UTi760X
Expert Thermal Imager
User Manual
V1.0

Content

NOTICE

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

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

CAUTIONS

DANGER

1) Please charge the battery as described in this manual and follow the charging procedures and precautions; incorrect charging can cause the battery to become hot, damaged or even cause human injury.
2) Do not attempt to open or disassemble the battery at any time, and in the event that the battery leaks and causes liquid to enter the eyes, the eyes should be flushed immediately with water and medical attention should be administered.

WARNINGS

1) Keep it stable when using the device.
2) Use or store the device in permitted operating or storage temperature to avoid damage.

3) Do not aim the device at strong heat sources, such as sun, laser device, spot-welder, etc.
4) Do not block the holes on the equipment;
5) Do not knock, toss, or shake the device and accessories.
6) Do not disassemble the device to avoid product damage and loss of warranty rights.
7) Do not use solvents or similar liquids on the product or cables.
8) Please refer the following instructions to wipe the device:

   Non-optical surface: If necessary, use a clean and soft cloth to wipe the non-optical surface of the thermal imager.

   Optical surface: Avoid staining the optical surface of the lens when using the thermal imager, and especially avoid touching the lens with hands, as it can leave traces on the lens glass and

may corrode(erode) the optical coating layer on the glass surface. When optical surface is stained, wipe it carefully with a dedicated lens paper.

9) Do not place battery in high temperature environment or close to the high temperature targets
10) Do not cause the battery polarity short circuit.
11) Do not place battery into damp condition or water.

NOTES

1) Do not expose the device to dust or moisture. Do not splash water to the device when you're using it. Cover the lens when the device is not in use;
2) Place the device and all accessories into a dedicated packaging box when the device is not in use,;
3) Do not use the included SD card for other purposes;

Product Description

This product is designed for professional infrared temperature measurement industry users, using high sensitivity and higher resolution infrared detector, which can provide clearer infrared images and higher temperature measurement accuracy; supplemented with Android operating system, large screen display and detachable lens structure, easy to use, powerful; can also synchronously capture visible light and infrared images, and display the key observation position in the form of Picture-in-Picture or T-Mix; Meanwhile, through the open Android platform application, it can be extended into a multi-purpose mobile thermal imaging application platform.

Storage and Transportation

Storage:

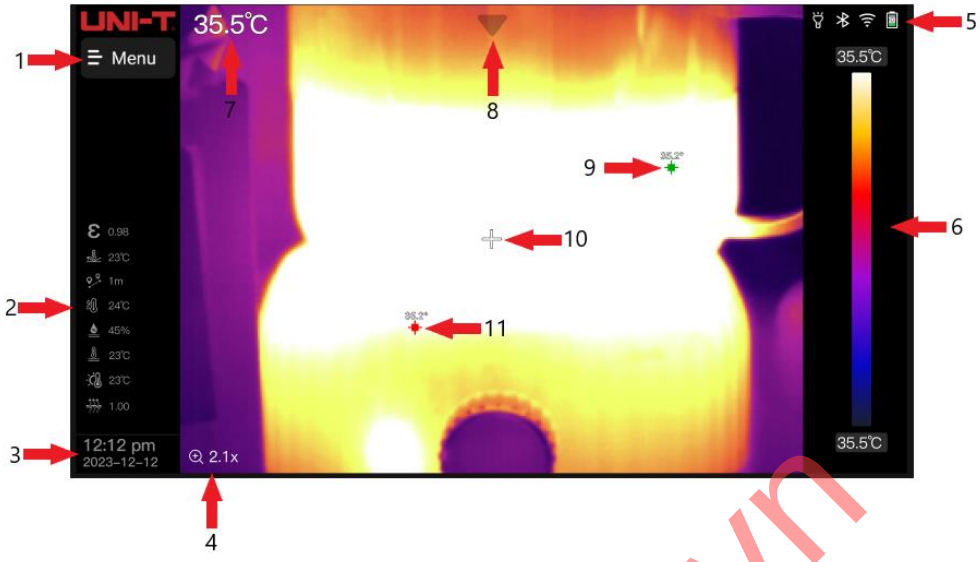
The storage environment for packaged products is -40 ℃ to 60 ℃, with a relative humidity not exceeding 95%, no condensation or corrosive gases, good ventilation, and a clean indoor environment.

Transportation:

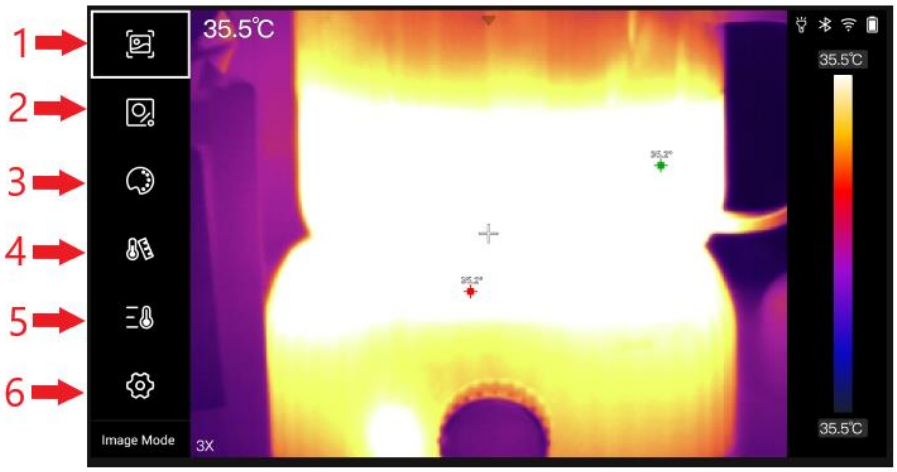
Transportation circulation should be prevented from rain, water intrusion, inverted, there should be no violent vibration and impact, the handling process should be careful and light, is strictly prohibited to throw and drop.

I. Overview of Interface Areas

(I) Real time image interface



1. Menu (Side Open)
2. Temperature measurement parameters, including emissivity, reflected temperature, atmospheric temperature, relative humidity, object distance, atmospheric transmittance, etc;
3. Time and date, go to Settings - General - Date and Time settings, enter the Date and Time interface for setting;
4. Image zoom icon, press the up key to zoom in on the image, press the down key to zoom out on the image. The magnification is not displayed at 1.0x, but displayed at 1.0x or higher;
5. Status bar, battery level status, WiFi status, bluetooth enabled status, etc;
6. Temperature bar, default display, settings - overlay - can be turned off;
7. Center point temperature: displays the temperature at the center of the entire screen;
8. Pull down menu, in the main preview interface, slide the screen from top to bottom with your finger to enter the shortcut menu;
9. Minimum temperature point: Display the lowest temperature of the entire screen;
10. Center point: Mark the center position of the entire screen;
11. Highest temperature point: Display the highest temperature of the entire screen

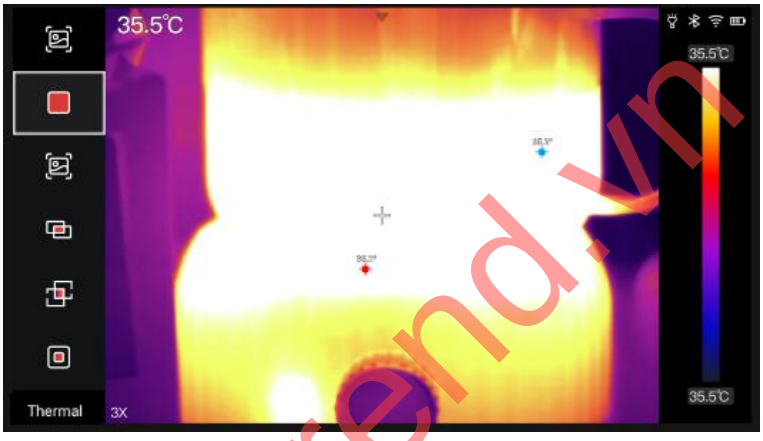


1. The image modes are: Thermal Imaging, Digital Camera, Fusion, T-Mix, PIP, and Dual Channel;

2. Measurement tools: set up point temperature measurement, line temperature measurement, circular temperature measurement, rectangular temperature measurement, intelligent stroke, difference and other analysis objects;
3. Color palette: Custom color bands can be set and add;
4. Isotherm: Automatic isotherm, touch isotherm, upward isotherm, downward isotherm, and interval isotherm can be set;
5. Temperature measurement parameters: Set parameters such as emissivity, reflected temperature, object distance, relative humidity, ambient temperature, atmospheric temperature, and atmospheric transmittance;
6. Set up and perform relevant system settings;

(II) Image mode switching

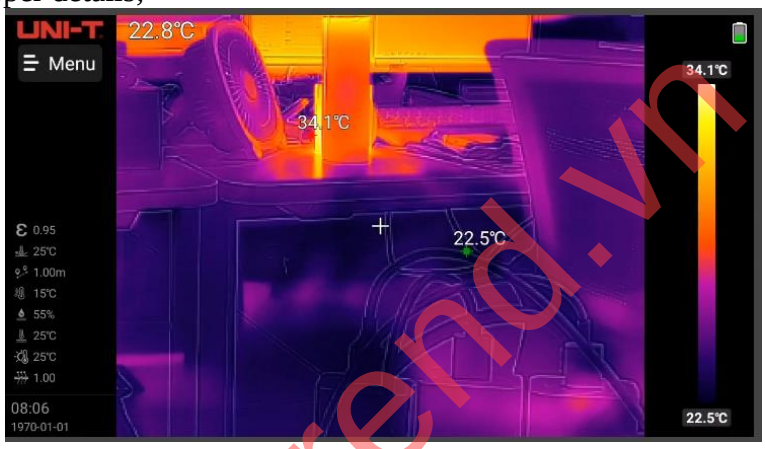
1. Thermal imaging mode
   Select the "Thermal" icon and switch the real-time preview screen to thermal imaging mode;



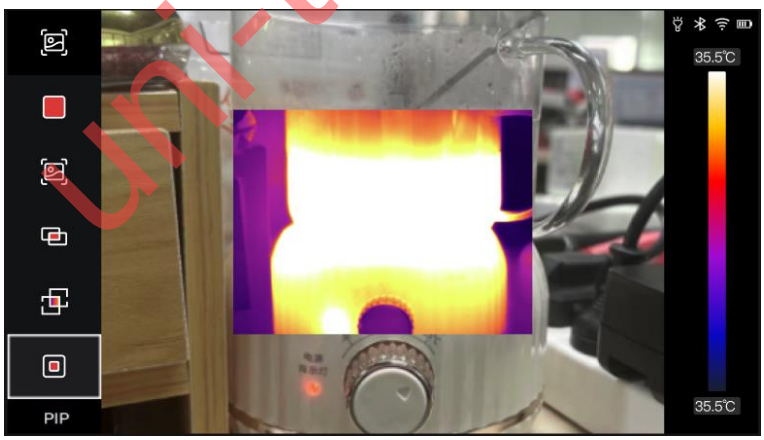
2. Digital camera mode
   Select the "Digital Camera" icon to turn the real-time preview image into visible light mode;

3. Fusion mode
   Select the "Fusion" icon and switch the real-time preview screen to fusion mode, which achieves the fusion of visible light and infrared images;

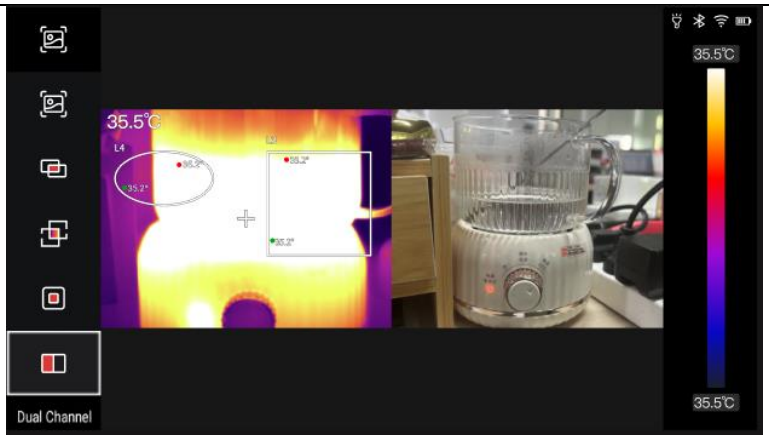
4. T-Mix mode
   Select the "T-Mix" icon to display the T-Mix effect in real-time preview, resulting in clearer images and sharper details;



5. PIP Mode
   Select the " PIP " icon to preview the picture in real-time and display the picture in picture effect;



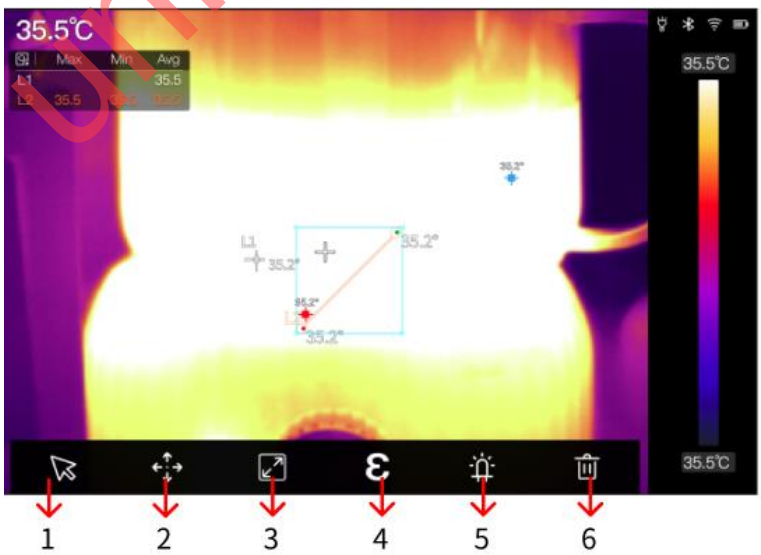
6. Dual channel mode
   Select the "Dual Channel" icon and the real-time preview screen will display the dual channel effect;



(III) Measurement tools

1. Add/Delete Analysis Objects

Under the menu interface, click on the button  at the bottom of the interface to open the analysis object menu interface;
This machine provides multiple types of analysis object temperature measurement, such as point, line, circle, rectangle, and stroke
By touching any analysis object, the system automatically pops up the analysis object editing page;



1) Select temperature measurement tool
2) Move temperature measurement tool
3) Edit temperature measurement tool
4) Emissivity
5) Alarm

6) Single deletion

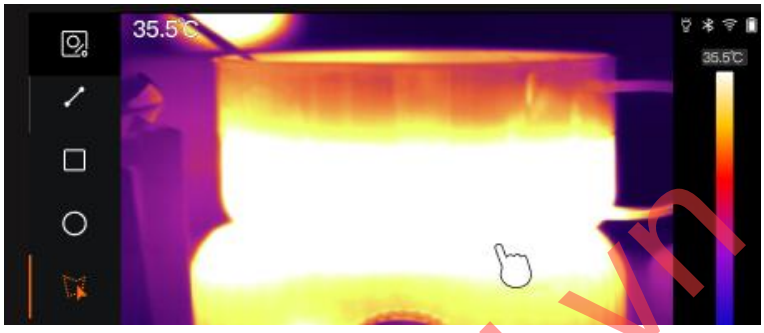
2. Change the size of the analysis object

1) Select the center line, circle, rectangle, or polygon analysis object on the touch screen, where the nodes are all selected and marked in blue color;

2) Move any node to change the area range of the analysis object;

3. T-Select

Click  to enter the T-Select, manually draw the approximate outline of the target of interest, and after hand drawing, automatically select and align the boxes, and analyze the currently selected target;

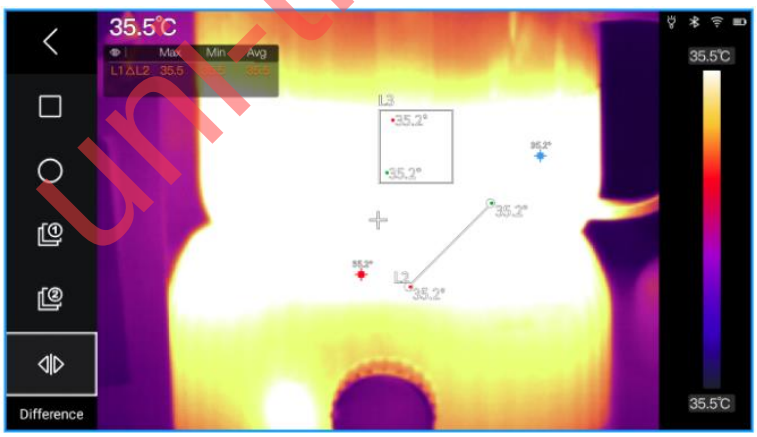


4. Preset

Click on the preset  to  read and save the pre-set temperature measurement tool settings

5. Difference

1) The difference mode requires adding at least 2 analysis objects. Click on the icon  , select the analysis object for difference, and automatically calculate the size and average value.



2) Exit comparison mode: Click on the icon  to exit comparison mode;

(IV) Palette

Customers choose different palettes based on application scenarios;

1. Click on the color palette to bring up color palette options. Select the corresponding color band based on the scene, including white hot, black hot, red hot, ironbow, rainbow, high rainbow, lava, high temperature alarm, low temperature alarm, interval alarm, and custom color palette;
2. Click to swap ⇅; Can achieve color switching between high and low temperatures
3. Click+ to add custom ribbons;
4. Default display of 2 color codes, displaying color mapping from low temperature to high temperature in order from bottom to top;
5. Up to 10 new color codes can be added, with a minimum of 2 color codes

6. Select the custom palette, click again to change the color of the custom palette

(V) Isotherm

By setting "Automatic Isotherm", "Touch Isotherm", "Above Isotherm", "Below Isotherm", and "Section Isotherm", the target temperature area matches the set palette; Both high and low temperature values can be selected for mobile adjustment

1. Automatic isotherm

1) Click the menu button and select 【】;

2) In the isotherm column, click 【 】 to enter the automatic isotherm mode, which automatically calculates the color distribution of the entire screen's color palette

2. Touch isotherm

1) Click the menu button and select 【 】;

2) In the isotherm column, click 【 】 to enter the isotherm mode within the interval. After touching a certain area, the color distribution of the palette will be recalculated based on the temperature of the touched area.

3. Above isotherm

1) Click the menu button and select 【 】;

2) In the isotherm column, click 【 】 to enter the above isotherm mode; Adjustable temperature bar minimum temperature, recalculate color distribution on the palette based on the set temperature range

4. Below isotherm

1) Click the menu button and select 【 】;

2) In the isotherm column, click 【 】 to enter the below isotherm mode; Adjustable Temperature bar maximum temperature, recalculate color distribution on the color palette based on the set temperature range

5. Section isotherm

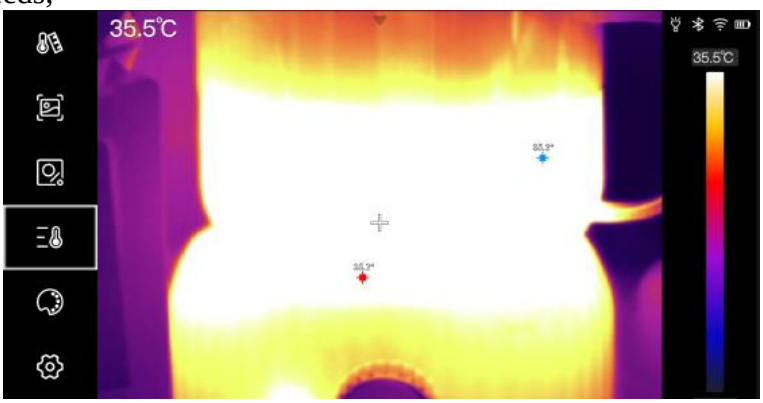
1) Click the menu button and select 【 】;

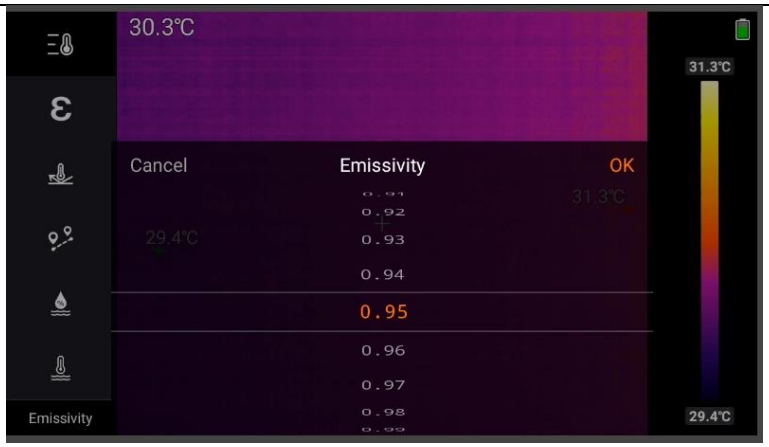
2) In the isotherm column, click 【 】 to enter the temperature line image mode outside the interval; Adjustable temperature bar maximum and minimum temperature, recalculate color distribution on the palette based on the set temperature range

(VI) Parameter settings

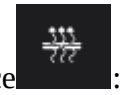
Including: emissivity, reflected temperature, object distance, humidity, ambient temperature, atmospheric temperature, atmospheric transmittance;

Click on the interface to enter the secondary menu and modify the corresponding parameters according to your needs;





Parameter introduction:

1. Emissivity: Users set the corresponding emissivity based on the target material to ensure temperature measurement accuracy;
2. Click  to enter the emissivity setting interface, where you can swipe the corresponding value to modify it within the range of 0.01-1.00. Touch the confirm button to exit and save;
3. Reflected temperature  : When there is a high-temperature target in the scene, if the emissivity of the measured target is small and the measured target reflects the high-temperature target, the reflected temperature needs to be set. The reflection temperature value should be set to the temperature value of the high-temperature target. Users can modify the parameters according to the actual situation, with a range of -20 to 2200;
4. Object distance  : Observe the distance between the target and the thermal imager, and set custom distance parameters according to requirements; Alternatively, users can set close-up, distant, and universal distances based on the distance of the target. They can modify the parameters according to their actual situation, with a range value between 0.0-50.0;
5. Relative humidity  : Users can modify the parameters according to their actual situation, with a range of values between 0-100;
6. Ambient temperature  : Users can modify the parameters according to the actual situation, with a range value between -40 and 60;
7. Atmospheric temperature  : Users can modify the parameters according to the actual situation, with a range of values between -40 and 60;;
8. Atmospheric transmittance  : The transmittance of germanium glass between the thermal imager and the measured target, with a range of values between 0.00-1.00;

(VII) Pull down menu

In the real-time image interface, the finger slides down from the top of the screen to pop up a shortcut menu, which allows for quick operations including brightness, volume, Bluetooth, WIFI, Panoramic and super-resolution settings;

1. Panorama

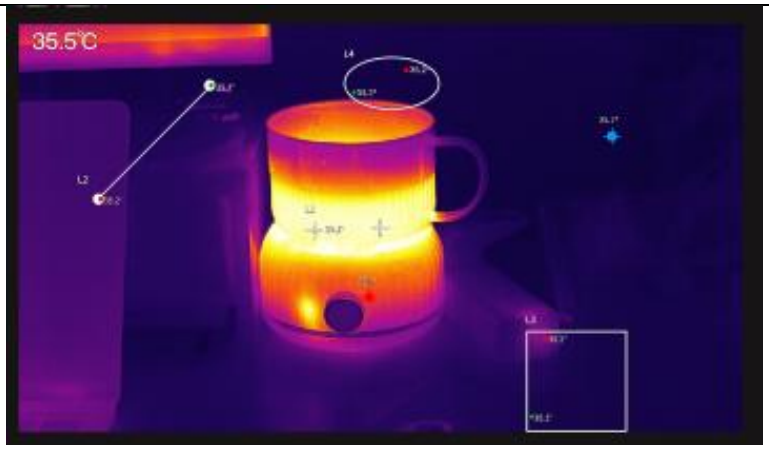
Panorama: achieving a larger range of imaging, preserving more detailed information of the image, and having a better global image of the scenery;

In the real-time image interface, the finger slides down from the top of the screen to pop up a shortcut menu. After opening  by touch, the device automatically returns to the main interface, enters the "Panoramic" mode for shooting, and completes the stitching after taking photos;

2. Full screen

Full screen: achieve full frame preview;

In the real-time image interface, a finger slides down from the top of the screen to pop up a shortcut menu. After opening  by touch, the device automatically returns to the main interface and clicks  again to exit full screen.



3. Data sharing

The data sharing function is mainly used to connect to computer analysis software. When opening the analysis software on the computer, the device side data sharing function needs to be synchronously enabled in order to successfully connect to the computer. Connect the device to the computer via USB, and only by pulling down the status bar can you click on the data sharing  icon.

4. Album select

You can quickly operate the QR code of the album, create a new album, set it as the main album, and so on;

1) QR code: Manually scanning the QR code will create a new album with the QR code; 

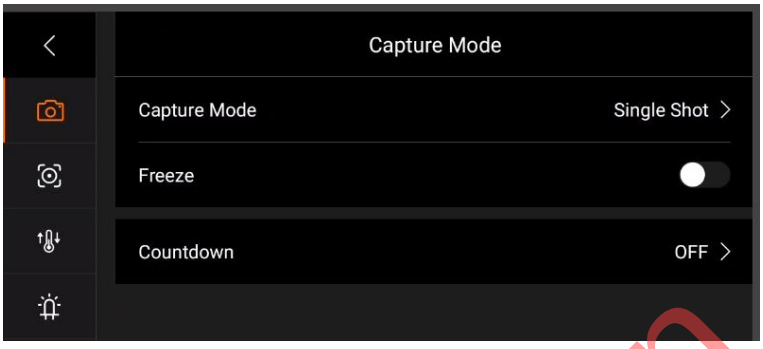
2) Set as primary album: Select the icon in the upper right corner  and check it to set the album as the primary album;

3) New Album: Select the album icon  to create a new album;

II. Set up

(I) Capture Mode

1. Take pictures



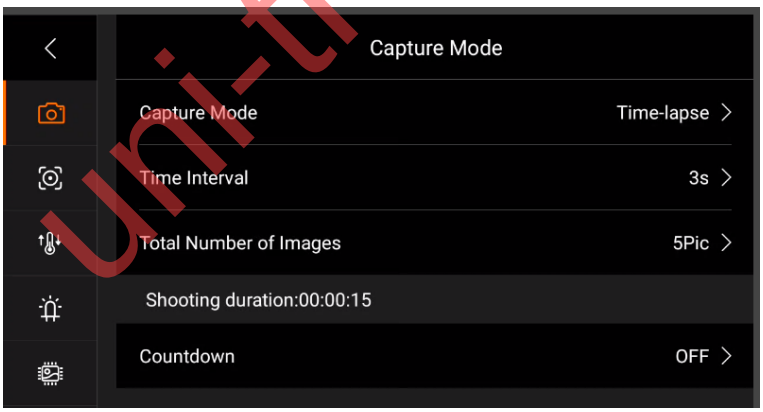
Enter [Settings] - [Capture Mode], turn on [Single Shot], synchronize single shot and video, return to the main interface, adjust the imaging to the clearest state, briefly pressthe Trigger button to take a photo, and save the target scene; Long pressthe Trigger button to record the current target scene, then press the Trigger button again to end the recording;

Countdown: You can set how long after pressing the photo button to start shooting

2. Freeze

Enter [Settings] - [Capture Mode], turn on the freeze switch, return to the main interface, adjust the imaging to the clearest state, briefly press the Trigger button to take a picture, the picture will be still, press the Trigger button again, the picture will return to normal;

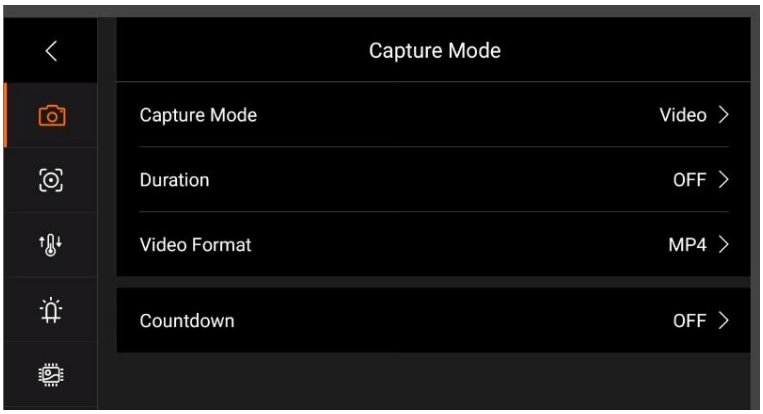
3. Time-Lapse



Enter the [Settings] interface, click on [Capture Mode], and change the capture mode to time-lapse

Select [Time-Lapse] to set the time interval and total number of images, press the back button to return to the real-time preview page, briefly press the the Trigger button to start Time-Lapse and save the target scene;

4. Video:



Enter the [Settings] interface, click on [Capture Mode], change the capture mod to recording, press the back button to return to the real-time preview page, short press the Trigger button to record the current target scene, and press the Trigger button again to end the recording

Duration: The video recording duration can be set, with a maximum of 60 minutes;

Video format: divided into two formats: UIR and MP4. UIR only supports recording in thermal imaging mode and can be analyzed after recording. MP4 can record various image modes, but does not support analysis after recording;

(II) Focus Mode

1. Touch AF

In the real-time preview interface, click on the screen to focus;

2. Automatic AF

1) By pressing the secondary trigger button, focus is activated and the image automatically becomes clearer;
2) In the "Settings" - "Focus Mode" settings, set the focus mode of Auto Focus (Laser/Contrast), back to the real-time preview interface, and press the Focus Trigger to enable the Auto Focus function;
3) When in the Contrast Focus mode, press Focus Trigger to quickly focus the real-time images as per the scene requirements;
4) When in the Laser Focus mode, press Focus Trigger to emit a laser point for quickly focusing the real-time images;

3. Laser AF

This function is recommended for use in non strong light environments where the target can reflect light well for distance measurement (such as cables, indoor scene targets, etc.). It is not recommended for distance measurement of targets that cannot reflect light, directly absorb light or weaken light (such as transparent glass, sky, etc.);

4. Image contrast AF

This function focuses on the target by comparing the brightness and contrast parameters of the image on the observation interface, maintaining the clarity of the observation interface image;

5. Continuous AF

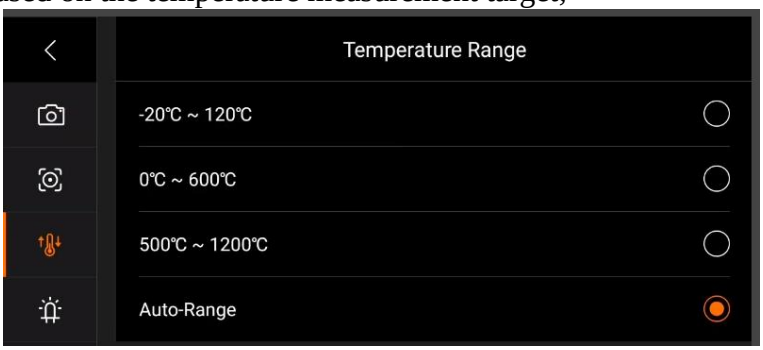
1) Enter "Settings" - "Focus Mode", turn on the "Continuous Focus" switch to achieve continuous and fast focusing;
2) The thermal imager automatically focuses on the target based on changes in the observation interface, maintaining clear images of the observation interface, and is suitable for use when the thermal imager is stationary;
3) During the automatic focusing process, manual adjustment of the focus wheel is not possible;

6. Manual focusing

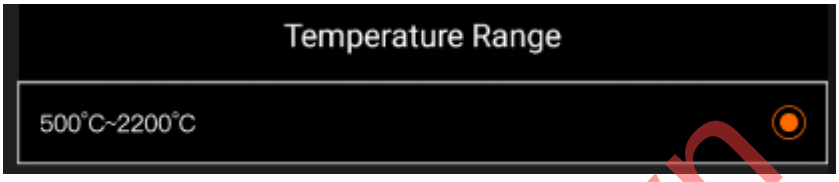
Rotate the focusing ring until the images get clear;

(III) Temperature Range

Enter the [Settings] interface, select [Temperature Range], and the user can choose the appropriate temperature range based on the temperature measurement target;

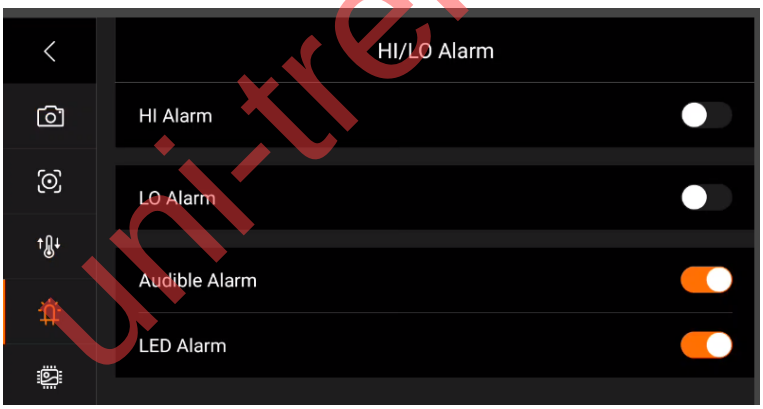


Ultra high temperature lens:



(IV) Temperature alarm

Temperature alarms are divided into high temperature alarms, low temperature alarms, and simultaneous high and low temperature alarms. When the alarm switch is turned on and the corresponding temperature threshold is triggered, the device will sound an alarm,
The alarm methods include audible alarm and light alarm;

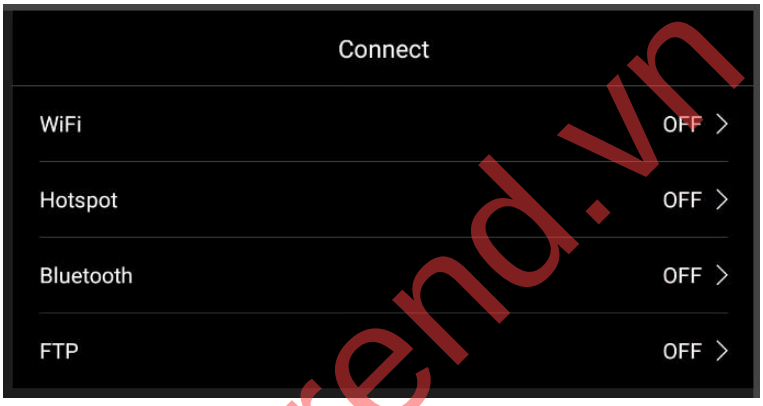


(V) Overlay

Click on the overlay, and the system will provide the highest temperature, lowest temperature, center point, date and time, temperature bar, emissivity, reflected temperature, object distance, dew point temperature, relative humidity, ambient temperature, atmospheric temperature, and atmospheric transmittance; Users can activate and display it on real-time images according to their needs;

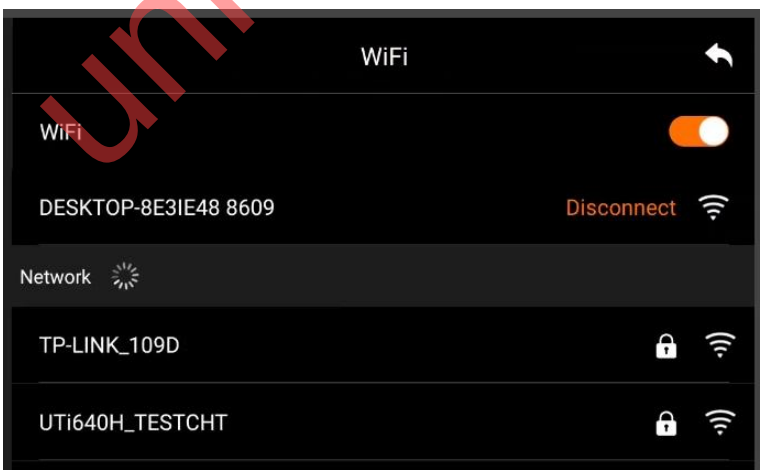
(VI) Connect

Support setting up WiFi, Hotspot, Bluetooth ,FTP



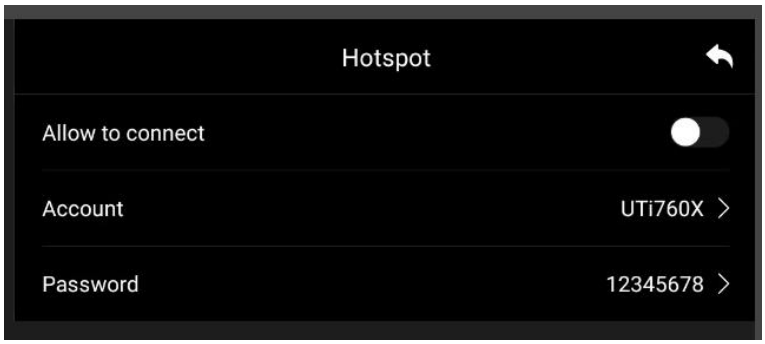
(VII) Wi-Fi

1. Turn on the WiFi switch and search for nearby networks;
2. Select the network that needs to be connected, enter the password and connect;



Note: To ensure reliable WiFi signal connection and stable data transmission, please try to ensure that the connection distance is within 10 meters and there are no obstacles (such as walls) blocking it;

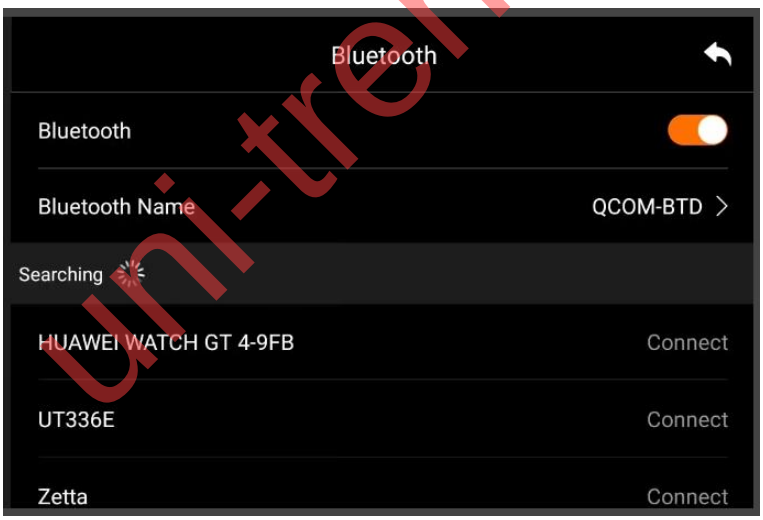
(VIII) Hotspot



1. In the configuration interface, enter a valid hotspot name and password, click the OK button to save successfully;
2. Activate personal WiFi hotspot; It can connect to infrared analysis software and mobile app for real-time video. After the hotspot is turned on, users can use the analysis software to enter the correct username and password to successfully connect to the device network and display real-time images;

(IX) Bluetooth

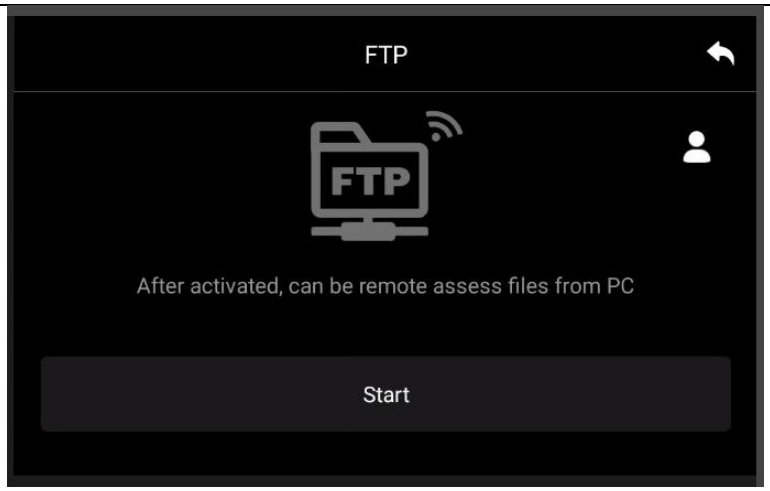
Turn on the Bluetooth switch of the target device;
Turn on the Bluetooth switch of the device, and the system will automatically search for Bluetooth devices. Select the target Bluetooth name from the device list for pairing;
After pairing is completed, image transfer can be achieved (currently supporting transferring images from the device's image library to the Android phone);



Reminder: If two devices are far apart, there may be a situation where Bluetooth cannot be searched. In this case, you can turn on the Bluetooth switch again;

(X) FTP

1. Turn on the FTP switch;
2. Connect the computer to the device's hotspot and ensure that it is on the same local area network as the device. Enter the corresponding FTP address on the computer to remotely manage files

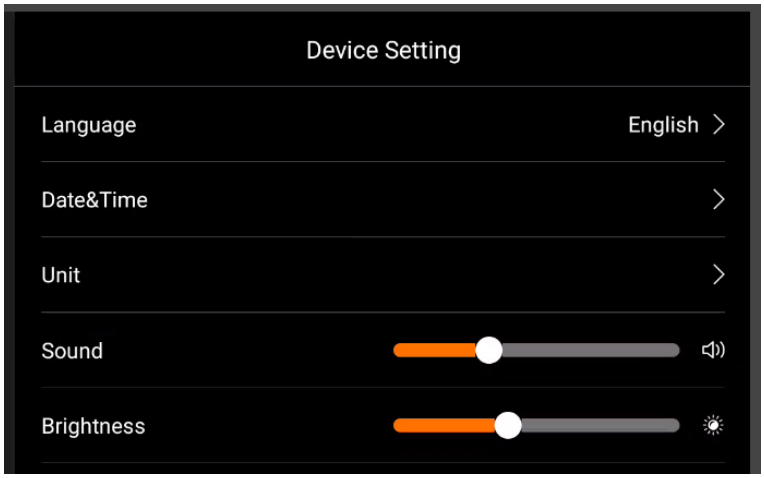


(XI) Report tags

Set various parameters for PDF reports, including templates, report names Logo, company name, reporter, auditor, etc

(XII) Devices setting up

Users can view the local software version, SN number, and other information through Settings - Device Settings, which supports changing language, time and date, unit switching, and other information;

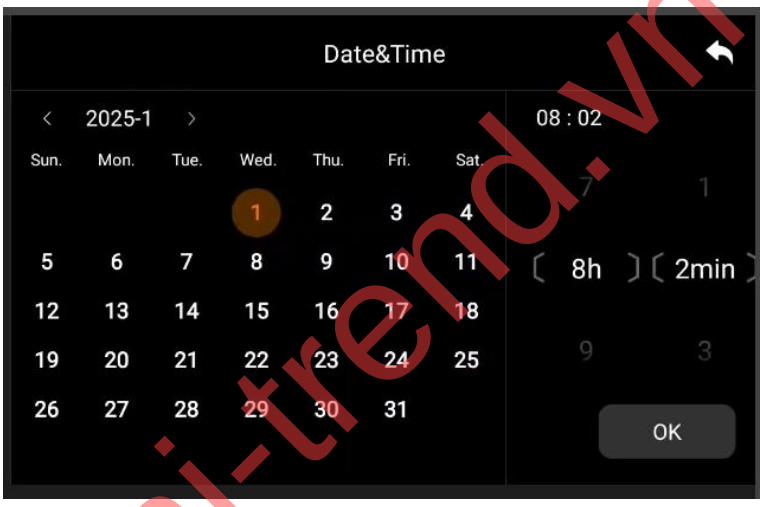


(XIII) Language

Provide language switching for multiple languages including English, German, French, Spanish, etc;

(XIV) Date and Time

Manually set the system date and time;



(XV) Unit

1. Users can choose temperature units based on their own operating habits: Celsius, Fahrenheit;
2. Users choose distance units based on their own operating habits: meters, yards;

(XVI) Image processing

High temperature difference equalization imaging, detail enhancement, super-resolution and other algorithms can be selected to improve image quality

1. High temperature difference balanced imaging: By rescaling the palette ribbon based on the number of pixels representing each temperature range, engineers can have a clearer understanding of the temperature distribution of the entire image;
2. Detail enhancement: increases the visual impact of object contours and edges, better distinguishing objects from the background;
3. Super Resolution: Enlarge the original image to obtain a high-resolution image and support re editing;
4. In the real-time image interface, slide your finger down from the top of the screen to pop up a shortcut menu, click on "Super Resolution", and enter the "Super Resolution" mode for shooting;

(XVII) Sound adjustment

Users can adjust the sound level according to their own operating habits, and the sound alarm and recording sound levels will respond synchronously to the changes

(XVIII) Brightness adjustment

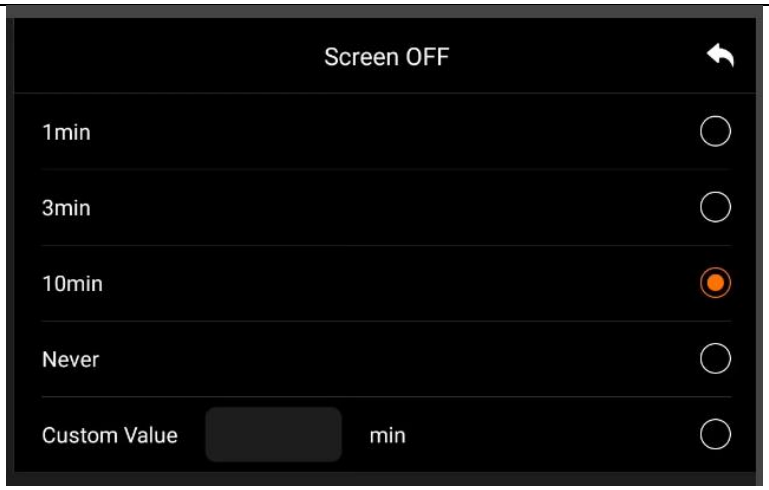
Users can adjust the brightness according to their own operating habits and synchronize it with the pull down status bar;

(XIX) Automatic Backlight

After turning on the automatic backlight, the device will adjust its brightness in real-time according to the ambient brightness

(XX) Screen OFF

Users can set a timed sleep time based on their own operating habits. When the time is reached, the screen will automatically turn off, including: 1 minute/3 minutes/10 minutes/custom/never;

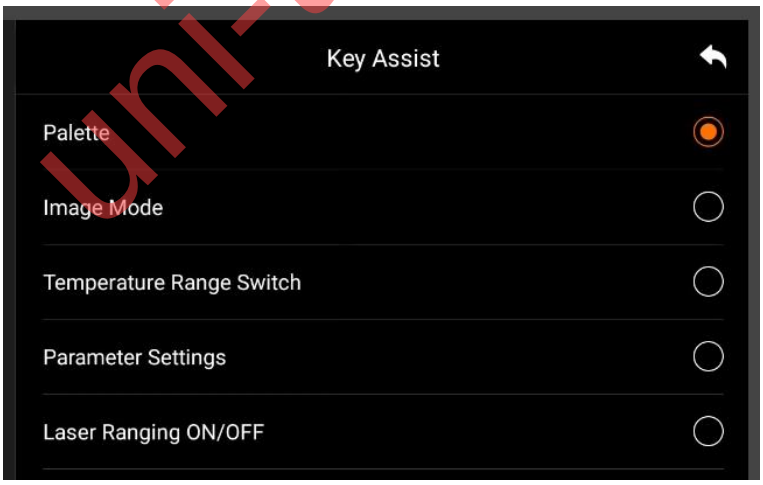


(XXI) Laser ranging

After turning on the laser ranging switch, return to the main page, press the laser button briefly to emit the laser, and the ranging distance will be displayed in the upper right corner synchronously; Long press the laser button to move the screen, and the latest laser ranging distance will be calculated in real-time based on the laser point

(XXII) Key assist

1. Quick operations for setting the "AI" auxiliary keys on the device body, including color palette switching, image mode, temperature measurement range switching, measurement parameters, turning on/off laser ranging, turning on/off lighting, pull down menu, AI voice, etc;
2. After the setting is completed, return to the real-time image screen, press the auxiliary button, and respond to the setting operation;

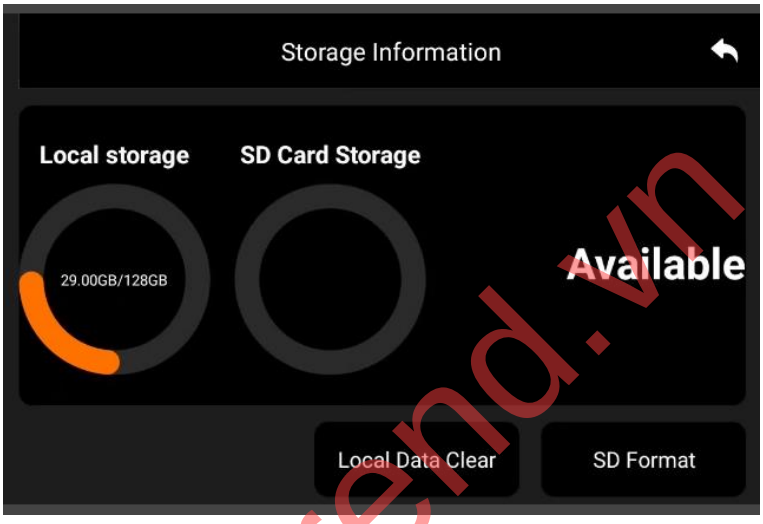


(XXIII) AI voice

1. Activate AI voice through the "Key Assist" function. When a voice command is input, the text prompt "Recognizing..." will appear. When the specified AI command operation is recognized, the operation will be executed;
2. The designated names include: single shot, time-lapse, video recording, freezing, calibration, palette switching, infrared, visible light, picture in picture, T-Mix, LED ON/OFF, Bluetooth ON/OFF, WiFi ON/OFF, power off;

(XXIV) Storage Information

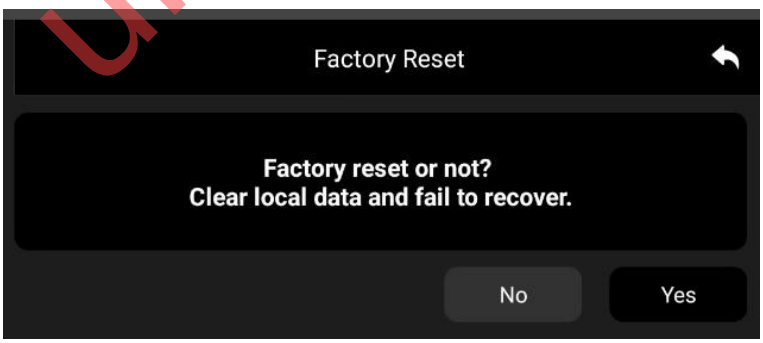
Display the capacity of internal storage devices and information about external SD cards;
Clearing data can format the internal space and SD card space separately, and delete all images, videos, and other files saved by the current device;



Note: Clearing data will permanently delete all photos and other data; Before formatting, make sure to backup as needed;

(XXV) Factory Reset

Factory Reset settings to initialize user set data;



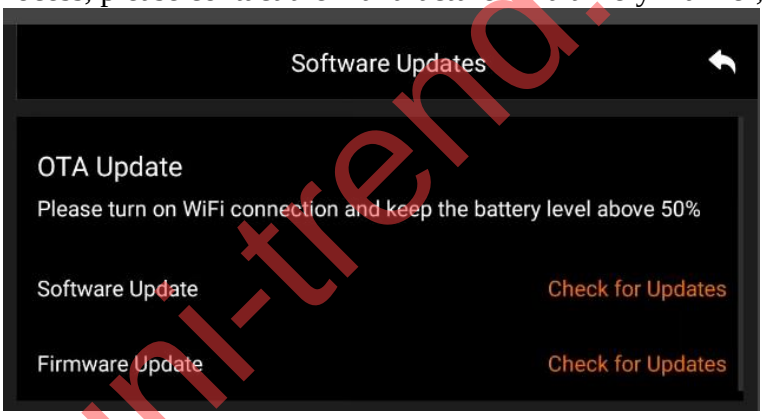
Note: When resetting parameters and restoring the device to factory settings, click "Factory Reset" to restore the device to its original factory state. Please operate with caution;

(XXVI) About

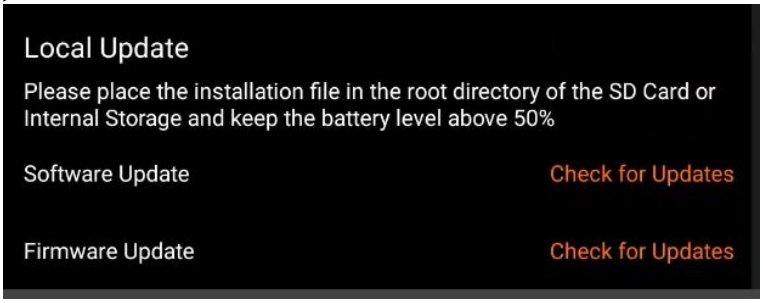
View information such as device model, thermal resolution, software version number, firmware version, system version, SN, etc;

(XXVII) Software Update

Check the device version update status, support OTA upgrade and local upgrade;
OTA upgrade
After connecting the devices that need to be upgraded to the internet, click "Check for Updates" to detect the latest upgrade package. Click "Start Upgrade" to update the device software to the latest version; When there is no OTA upgrade package, it prompts that it is already the latest version;
Note: OTA upgrade requires maintaining smooth network connection. During the upgrade process, it is necessary to ensure sufficient battery power and not unplug the battery. If you have any questions during the upgrade process, please contact the manufacturer in a timely manner;



Local upgrade
Place the upgrade package in the root directory or SD card directory, click "Check for Updates", detect the latest upgrade package, click "Upgrade", restart the device to upgrade to the latest version after the upgrade is complete;
Please note that the software upgrade package needs to be renamed as app.apk in order to detect the upgrade package; The firmware upgrade package needs to be renamed as update.rip in order to detect the upgrade package;

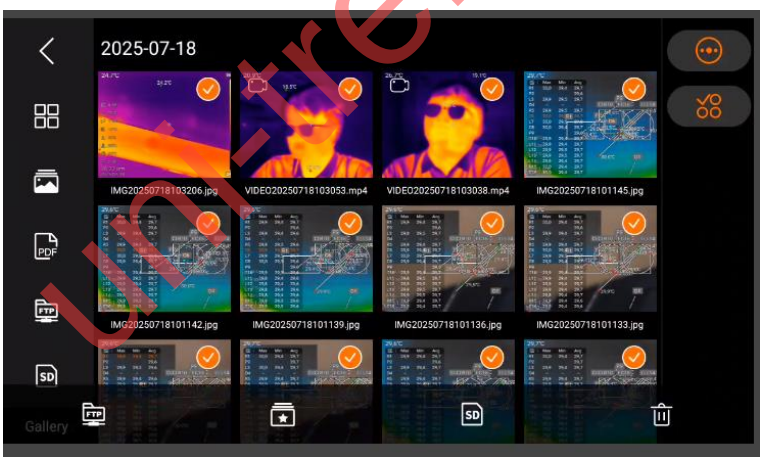


III. Image

(I) All photos/videos

1. Press the 【Image】 button on the device to enter the preview interface of the Image;

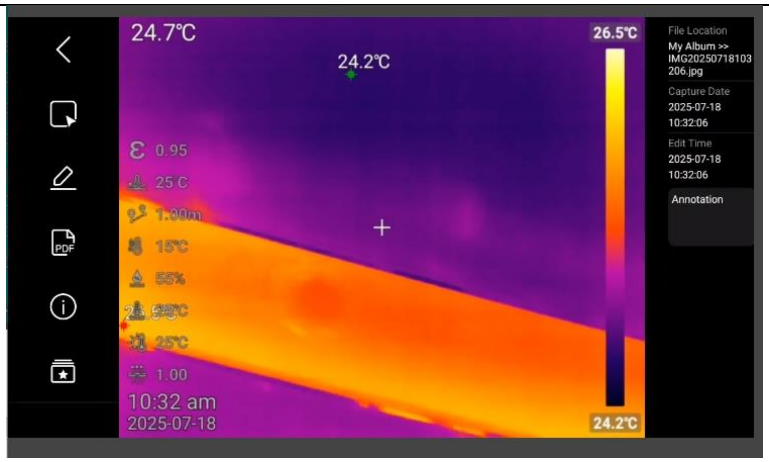
2. Click on the 【Select】 button in the upper right corner, and select the image to perform operations such as selecting all, adding to FTP, adding to album, adding to SD card, deleting, etc;



3. Click to select all, album, PDF, FTP, SD card, and display the files in the corresponding path;

(II) Image analysis

Image preview interface, click on any image to enter the image editing interface;
You can edit, annotate, generate PDF, view information, move to other albums, export, delete, and perform other operations on the current image;



1. Zoom in and out of images

In image editing mode, two fingers touch the screen to enlarge the image by opening the fingers, and shrink the image by closing the fingers. In the enlarged state of the infrared image, a single finger slides in any area of the screen to move the infrared image;

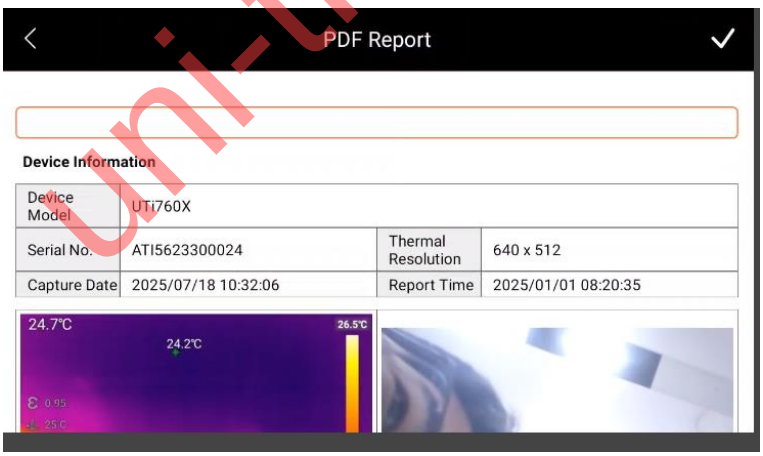
2. Edit

Click 【  】 to add and modify analysis objects, isotherms, temperature differences, and temperature measurement parameters for the current image;

3. Create PDF

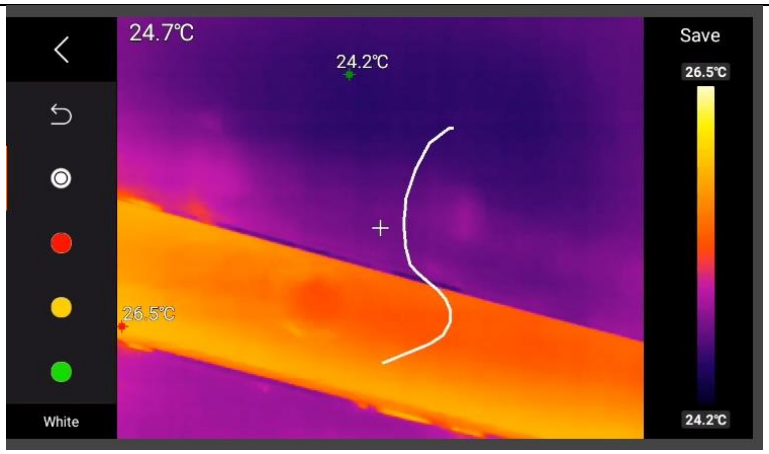
1) Image preview interface, click on any image;

2) Select  and generate a PDF preview file;



4. Sketch

Click 【  】 to freely annotate the image with a brush.

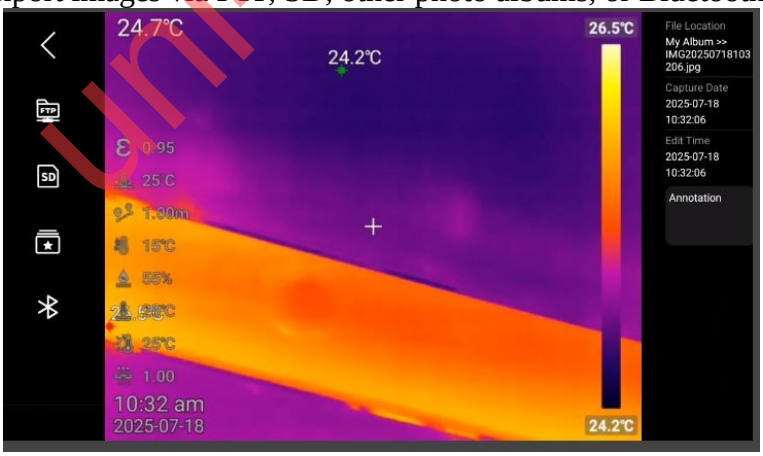


5. Information

Click [ ] to view photo file information, such as resolution, shooting time, and other parameters.

6. Export

Click 【 】 to export images via FTP, SD, other photo albums, or Bluetooth transmission;



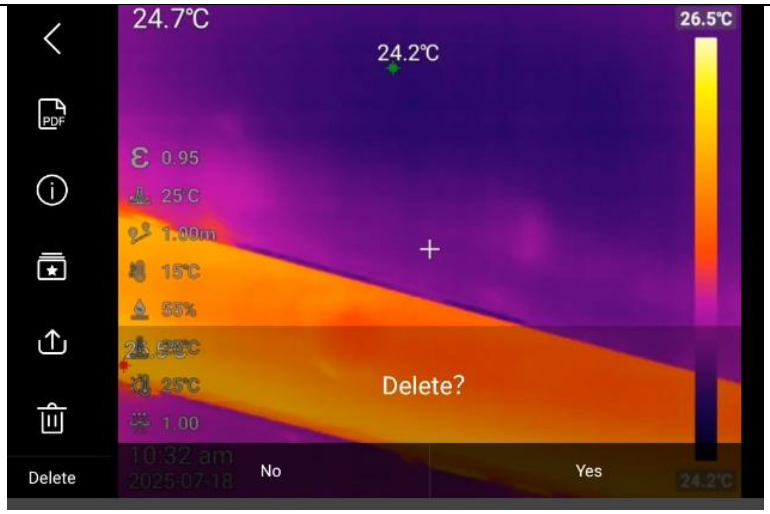
7. Bluetooth transmission

Image preview interface, click on any image;

Select export and Bluetooth transfer to transfer images to your phone;

8. Delete

Click to delete the image;



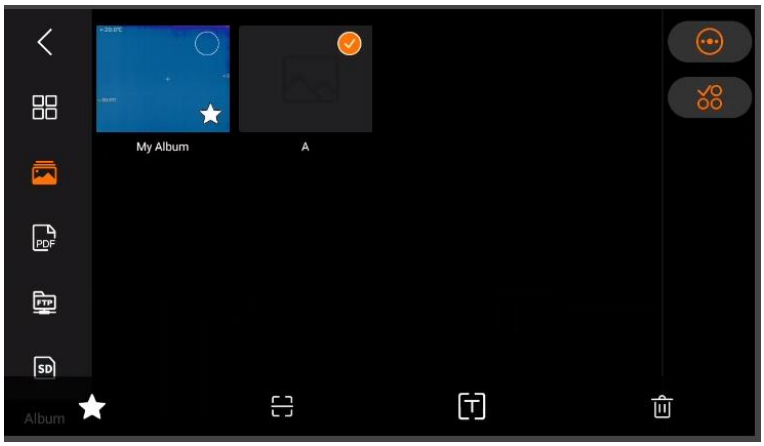
(III) Video Editing

1. Click on any video file to access the video details for viewing;

2. Click the 【 】 button in the bottom left corner to play the video;
3. Can analyze objects, isotherms, temperature differences, and modify temperature measurement parameters for videos (only supports videos in UIR format);

(IV) Album

Click on the "Select" button in the upper right corner, and after selecting an album, you can perform operations such as selecting all, setting it as the main album, QR code, renaming, deleting, etc;
Attention: My photo album cannot perform operations such as adding QR codes, renaming, deleting, etc



1. Set as the main album

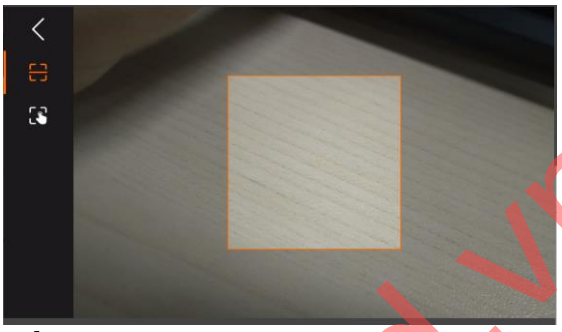
Click on "Select" in the upper right corner, select a single album, and click on set as "Main Album". There will be an icon in the lower right corner of the main album, and subsequent photos and videos will be saved in this album by default;

2. QR code

QR code attribute can be added to the album, and subsequent images saved to the album will also have this QR code attribute added. It is divided into scanning QR code and manually entering QR code

3. Scan QR code

Scan any QR code to assign it to this album

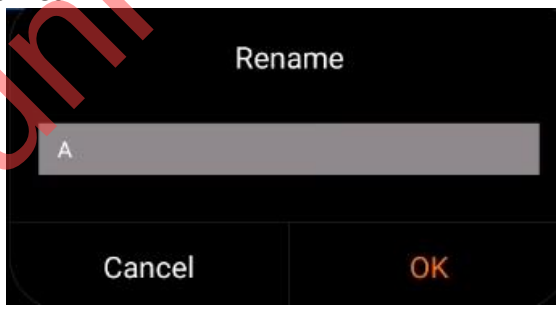


4. Manually enter the QR code

Manually input text and assign a QR code to the album based on the content of the text;

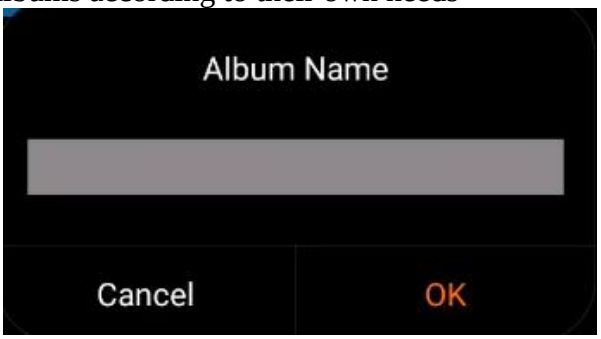
5. Rename

The album name can be modified



6. New Album

Users can create new photo albums according to their own needs



IV. Connect with external devices

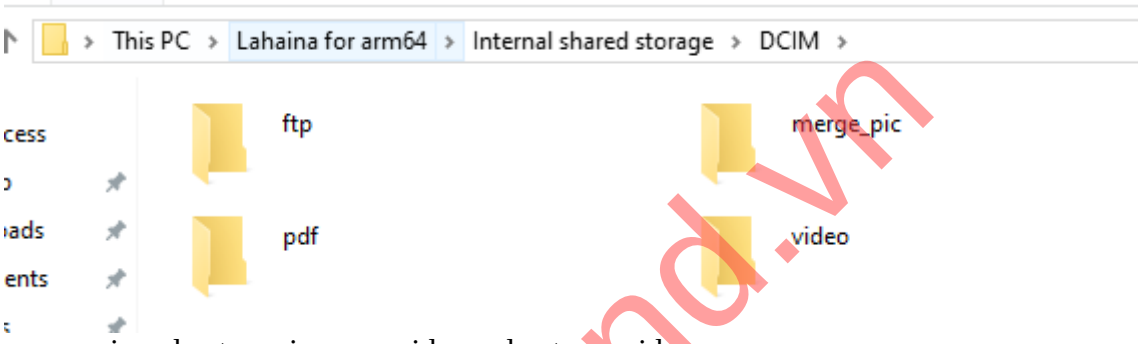
Port connection

This product can be connected to external devices using USB data cable, HDMI projection cable;

(I) USB interface

1. View internal storage files;

After connecting the USB data cable to the desktop computer, open My Computer, check the internal storage disk information, click on the memory device, find the folder where the pictures are stored, and the specific path is Lahaina for arm64 \ internal shared storage space \ DCIM

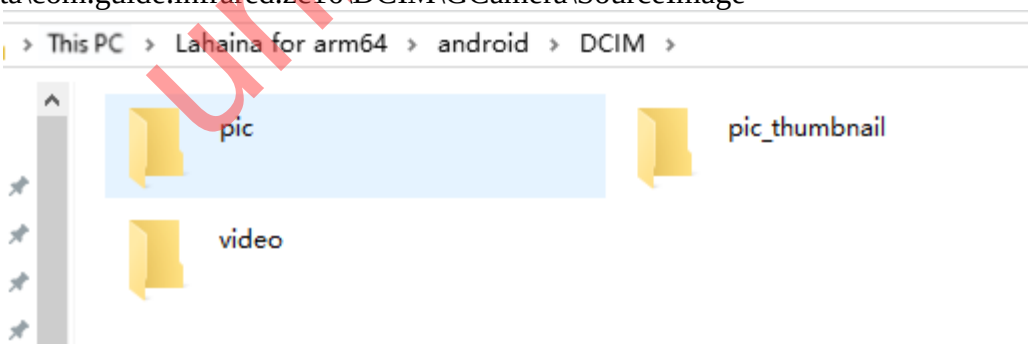


Note: merge pic only stores images, video only stores videos;

2. View SD card files;

To save the captured images to an SD card, please first enter the gallery and export the images to the SD card

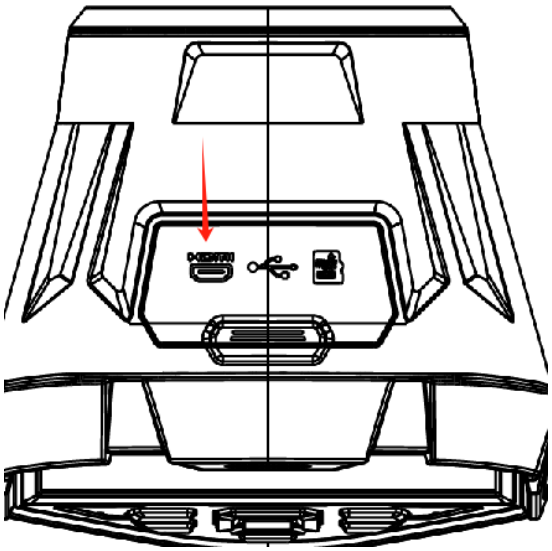
Connect to the computer using a USB cable, open My Computer, view the internal storage disk information, click to enter the memory device, path is \ Lahaina for arm64 \ Android \ DCIM \Android\data\com.guide.infrared.zc16\DCIM\GCamera\SourceImage



(II) HDMI interface

Insert the HDMI screen mirroring cable into the device port shown in the figure, and plug the other end into the monitor to achieve screen mirroring;

Note: Can only connect to a monitor, not a laptop;

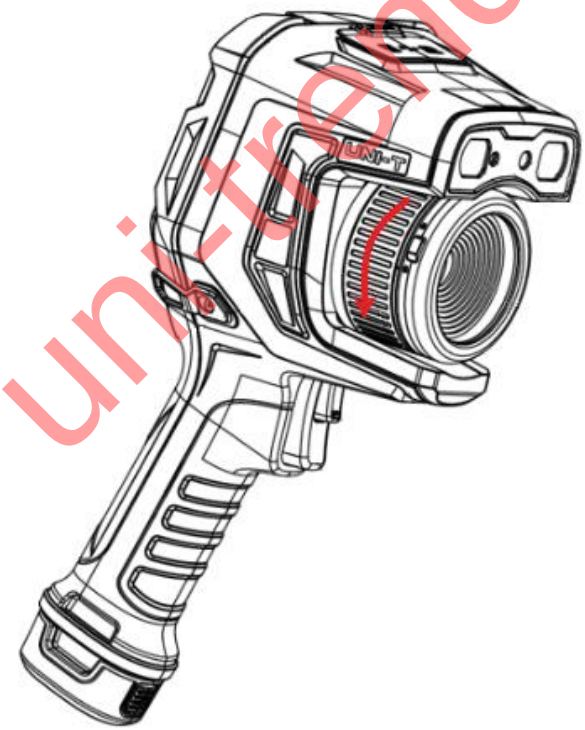


(III) Memory card and lens

This product can use an SD card, and the captured images and videos can be exported to the SD card;
This product supports a maximum capacity of 256GB SD card and comes standard with 64GB;

Install optional lens

1. Press the lens replacement button and rotate the lens counterclockwise to remove it;



2. Select the desired lens, align the U-shaped groove of the lens with the red dot on the machine, insert the lens, rotate the lens counterclockwise, and hear a "Click" sound to indicate successful lens installation;

Notes:

1) Handle with care when using to avoid direct collision and damage to the lens;
2) When not in use, please place the extended lens in a safe and store it properly;

(IV) Smart Meter

It can be paired with other testing instruments of our company through Bluetooth connection and display the instrument content on the main page; The following devices can be connected:

1. UT197 Industrial Digital Multimeter
2. UT251C+ AC Leakage Current Clamp Meter
3. UT219PV CAT III 1500V Professional AC/DC Clamp Meter
4. UT503PV Insulation Tester
5. UT505A Handheld Insulation Resistance Tester
6. UT117C High-Precision True RMS Digital Multimeter
7. UT501E Fast Insulation Resistance Tester
8. UT333BT Mini Temperature Humidity Meter
9. UT353BT Mini Sound Level Meter
10. UT363BT Mini Anemometer
11. UT383BT Mini Light Meter
12. UT61E+ Digital Multimeter
13. UT202BT Smart Digital Clamp Meter

Table of common object emissivity

Material	Emissivity
Wood	0.85
Water	0.96
Brick	0.75
Stainless steel	0.14
Tape	0.96
Aluminum plate	0.09
Copper plate	0.06
Black aluminum	0.95
Human skin	0.98
Bitumen	0.96
PVC plastic	0.93
Black paper	0.86
Polycarbonate	0.8
Concrete	0.97
Copper oxide	0.78
Cast iron	0.81
Rust	0.8
Gypsum	0.75
Paint	0.9
Rubber	0.95
Soil	0.93

Common troubleshooting guide

Symptom	Reason	Measure
Unable to power on	Low battery level	Recharge the battery before using it again
	Poor battery contact	Remove the battery, put it back into the battery compartment and install it in place
	The plug of the external power supply is not inserted properly	Unplug the power plug, reinsert and push it into place
There is a significant deviation between the battery level indication and actual usage	The battery is drained.	Replace the fully charged battery
	The battery life has expired	Replace the battery with a new one
The infrared image is not clear	No focusing has been performed	Manual or automatic focusing to make the image clear
	The lens is covered with water vapor or contaminated	Clean the lens with professional equipment
Visible light image is not clear	The environment is too dark	Take appropriate lighting measures
	There is water vapor or contamination in the visible light front end	Clean the visible light front end with professional equipment
Inaccurate temperature measurement	Not focused on the target	Manually or automatically focus to make the image clear, and then read the temperature
	Incorrect parameter settings related to temperature measurement	Change parameter settings or directly restore default parameter values
	Long term lack of non-uniformity correction	Set the custom button as compensation in the menu, press the custom entity button, hear the shutter sound, and perform a non-uniformity correction
	Immediately measure the temperature upon startup	To ensure temperature measurement accuracy, we recommend that you turn on the thermal imager and wait for 5-10 minutes before starting the temperature measurement
	Long term lack of calibration	To obtain accurate temperature measurement results, we recommend that you send the thermal imager back for calibration once a year
The file cannot be stored	Insufficient remaining storage space	Delete images and video files from the gallery
	SD card damaged	After unplugging the SD card and inserting it into the computer, format or replace it with a new SD card

Environmental Protection and Others

The names and contents of harmful substances in the product						
Component Name	Hazardous substances					
	Lead（Pb）	Mercury（Hg）	Cadmium（Cd）	Hexavalent cadmium（Cr6+）	Polybrominated biphenyls（PBB）	PBDE（PBDE）
Camera protection window	○	○	○	○	○	○
Infrared module	○	○	○	○	○	○
Shutter	○	○	○	○	○	○
PCBA	○	○	○	○	○	○

This table is prepared in accordance with the provisions of SJ/T11364
○： The content of the hazardous substance in all homogeneous materials of the component is below the limit requirements specified in GB/T26572.
X: Indicates that the content of the hazardous substance in at least one homogeneous material of the component exceeds the limit requirements specified in GB/T26572.

Product Name: Lens Protection Window
Product Name: Infrared Module
Product Name: Shutter
Product Name: PCBA
Environmental protection usage period: 10 years
-The environmental protection period can only be effective when used normally according to the instructions in this product manual.