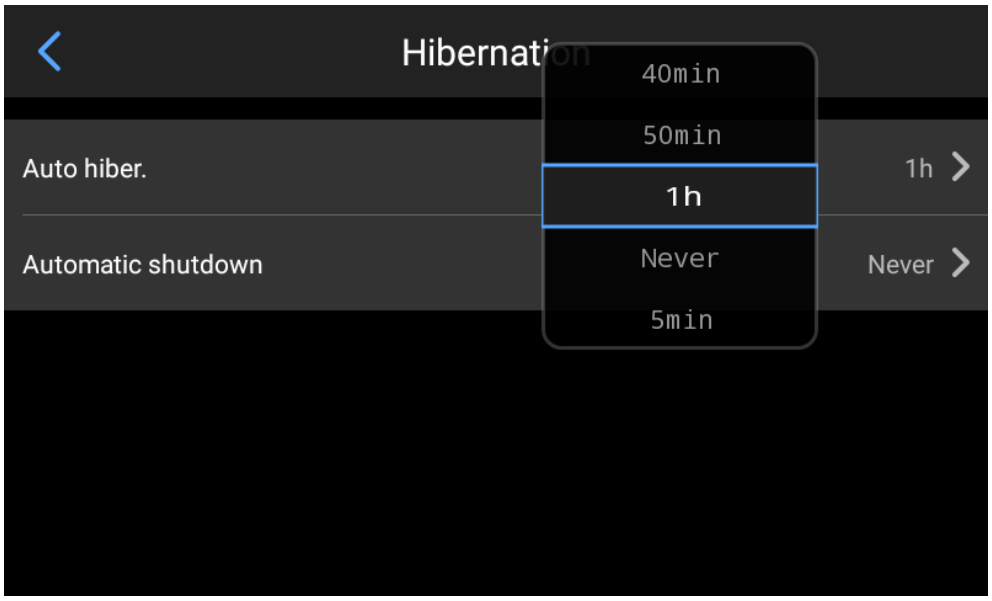
Password lock

Users can add the device power-on password protection function based on the operation habits.



Shutdown and sleep

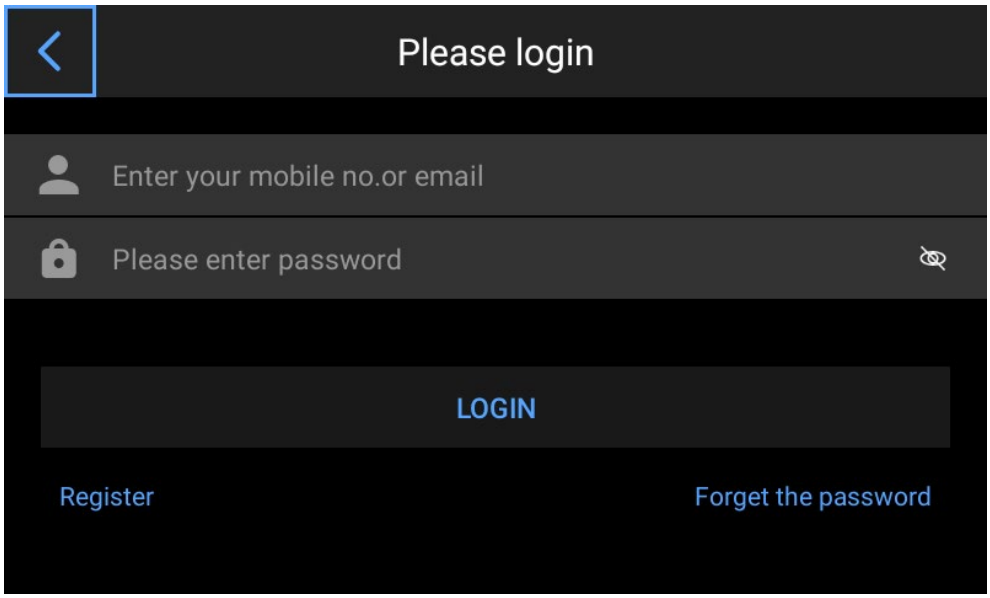
Users can set the timed shutdown and sleep time based on the operation habits, including never/5min/10min/20mim/30min/40min/50min/1h.



Cloud service

Log in to Alibaba Cloud server and upload the photos in this device to the server, and then log in to the analysis software on PC to download the device files to perform analysis and output reports.

1. Register or log in;
2. Forgot password.



Wi-Fi

1. Turn on WiFi to search for nearby networks;
2. Select a network and enter password.



Notes: To ensure reliable connection of WiFi and stable data transfer, please make sure that the network connection distance is within 10m and there are no obstacles (such as the partition wall).

Network connection

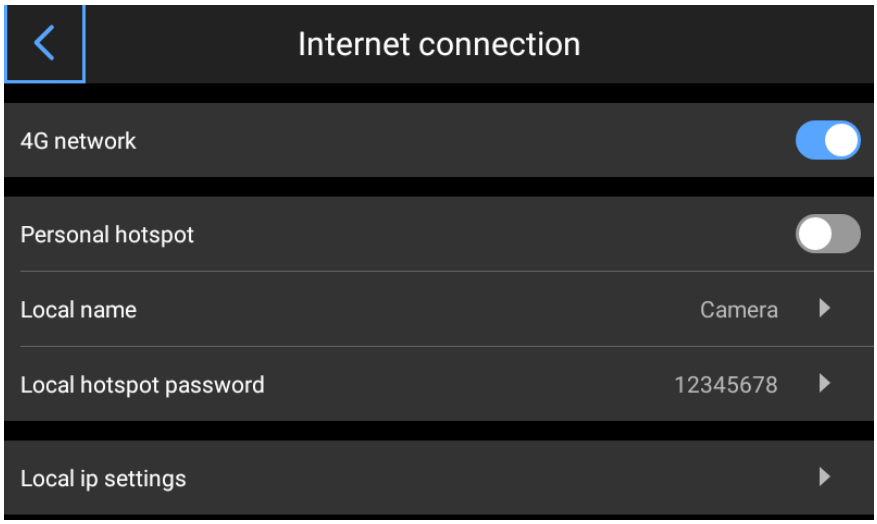
Mobile network: Connect to external 4G mobile network (including China Mobile, China Unicom and China Telecom).

Insert the SIM card to the device and click [••••] at the bottom of the real-time preview interface and click [⚙], and find [Network Connection] in settings interface and click it to open the mobile network and search for network signals.

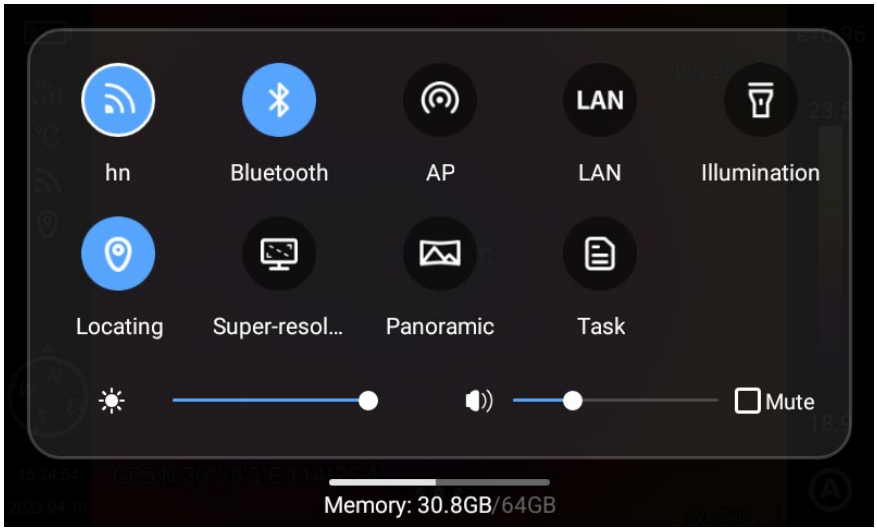
After successfully connecting to network, the device can upload photos to the cloud service and ensure normal function of the OCR function.

WiFi hotspot:

1. In the configuration interface, enter a valid hotspot name (Camera) and the password (12345678), and click OK to save successfully;
2. Back to the real-time image interface and pop up the shortcut menu. Enable AP function;



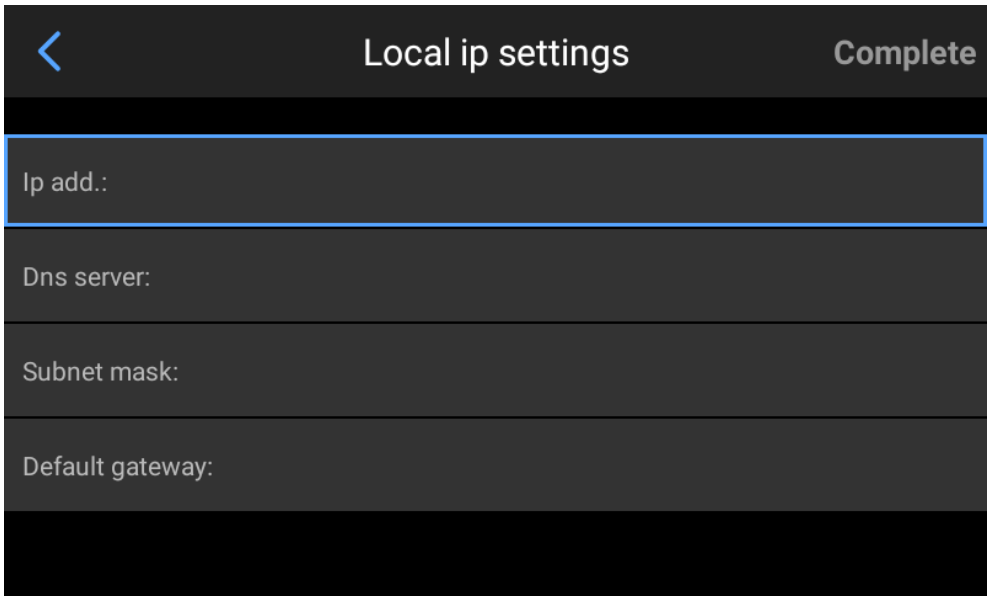
3. AP is disabled by default. When it is enabled, the personal WiFi hotspot is enabled by default. Infrared analysis software and phone APP can be connected for real-time video. After AP is enabled, users can connect the device network by entering the correct user name and password on the analysis software to display the real-time images.

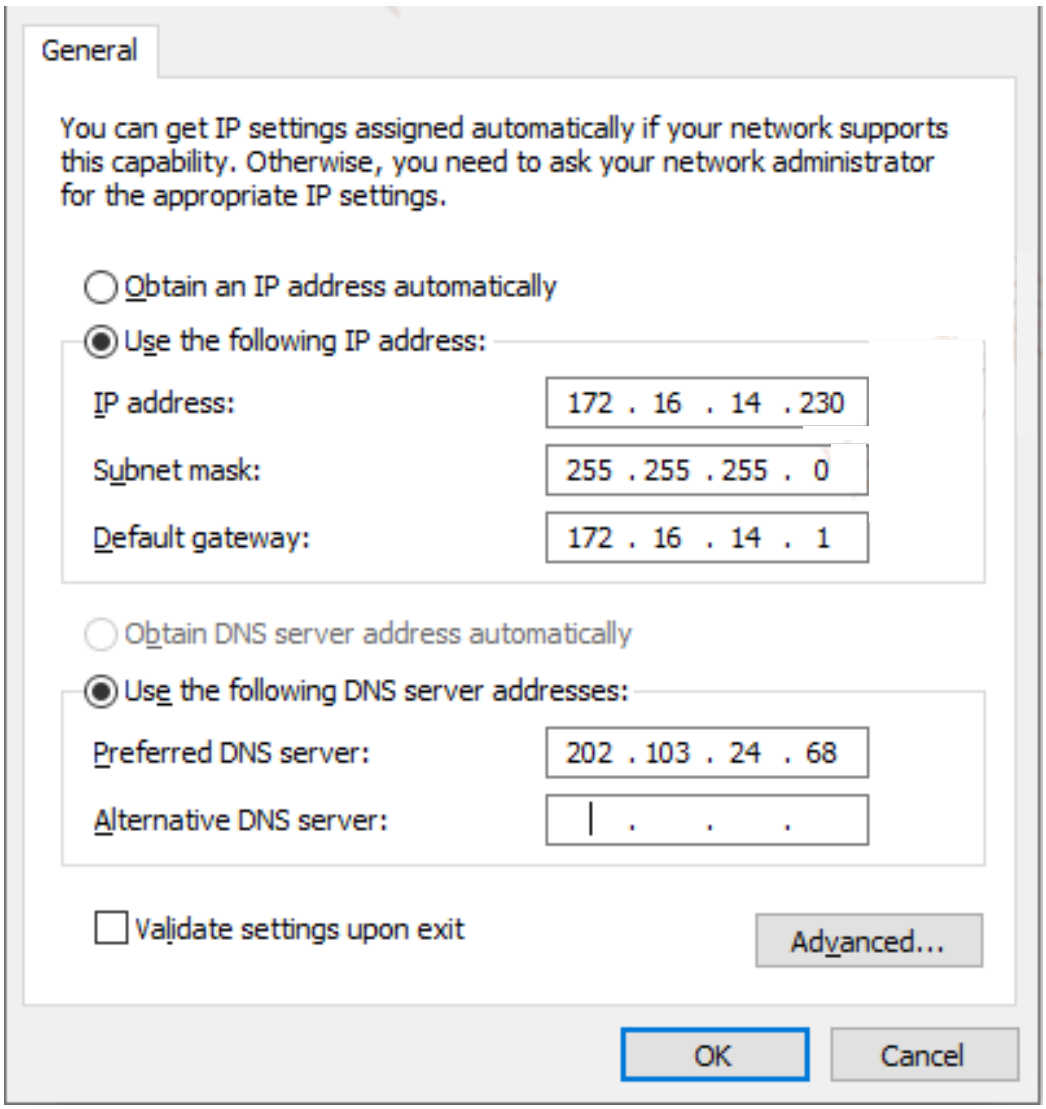


Local IP

Users can customize the IP address and DNS server address.

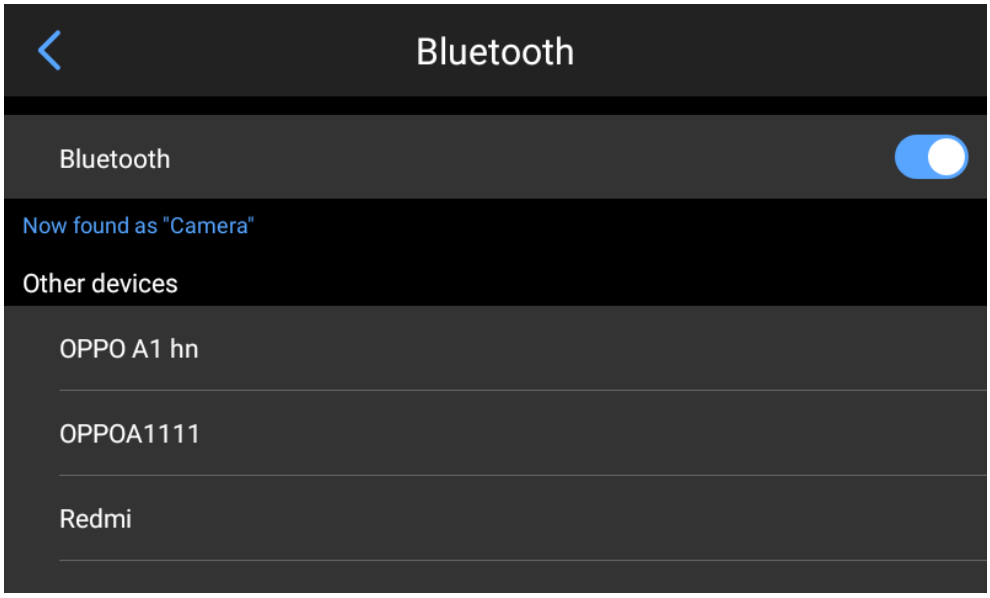
1. IP address: Enter a valid IP address, such as 172.16.14.216, and a DNS server address, such as 202.103.24.68 (the IP address and DNS address shall be set according to the users' LAN), (Notes: IP address cannot be set in 192.168.42.xxx segment, and "Invalid IP address" will occur);
2. Set the host IP: Set the local IP address of the desktop computer is 172.16.14.230, and set the DNS address is 202.103.24.68, and the device can be used together with the software. It must work with the PC application software.




General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
172 . 16 . 14 . 230
Subnet mask:
255 . 255 . 255 . 0
Default gateway:
172 . 16 . 14 . 1
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
202 . 103 . 24 . 68
Alternative DNS server:
Validate settings upon exit
Advanced...
OK
Cancel

Bluetooth

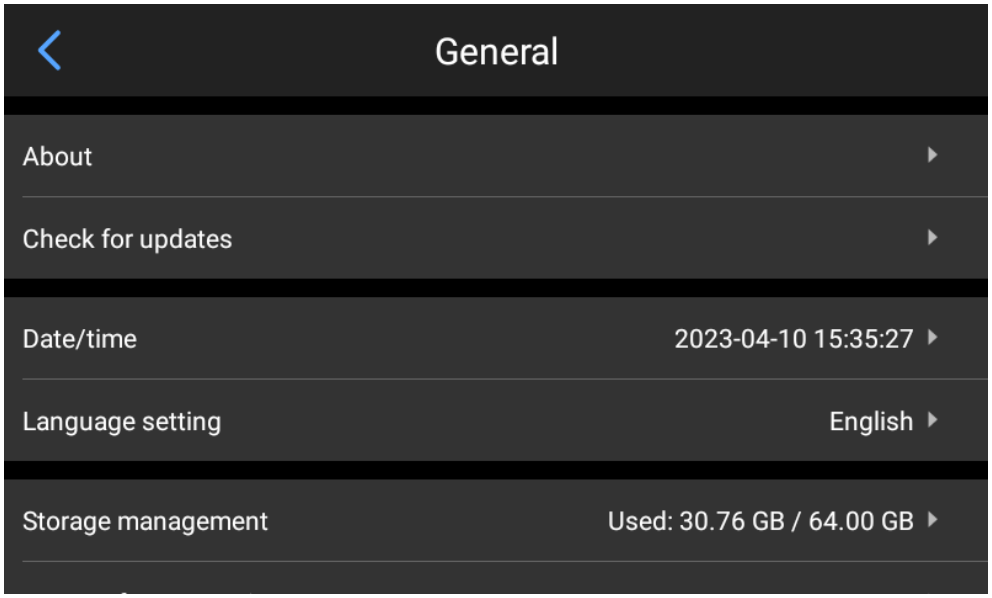
1. Enable the Bluetooth of the target device;
2. Enable Bluetooth and the system will automatically search for the Bluetooth devices. Select a Bluetooth name in the list to pair;
3. Photos can be transferred after pairing is completed (the device supports to transfer the photos from the device gallery to an Android phone or another device).



Warm prompt: If the two devices are far apart or Bluetooth pairing is not performed in the gallery interface, Bluetooth may not be found. At this time, enable the Bluetooth again.

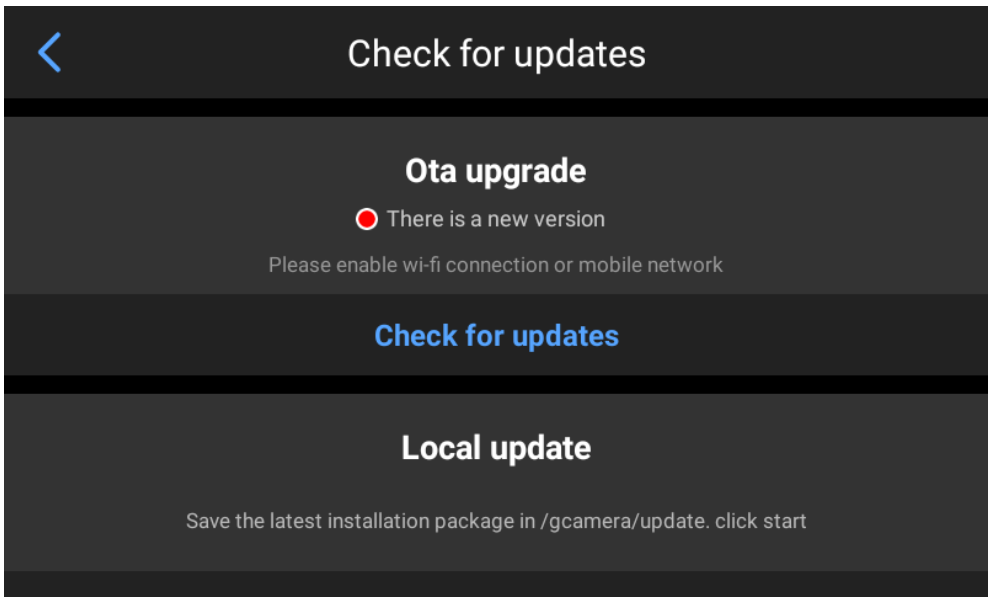
General

Users can view the software version and SN number of the device and change the language, time and date and storage path though Settings-General.



Check for update

Check the device version update. The device supports OTA updating and local updating.



OTA updating

After the device is connected to network, click "Check for update" to detect the latest update package. Click "Start Update" and after the updating is completed, restart the device that is updated to the latest version.

After connecting the device to network, click [•••] at the bottom of the real-time interface, and then click the settings icon and click [General]-[Check for Update] to update the software to the latest version.

Local updating

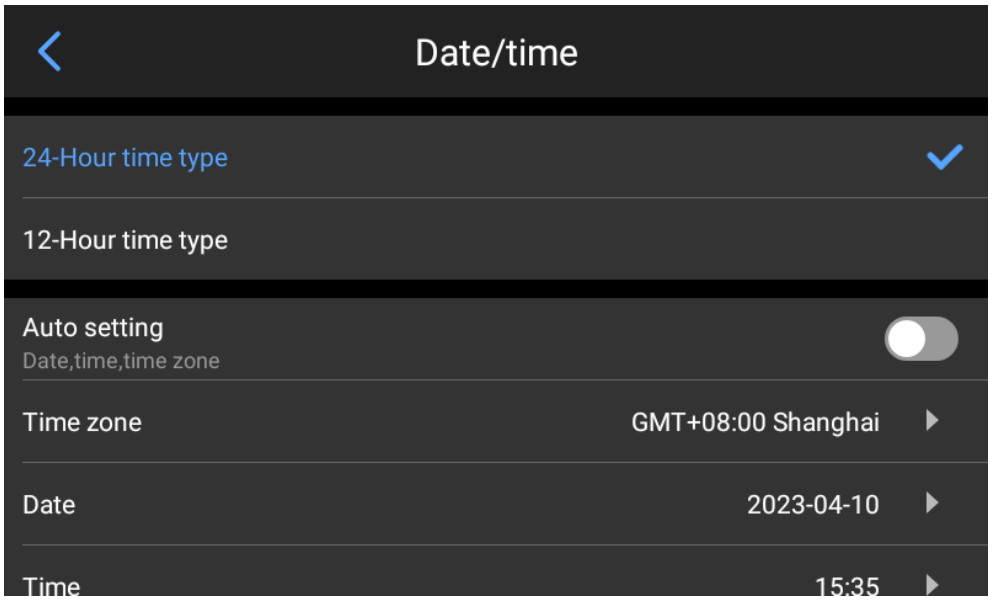
Put the update package under /GCamera/Update and click "Start Update". After detecting the latest update package, click "Update" and after the updating is completed, restart the device that is updated to the latest version.

。Notes: OTA updating requires unimpeded network and the device needs to be fully charged in the updating process. Please timely contact the manufacturer in case of any problems in updating.

Date and time

Manually set the system date and time;

Automatic time setting requires Internet connection.



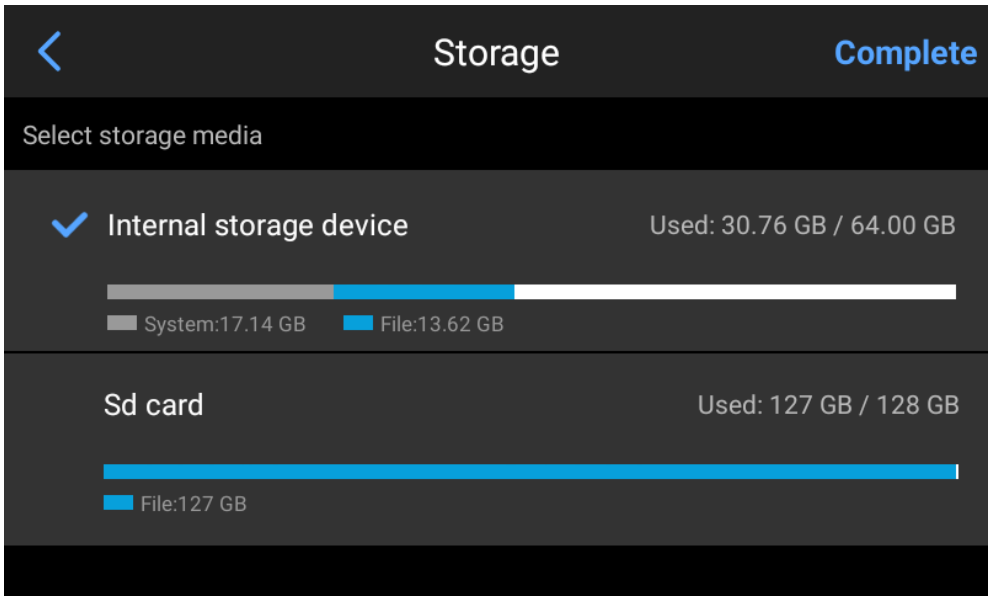
Language

The device supports multiple languages.



Storage

The device will display the capacity of the internal storage device and the information of the external SD card. Users can customize the storage options.

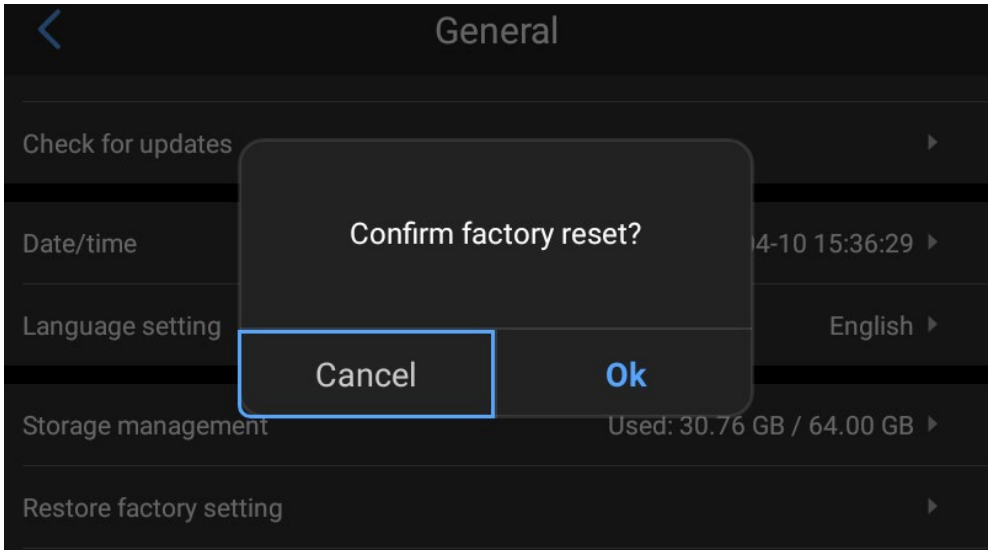


Restore factory settings

Restoring factory settings will initialize the data set by the user.

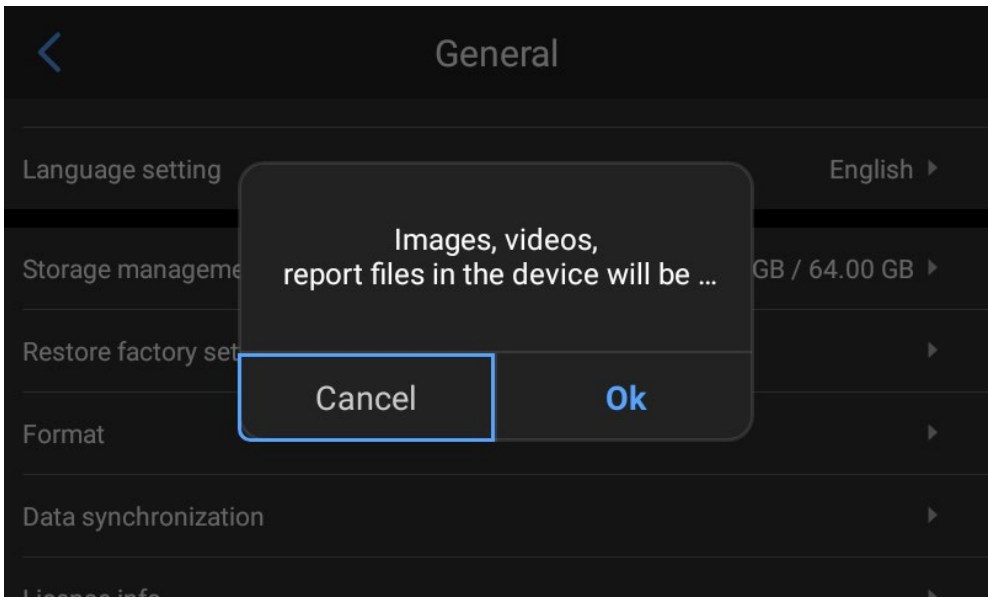
If the device needs to be restored to factory settings, click "Restore Factory Settings". Please be careful.

Click [•••] at the bottom of the real-time interface and click the settings icon, and click [General] - [Restore Factory Settings].



Formatting

Delete all photos and videos (including folders) saved in the device.

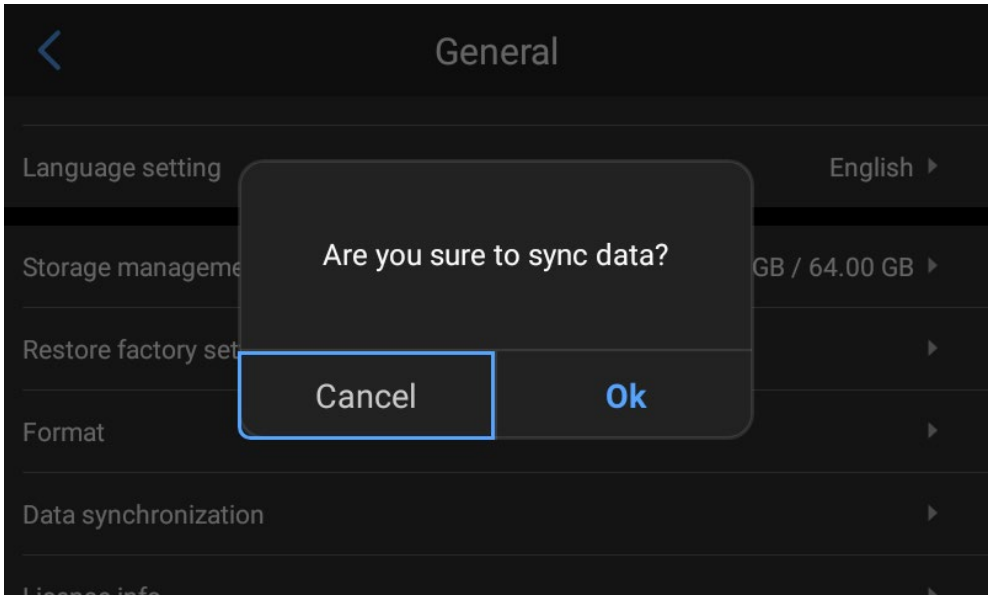


Notes: Formatting will permanently delete all photos and other data. Please back up as needed before formatting.

Data synchronization

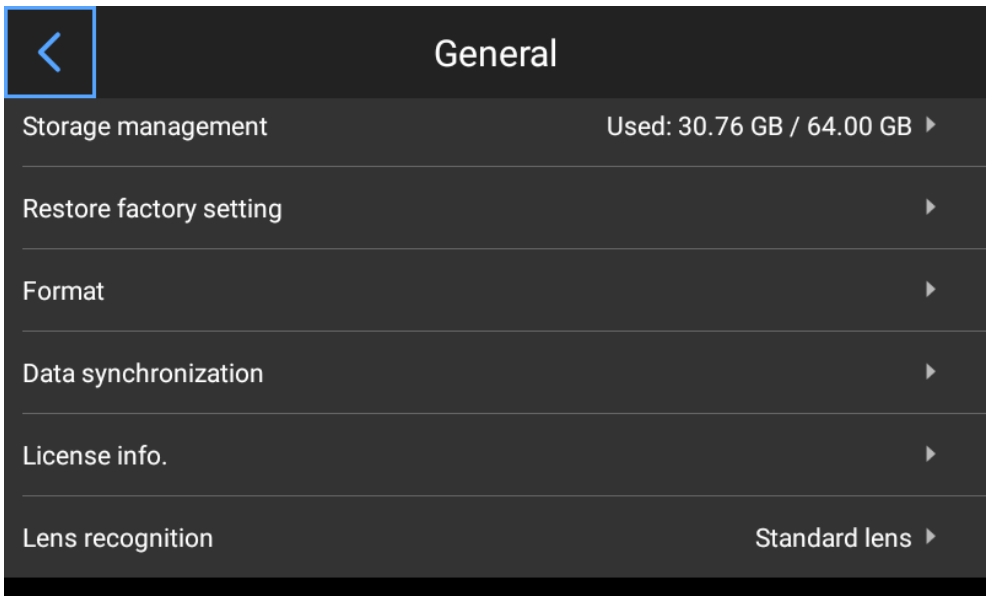
If the SD card is changed to another device and the gallery does not display the files in the SD card, data synchronization is required.

Click [•••] at the bottom of the real-time interface and click the settings icon, and click [General] - [Data Synchronization].



Lens recognition

Automatically recognize the current lens based on the information of the lens for the device.



Connection to External Devices

Port connection

This device can be connected to external devices with USB cable.

USB interface

1. **View the internal files.**

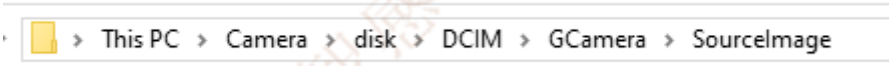
   Connect the USB cable to a desktop computer, and open "My Computer" and click the internal storage and find the photo folder. The specific path is camera\InternalSharedStorageSpace\DCIM\GCamera\SourceImage.



   Notes: Files with the name starting with IRI are infrared images and those with the name starting with VIS are visible light images.

2. **View the files in SD card.**

   If the photos taken need to be saved in the SD card, go to Settings - General - Storage Management and select SD card as the storage medium, and then take photos that are saved in the SD card. Connect the USB cable to a computer and open "My Computer" and click the internal storage. The specific path is\camera\SanDisk SD Card\Android\data\com.guide.infrared.zc16\DCIM\GCamera\SourceImage



   Notes: Files with the name starting with IRI are infrared images and those with the name starting with VIS are visible light images.

Install the SD card and lens

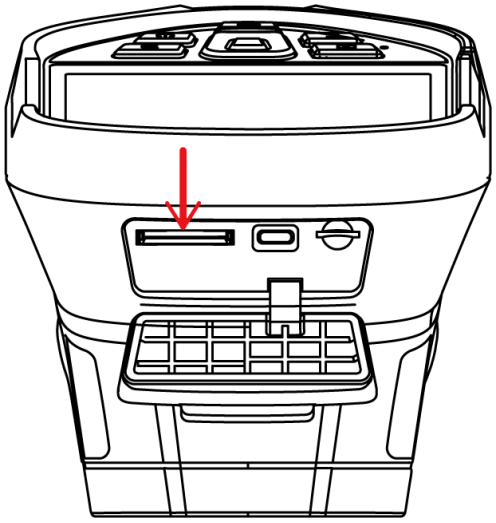
This product supports SD card and the photos and videos taken can be saved in the device or the SD card. SD card with a maximum capacity of 256G is supported. The standard configuration is 64G. The SD cards passing the test include:

SanDisk(64GB　CLASS10)

Make sure that the write-protect switch of the SD card is set on the top for ease of writing/deleting.

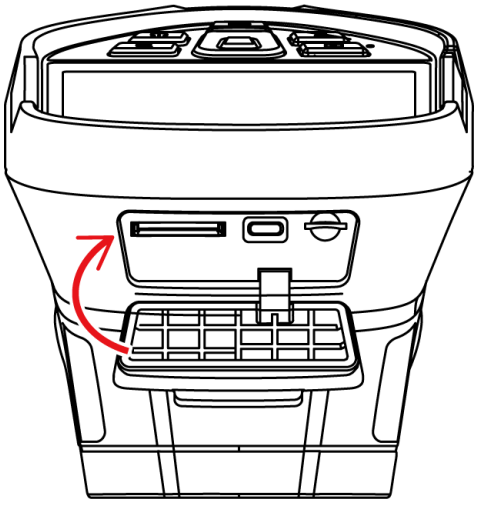
Install SD card

1. Slide the slot cover in the arrow direction shown in the figure and open it, and insert the SD card;
2. As shown in the figure, insert the SD card with the label side facing towards you until there is a click.



Close the slot cover.

Close the slot cover and slide it in the arrow direction shown until it is locked.



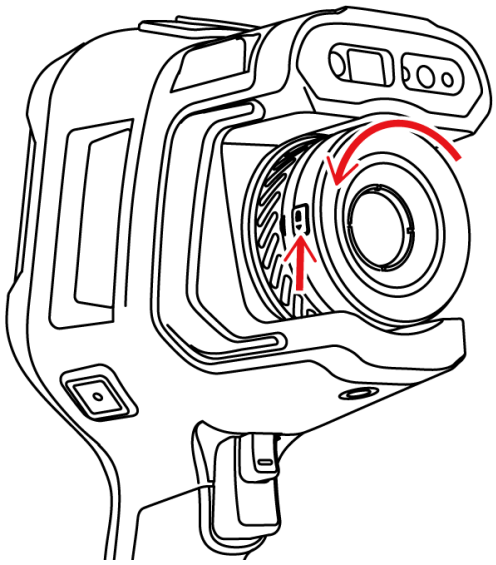
Take out the SD card

1. Power off the device and open the slot cover;
   (Open the slot cover after the indicator lights off)
2. Take out the SD card. Gently push the SD card and release;
3. Pull out the SD card and close the slot cover.

Notes: The number of photos and videos to be taken depends on the remaining storage space and image quality.

Install the lens

1. Press the lens changing button and rotate the lens anticlockwise and take it off;



2. Align the U-shape groove of the lens at the red point on the device and insert the lens, and rotate the lens anticlockwise until a "click" is heard.

Notes:
1) Handle with care when using the lens and avoid direct impact to prevent damage;
2) Please properly keep the lens in a safety case when not in use.

Emissivity of Common Materials

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
Soil	0.93

Common Troubleshooting Guide

Symptom	Cause	Solution
Failure to power on	The battery capacity is low	Charge the battery
	The battery is of poor contact	Take out the battery and replace into the battery box
	The external power is not properly connected	Pull the power plug and reinsert
Great difference between the battery capacity display and the actual consumption	The battery runs out	Replace with a fully charged battery
	The battery life expires	Replace with a new battery
The infrared image is not clear	The image is out of focus	Sharpen the image by manual focus or automatic focus
	The lens is covered with steam or contaminated	Use professional device to clean the lens
The visible image is not clear	The environment is dark	Use proper lighting
	There is steam at the front end of the visible light or the front end is contaminated	Use professional device to clean the visible light front end
Incorrect temperature measurement	The target is out of focus	Sharpen the image by manual focus or automatic focus, and then read the temperature
	The temperature measurement parameters are incorrect	Change the parameter settings or restore the defaults
	Nonuniformity correction has not been performed for a long time	Set the custom button as compensation and conduct a nonuniformity correction by pressing the custom button and a shutter sound occurs.
	Measure the temperature immediately after the device is powered on	We recommend that you start temperature measurement 5-10min after the thermographic camera is powered on to ensure the accuracy
	The device is not calibrated for a long time	We recommend that you send the thermographic camera back to us for calibration once a year to obtain accurate temperature measurements
Fail to save files	The remaining storage space is insufficient	Delete the photos and videos in the gallery
	The SD card is damaged	Pull out the SD card and insert on the computer for formatting or replace with a new SD card

Environmental Protection and Miscellaneous

Name and content of hazardous substances in products						
Component	Hazardous substances					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent chromium (Cr6+)	Polybrominated biphenyl (PBB)	Polybrominated diphenyl ethers (PBDE)
Lens protection window	○	○	○	○	○	○
Infrared module	○	○	○	○	○	○
Shutter	○	○	○	○	○	○
PCBA	○	○	○	○	○	○
This table is prepared in accordance with SJ/T 11364. ◯: Indicating that the content of the hazardous substance in all homogeneous materials of the component is below the limit specified in GB/T 26572. X: indicating that the content of the hazardous substance in at least one homogeneous material of the component is higher than the limit specified in GB/T 26572.						
	Product name: Lens protection window Product name: Infrared module Product name: Shutter Product name: PCBA Environment-friendly service life: 10 years The environment-friendly service life can only be effective of the product is used correctly with the methods specified in the user manual.					

Special statement: this guide will be updated after the technical improvement of the product.