VEVOR

Affordable. Reliable. Home Improvement.

HANDHELD THERMAL IMAGER

MODEL:SC256M

VEVOR

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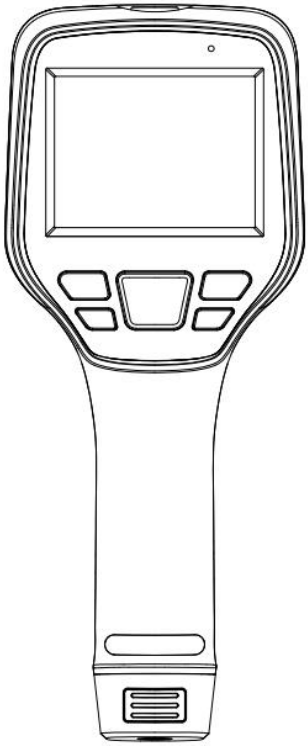


This is the original instruction, please read all manual instructions carefully before operating. VEVOR reserves a clear interpretation of our user manual. The appearance of the product shall be subject to the product you received. Please forgive us that we won't inform you again if there are any technology or software updates on our product.

	Warning-To reduce the risk of injury, user must read instructions manual carefully.
	CORRECT DISPOSAL This product is subject to the provision of european Directive 2012/19/EU. The symbol showing a wheelie bin crossed through indicates that the product requires separate refuse collection in the European Union. This applies to the product and all accessories marked with this symbol. Products marked as such may not be discarded with normal domestic waste, but must be taken to acollection point for recycling electrical and electronic devices.
	FCC Information: CAUTION: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment! This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: 1) This product may cause harmful interference. 2)This product must accept any interference received, including interference that may cause undesired operation. WARNING: Changes or modifications to this product not expressly approved by the party.responsible for compliance could void the user's authority to operate the product. Note: This product has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules, These limits are designed to provide reasonable protection against harmful interference in a residential installation. This product generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this product does cause harmful interference to radio or

	television reception,which can be determined by turning the product off and on, the user is encouraged to try to correct the interference by one or more of the following measures. · Reorient or relocate the receiving antenna. · Increase the distance between the product and receiver. · Connect the product to an outlet on a circuit different from that to which the receiver is connected. · Consult the dealer or an experienced radio/TV technician for assistance.

SAFETY INSTRUCTIONS

WARNING:

Read this material before using this product. Failure to do so can result in serious injury.

Safety instruction

WARNING

Make sure you read all applicable Material Safety Data Sheets (SDS) and warning labels on containers before you use a liquid. The liquids can be dangerous. Injury to persons can occur.

It is prohibited to use the product in a high temperature above 60 °C or in a low temperature below-20 °C.

It is recommended to be used on the condition of RH between 10% and 95% (no condensation).

Unauthorized disassembly or modification of the thermal camera is prohibited.

CAUTION

No matter there is a lens cover or not, do not point the infrared thermal camera towards strong light or equipment with laser radiation. This will affect the accuracy of the thermal camera and even damage the detector in the thermal camera.

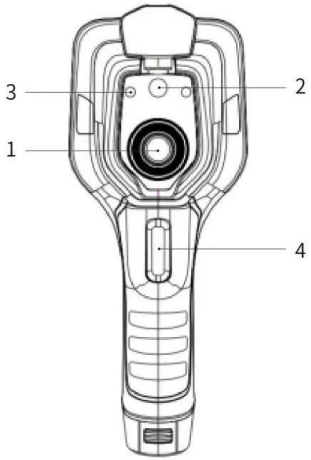
Do not use the product under conditions that doesn't match the environmental requirements. For specific use environment requirements, see the product parameter table.
Do not apply solvents or equivalent liquids to the camera, the cables, or other items.
Be careful when you clean the infrared lenses. The lens has an anti-reflective coating which is easily damaged. Damage to the infrared lens can occur with too much force or cleaning with rough objects such as tissues.

2006/66/EC (battery directive): This product contains a battery that cannot be disposed of as unsorted municipal waste in the European Union. See the product documentation for specific battery information. The battery is marked with this symbol, which may include lettering to indicate cadmium (Cd), lead (Pb), or mercury (Hg). For proper recycling, return the battery to your supplier or to a designated collection point. For more information see: *www.recyclethis.info*

2012/19/EU (WEEE directive): Products marked with this symbol cannot be disposed of as unsorted municipal waste in the European Union. For proper recycling, return this product to your local supplier upon the purchase of equivalent new equipment, or dispose of it at designated collection points.
For more information see: *www.recyclethis.info*

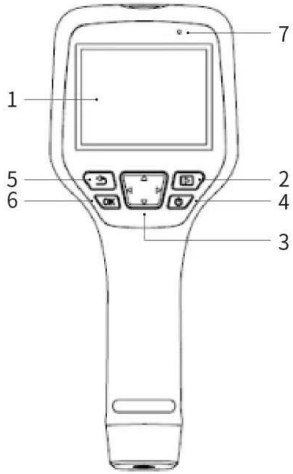
Product Introduction

Camera (View from the front)



1. **Infrared Lens**
2. **Digital Camera**
3. **Laser Pointer**
4. **Trigger**

Buttons (View from the rear)



1. Display screen

2. Gallery button：Press to open the gallery. Long press to perform image uniformity correction.

3. Navigation button：Make selections for the menu, settings, gallery by clicking up/down/left/right.

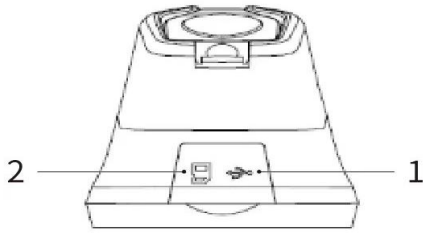
4. Power/Laser button：Long press to turn on/off. When it is on, click to turn on/off the laser pointer.

5. Back button：Click to cancel the operation or return to the previous one. Long press to perform image uniformity correction.

6. Enter button：Click OK to confirm the operation.

7. Microphone：It’s used to record voice notes after shooting.

Connector and Memory Card



No.	Name	Description
1	USB Interface	Connect a USB cable with the power adapter for charging. Connect a USB cable to a computer to charge or transfer data.
2	SD Card	Standard MicroSD card, standard 32GB, it can save 140,000 images at most (exFAT format), capacity

		extendable to 512GB for some models. The SD card can be taken out and transfer data to PC or other devices with a card reader.

Quick Start Guide

Please follow the procedures:

Charging

1. Power adapter and USB cable can be used to charge the device.
2. You can charge the device by connecting the USB cable in the accessory to the computer.

Note: This method of charging takes longer time than using the power adapter.

3. Charging base can also be used to charge the battery.
4. Please charge the thermal camera at room temperature.

Power on

Long press the power button ⏻ to start the device.

Target Searching

Point the thermal camera at the object of interest.

Image Capturing

Click the trigger button to capture the image, and record the video by long pressing the trigger button.

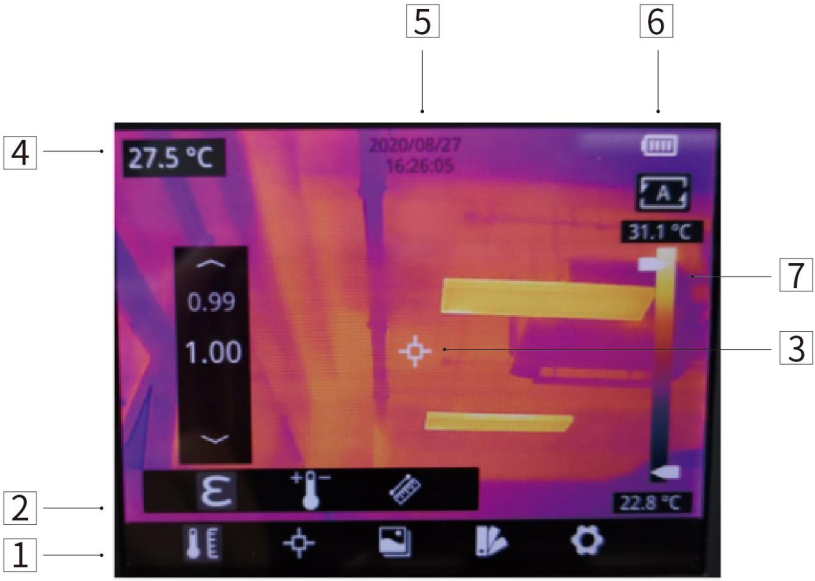
Analysis by PC Software

Run the client after downloading the software to PC, and then use a USB cable or SD card to import data for further analysis.

Analysis by APP

Download and install the App on the mobile device. Enable hotspot on the thermal camera to which the mobile device is connected, run the App and import the data for further analysis.

User Interface



No.	Name	Description
1	Main Menu	parameters, measurement mode, image mode, color palettes and other settings can be set.
2	Sub Menu	specific options can be set, such as a specific color palette.
3	Temperature measurement spot	measurements of center spot, high/low temperature spot tracking, customize spot, customize line, customize area measurement are available.
4	Center spot temperature	the temperature of the center spot is displayed.
5	Date and time	date and time are displayed.
6	Battery capacity	the remaining battery capacity is displayed.
7	Temperature range	the temperature range in the current screen can be displayed.

Operation Instruction

Charging

Charge with a Power Adapter

1. Plug the power adapter into the socket.
2. Use a USB cable to connect the adapter and the camera to charge.

Note: It takes about 3h to get the device fully charged.

Charge with a Computer

Use a USB cable to connect the thermal camera to the computer to charge.

Note: when charging with a computer, the computer should be turned on, and the charging time is longer than using an adapter.

Charge with a Charging Base

1. Connect the power adapter and the charging base with a USB cable, and plug the power adapter into the socket.
2. Take out the battery and place it correctly in the charging base to charge.

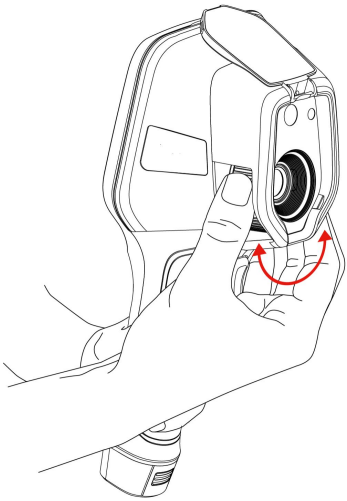
Note: When the battery is not placed, the indicator of the charging base flashes; the indicator turns red when the battery is placed and charging; the indicator becomes green when the battery is fully charged.

Power On/Off

1. Press the power button continuously to start the device.
2. Press the power button about 3 seconds to turn it off.

Focus Adjustment(Only available for some models)

Make sure that the device is powered on, align the camera at the measured scene, rotate the focus ring beside the lens clockwise or counterclockwise, which can make the image clearer via focal length adjustment, see the following figure for the detailed adjustment method:



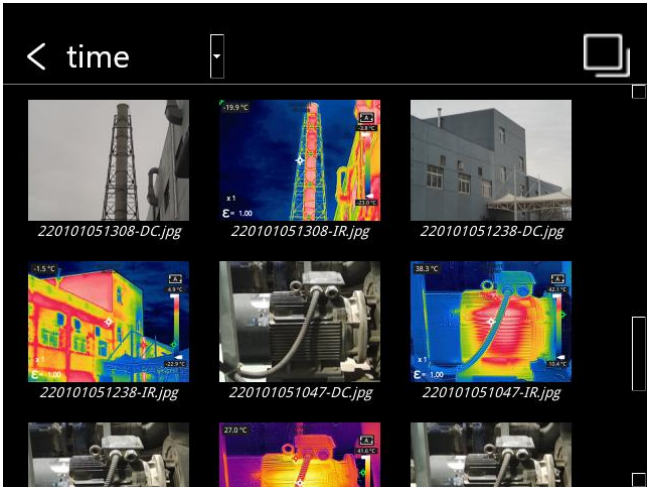
Images/Videos Capture

1. In the observation interface, adjust the focus ring till the image is clear. Short press the trigger button to capture the image. Long press the trigger button to record video.
2. Tap the save button on the touch screen or click *OK* or short press the trigger to save the picture. Tap other buttons on the screen or use the navigation button + *OK* to make recording annotation, scan the QR code to name the file, or cancel saving images.

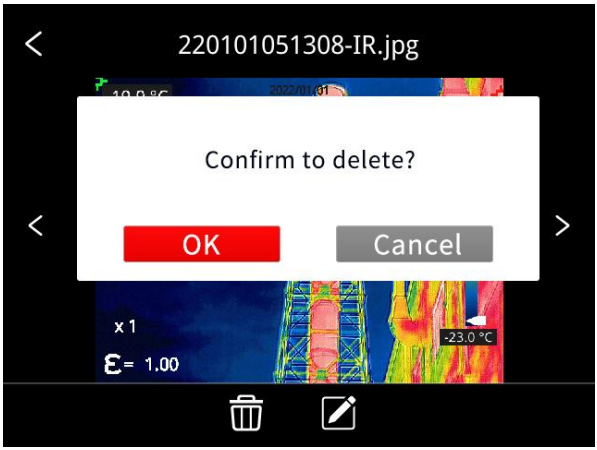
View Photos/Videos

The images you captured are saved in the SD card, and you can follow the below steps to view them at any time:

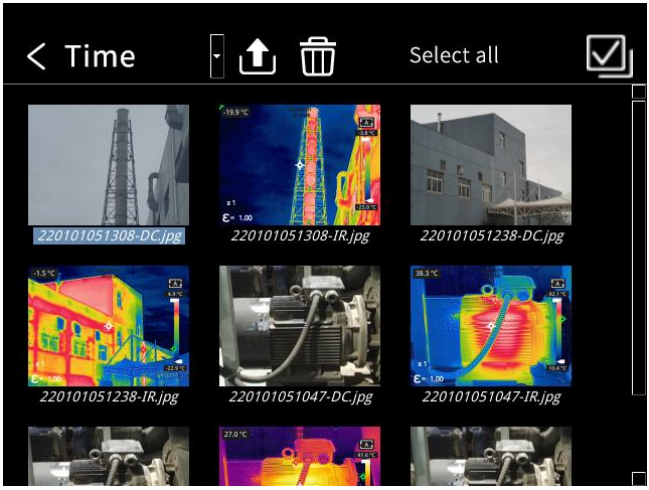
1. Enter the photo gallery by clicking gallery button.
2. Choose the image view modes by clicking the drop-down arrow, there are two kinds of modes: sort by filename or sort by time.



3. Select the picture or video you want to view by pressing the navigation button or touch screen.
4. Press *OK* or click the picture or video to view it in full screen. Select the delete option and then confirm to delete the current item. Select the rename option and confirm to rename the current item.



5. When in the preview interface, click the multiple button in the upper right corner of the screen, then select the picture or video to be deleted, and delete the selected items by pressing the delete button.



6. Return to observation interface by clicking the gallery button, back button or touching the screen.

7. Single-click the gallery button, press the return button, or use the touchscreen to return to the observation interface.

Measurement Mode

In the observation interface, press OK shortly to enter the main menu, and select *Measurement Settings* with the navigation button. Press OK again to enter the secondary menu, select different measurement modes by shifting left or right on the navigation button, and press OK to save your option.

In the observation interface, click anywhere on the screen to enter the main menu. Then click *Measurement Settings* to select the desired measurement mode, and make it effective by clicking the screen area.

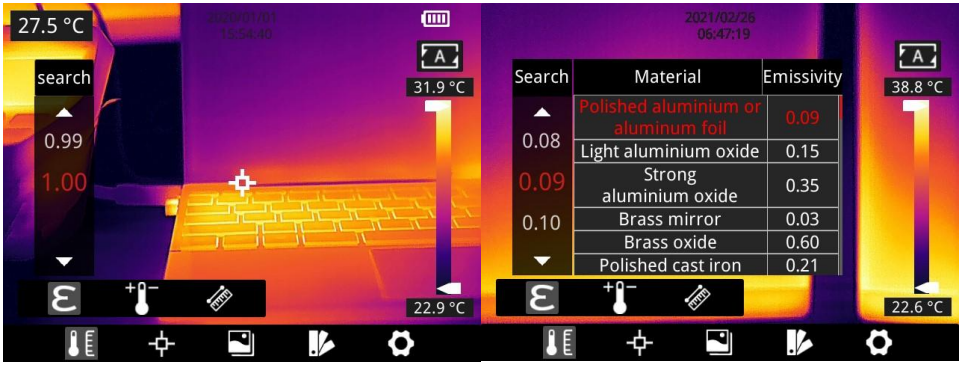
Measurement Parameters

In the observation interface, press OK to enter the main menu, use the navigation button to select the parameter setting, then press OK again to enter the secondary menu. Select different temperature measurement parameters by shifting left or right, and press the enter button to parameterize. After setting, press OK again to save your option.

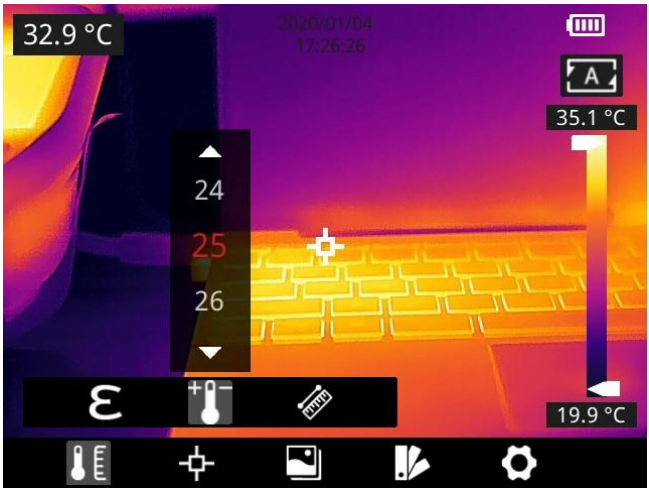
In the observation interface, click anywhere on the screen to enter the main menu. Click Parameter Setting to set the parameter. After finishing the setting, click the screen area to take effect.

- **Emissivity**: in order to obtain more accurate measurement results, you need to set the emissivity according to the target to be measured before each measurement, instead of using the default configuration. Emissivity refers to the ratio of the radiant ability of an object to the radiant ability of a blackbody at the same temperature, which is relative to the reflectivity of the object. The lower the emissivity, the higher the proportion of energy being reflected. The higher the emissivity, the lower the proportion of energy being reflected. For example, the emissivity of human skin is 0.98, and the emissivity of printed circuit boards is 0.91. In the home screen, click the 'Emissivity'

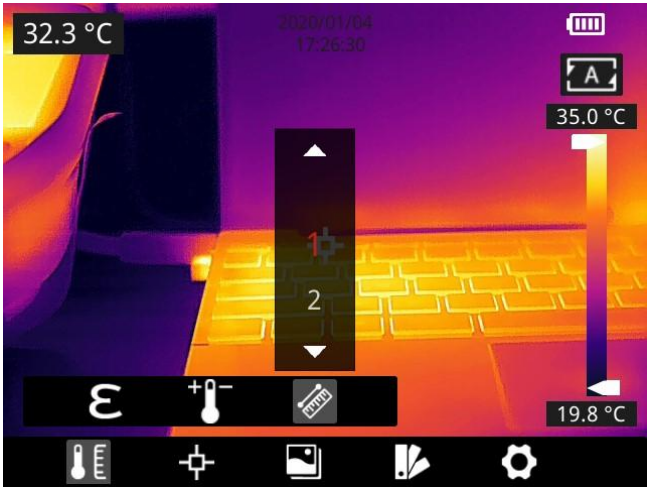
button and then click 'Search' to obtain more emissivity information (supported by certain models). You can also refer to the Quick Start Guide included in the packaging or check other sources for more information.



- **Ambient temperature**: the reflection temperature of the object surface will affect the measurement result, especially when the object emissivity is low or the object temperature and the reflection temperature differ greatly, this effect will increase. So, the result needs to be compensated to eliminate influences of the surface reflection temperature. However, it is usually difficult to determine the reflected temperature of an object. The ambient temperature can be used to replace the reflected temperature in actual measurement.



- **Distance** :distances have effects on the measurement results. In order to get accurate measurement, distance information of the object is necessary for the thermal camera to compensate the result.



Palettes

In the observation interface, short press OK to enter the main menu, and select palette setting with the navigation button. Press OK again to enter the sub menu, select different palettes by shifting left and right on the navigation button, and then press the enter button to save your option.

In the observation interface, click anywhere on the touch screen to enter the main menu. Click palette setting to choose a palette and save your option by clicking the screen area.

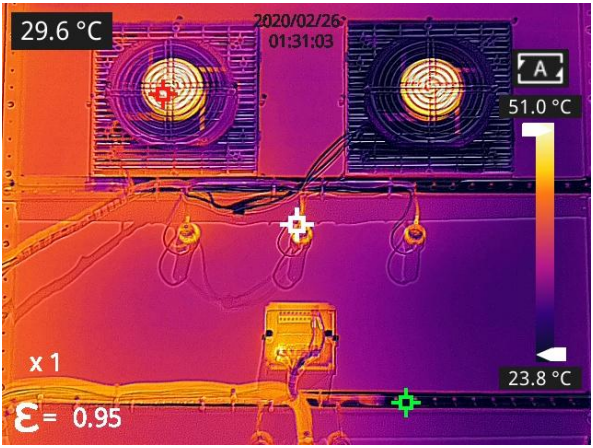
Image Mode

Image Mode Introduction

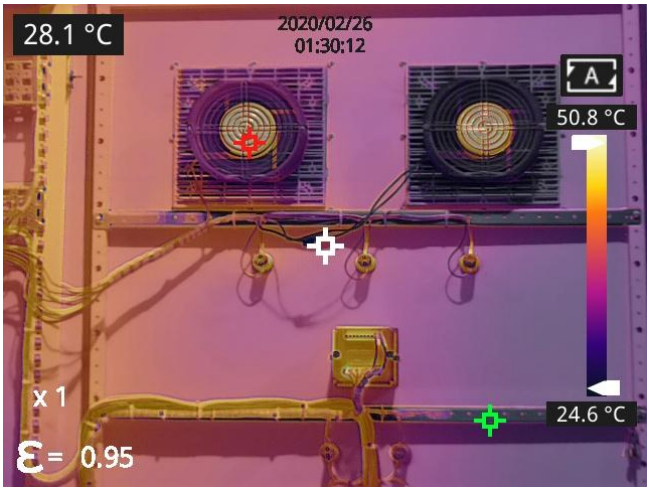
Five image modes are available.

- **DDE**: Infrared image with enhanced object edge details.

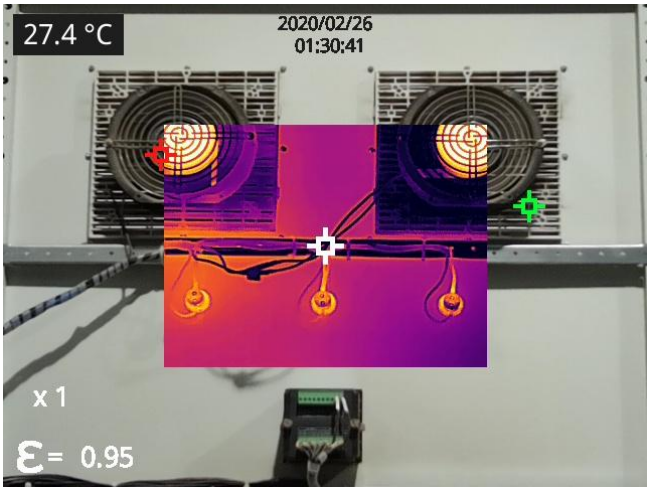
Note: *this function is not available for some models.*



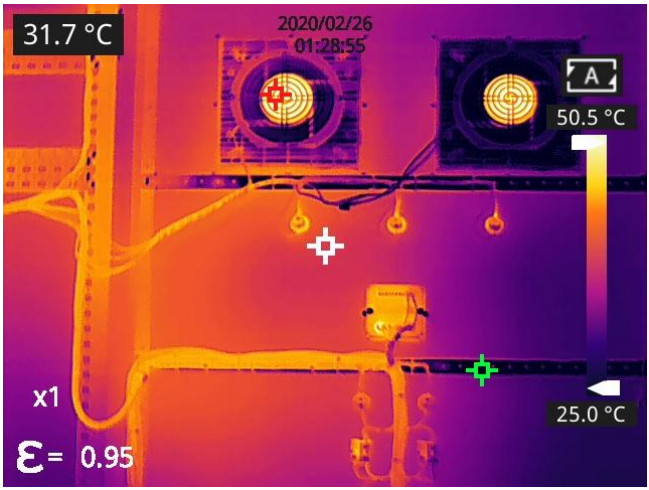
- **Thermal Fusion**: an image fused to a certain scale between an infrared image and a visible image.



- **PIP:** infrared image superimposed at the center of the visible image.



- **Thermal imaging**: infrared images.



- **Digital camera**: visible images.

Note: *For better dual-light image effects, when in DDE, PIP or thermal fusion modes, you need to set the actual distance, that is, the approximate distance from the thermal camera to the object. If the preset alignment parameters cannot meet the requirements, you can also manually perform fusion alignment in the settings or drag on the touch screen.*

Setting Steps

In the observation interface, press OK shortly to enter the main menu, and

select image mode through the navigation button. Then press OK again to enter the secondary menu, there different image mode can be selected by shifting left or right on the navigation button. Save your option by pressing enter button.

In the observation interface, click any place on the screen to enter the main menu. Click image mode and select the desired image mode, and then click on the screen area. The option is saved.

Non-uniformity Correction

Non-uniformity Correction Introduction

Non-uniformity correction is used to compensate for non-uniformity of detector pixels or non-uniformity caused by other optical interference.

If there is more noise in the image, non-uniformity correction is needed, which is common when the ambient temperature changes rapidly.

Non-uniformity Correction Operations

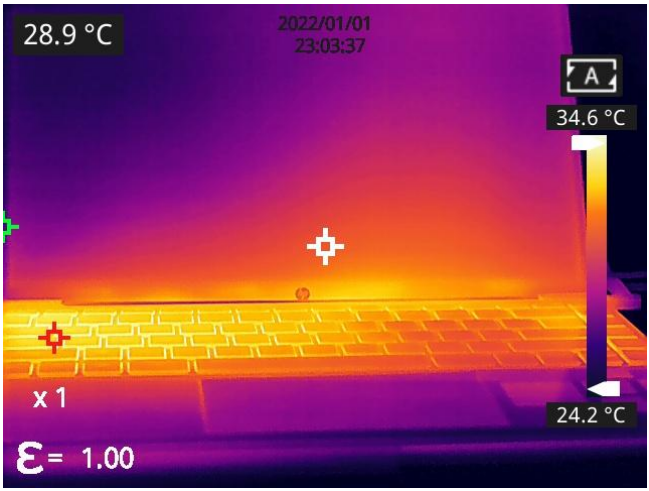
In the imaging interface, press the back button or the gallery button continuously to perform non-uniformity correction.

Contrast Adjustment

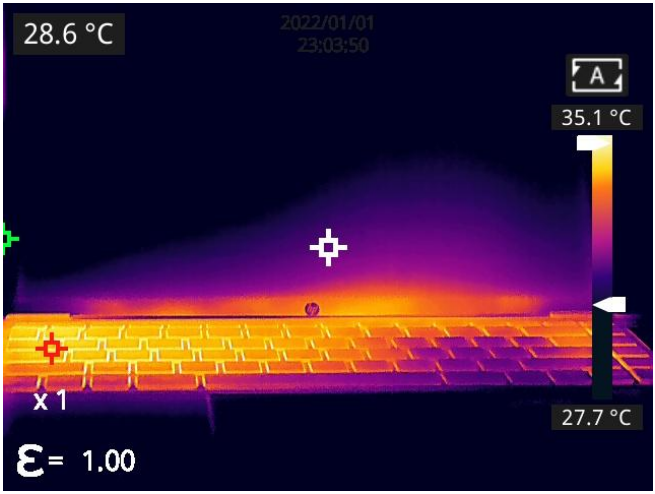
- In the observation interface, the contrast of the infrared image can by

adjusted by sliding up and down the arrow button on the *temperature range* on the right side of the screen, the upper limit and lower limit of the temperature scale can be set manually.

Take the following image as an example: in auto mode, the default temperature range is 24.2℃ to 34.6℃.



The lower limit of the temperature scale is manually adjusted as 27.7℃:



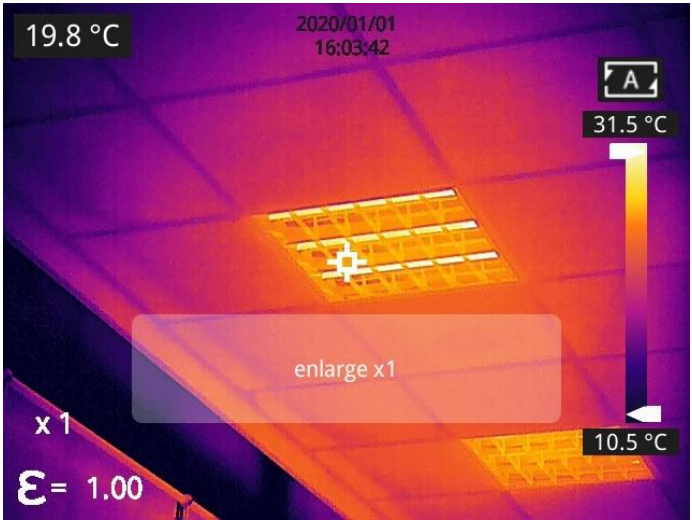
- Press *A* in the upper right corner of the interface to return to auto-contrast mode. The upper limit and lower limit are auto adjusted according to the Max. temp and Min. temp in the auto mode, the image

color is distributed based on the color of the temperature scale.

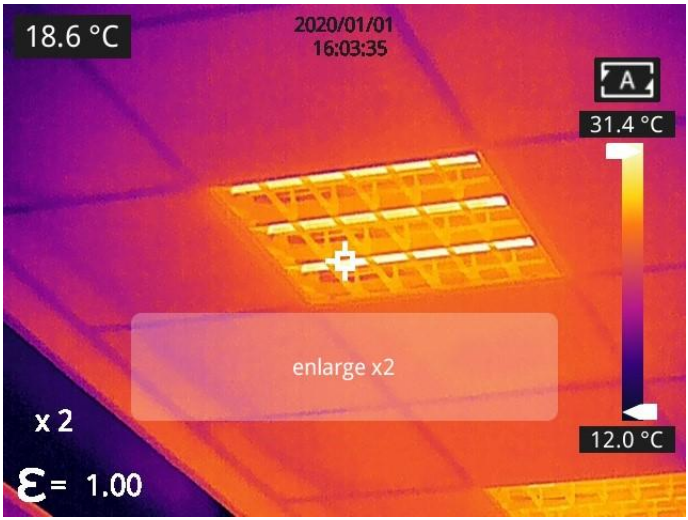
Digital Zoom

In observation interface, press navigation button to perform Max. 8×digital zoom.

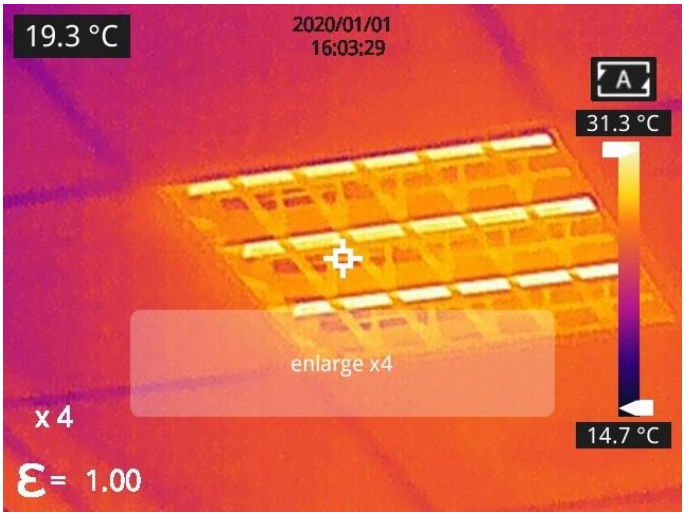
- 1×digital zoom:



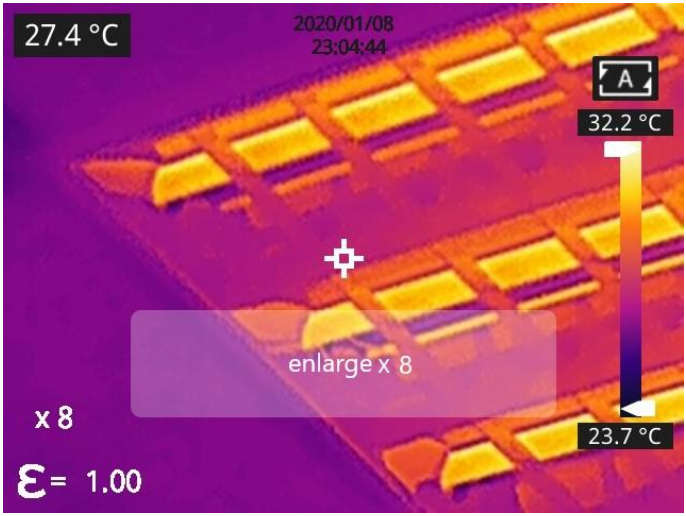
- 2×digital zoom:



- 4×digital zoom:



- 8×digital zoom:



Note: *This function can be enabled only in IR mode or Visible mode.*

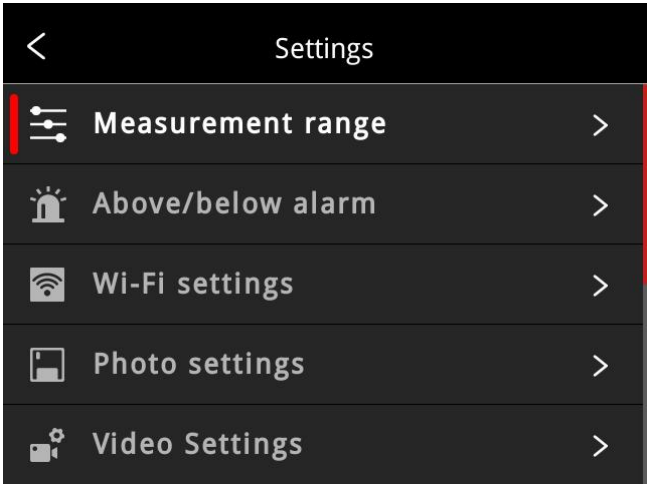
Other Settings

Other settings include date and time, unit, and other items.

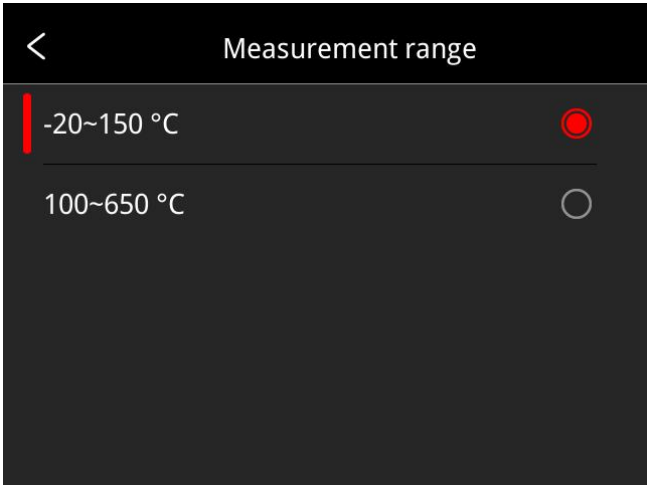
1. In the observation interface, press OK shortly to enter the main menu, and select *Settings* to enter other settings.
2. In the observation interface, tap anywhere on the screen to enter the

main menu, and tap *Settings* to enter other settings.

Temperature Measurement Mode



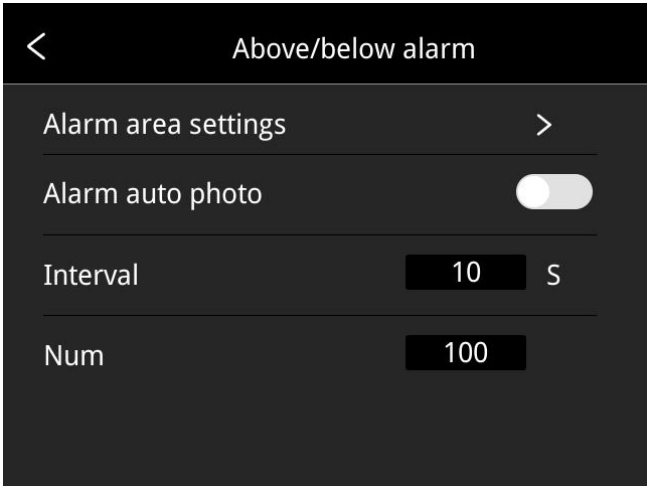
- **-20~150**℃: the image details are better, and the maximum temperature measured is 150℃. This mode by default.
- **100~650**℃: the image details are slightly worse, and the maximum temperature measured is 650℃ (Certain models support measuring temperatures up to 550℃).

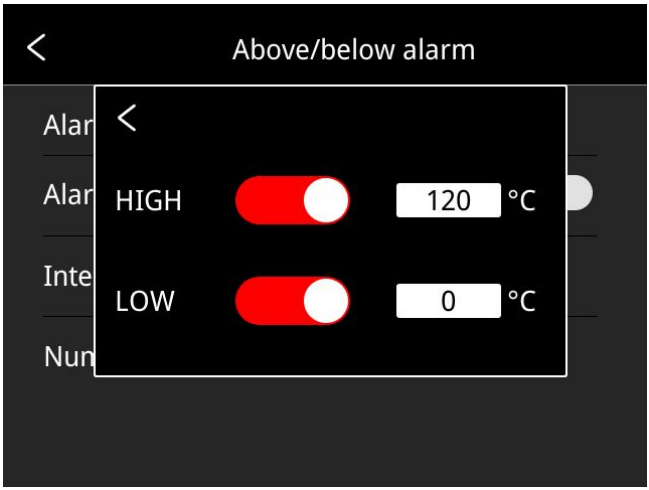


Select the options up-down by navigation button, press OK to confirm; You can also select the options via the touch screen.

Above/Below Temperature Alarm

- **Alarm temperature setting:**
  1.**High temperature alarm switch:** click to enable or disable the function of high temperature alarm.
  Temperature setting for high temperature alarm: click on the pop-up keyboard and set the alarm temperature, 120℃ by default.
  2.**Low temperature alarm switch:** click to enable or disable the function of low temperature alarm. Function.
  Temperature setting for low temperature alarm: click on the pop-up keyboard and set the alarm temperature, 0℃ by default.
- **Auto Alarm Snapshot**: click to enable or disable, disable by default. Auto capture image during alarm.
- **Time Interva**l: the time interval of alarm snapshot is 10s by default, click to perform custom setup.
- **Number of Snapshot**: 100 by default, click to perform custom setup.





Cloud Service

After opening, click the register button and follow the prompts to complete the registration. After registering, enter your username, password, and device name, then click login to bind the device to your cloud service account.

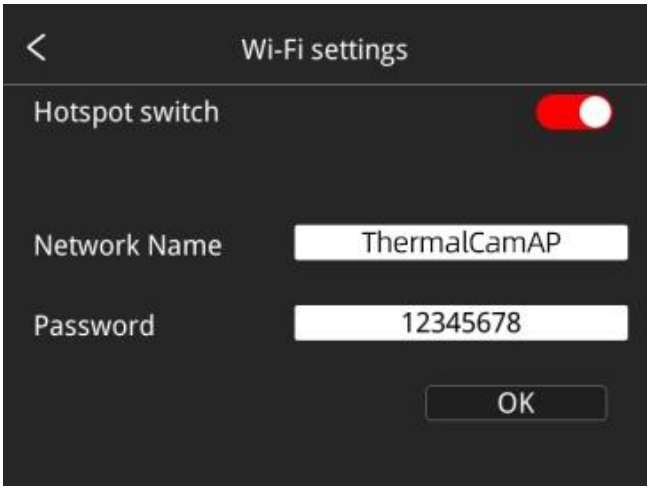
Note:

1) *The prerequisite for logging into the cloud service is a successful internet connection. Please refer to section 5.13.4.*
2) *After logging into the cloud service, to restore factory settings, you need to re-verify your account and password while ensuring an internet connection. Only after unbinding the account can you restore factory settings.*
3) *This function is not supported by certain models.*

Wi-Fi Settings

Click and enter Wi-Fi settings interface.

- **Hotspot Switch**: turn on hotspot and set the network name and password, then click OK.

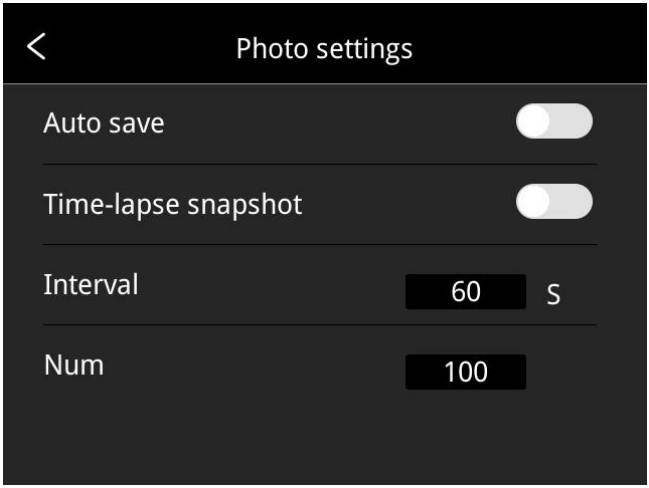


Note:

1)The specialized app is needed while this function is enabled. You need to connect the hotspot manually after turning hotspot on, and you can transmit the saved pictures or videos to mobile device to perform secondary analysis.

2)Turn off hotspot when it is not used, or else the power consumption will be faster.

Photo Settings

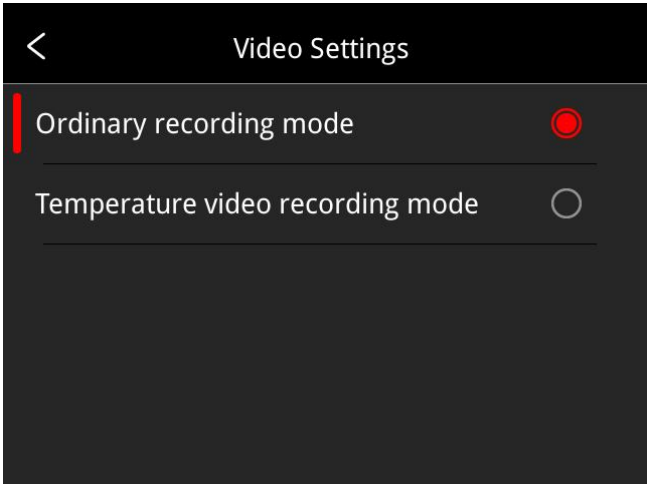


- **Auto save of manual snapshot switch**: click to enable or disable the function of auto save of manual snapshot, disabled by default.

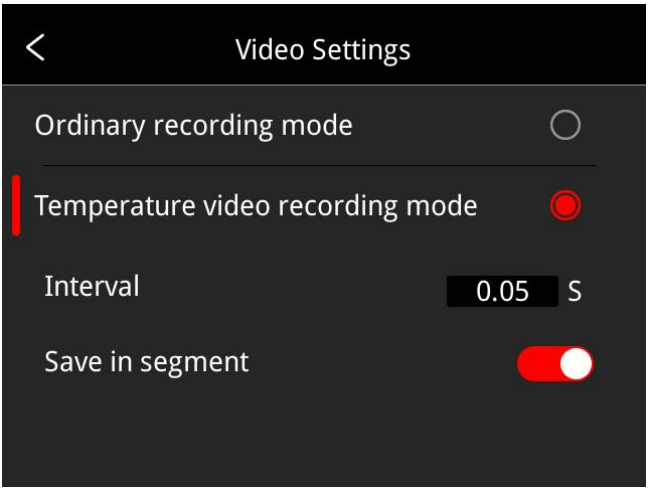
- **Time-lapse snapshot**: click to enable or disable the function of time-lapse snapshot.
- **Time interval of time-lapse snapshot**: 60s by default, click to perform custom setup.
- **Number of time-lapse snapshots**: 100 by default, click to perform custom settings.

Video Settings(This function is only available for some models)

- **Ordinary recording mode**: defaulted video mode. The Max temp, Min temp and Center spot of the full frame will be displayed on the captured video, the temp value is located on the top left screen.



- **Temperature video recording mode**(Only available for some models): defaulted time interval is 0.05s, click to perform custom settings. The relating temperature data is saved in the captured videos, the off-line secondary analysis is supported in the thermographic analysis software.



Smart Patrol Inspection(This function is only available for some models)

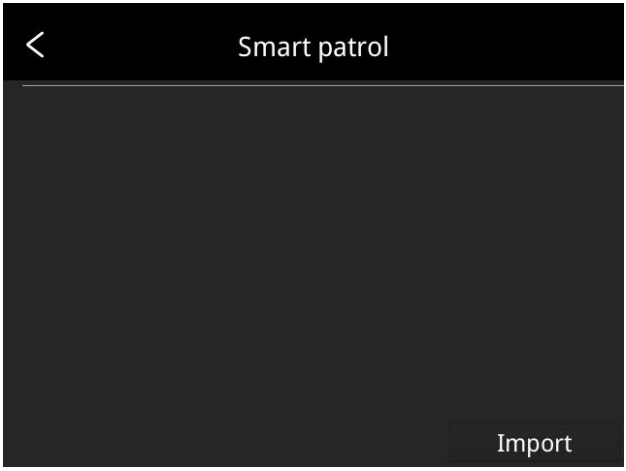
1. By selecting different modes, you can help operations collect images according to preset task packages. The software can automatically standardize the naming of images. Click 'General' or 'Electric Power' to freely switch between the two modes.

- **Electric Power Mode:**

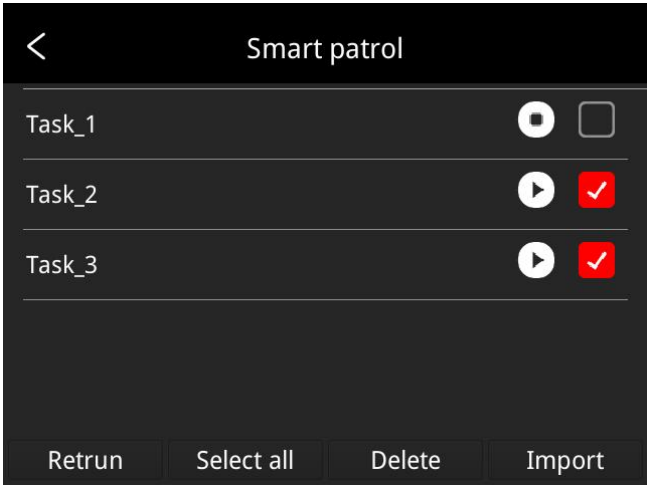
Click 'Import' and select the desired smart capture package, then click 'Import' again. After that, you can select the corresponding task to start smart capture. The specific operation method is: click the start button on the right to begin inspection capture; to end, click the return button on the left side of the screen to stop capture.

- **General Mode:**

Click 'Import' and select the desired smart capture package, then click 'Import' again. After that, you can select the corresponding task to start smart capture. The specific operation method is: click the start button on the right to begin inspection capture; to end, click the return button on the left side of the screen to stop capture.



2.Long press the patrol task to import new patrol tasks, delete the selected patrol task, select all patrol tasks or quit.



3.Method of making smart capure package:

- Users can fill in the file with the equipment that needs to be photographed according to the template format of the electric power smart capture package.
  (1) The smart capture package does not have fixed template, the user can design the title and contents according to actual situation.
  (2) The user can name the smart capture package to clearly distinguish different tasks according to the actual situation in the

general mode.

(3) Create file folder named inspection in the root directory of SD card, put the newly created smart capture package in this folder, insert the SD card into the camera, then the package can be imported into the camera.

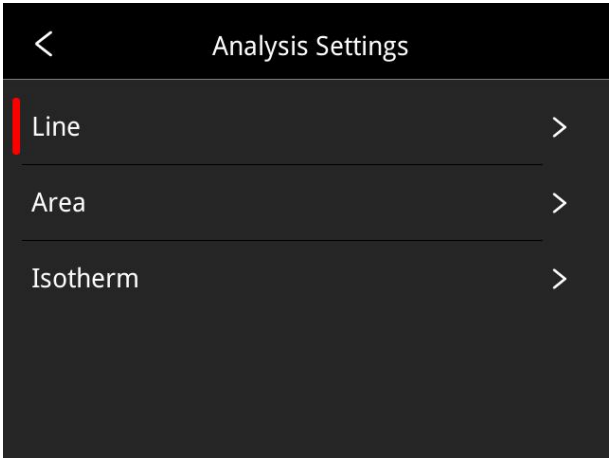
- The contents of the general smart capture package support custom settings.

  (1) The Excel-format smart capture package for the general mode does not have a fixed template. Users can design the headers and content according to their actual usage. The style can refer to the electric power smart capture package (see above image).

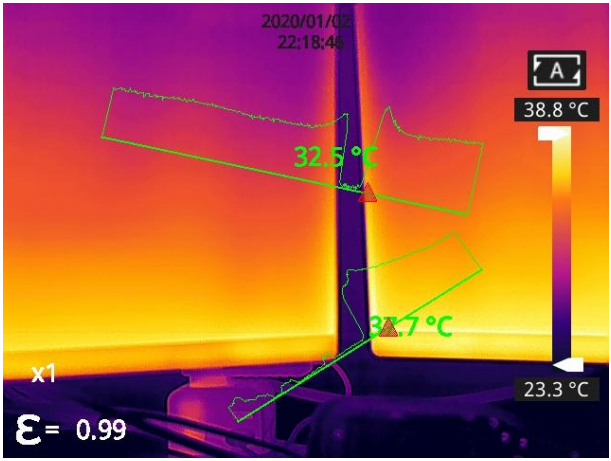
  (2) Users can name the smart capture package required for the general mode according to their actual situation, so as to clearly distinguish different tasks.

  (3) Create a new folder named 'inspection' in the root directory of the SD card, place the new smart capture package in this folder, and insert the SD card into the device. Then you can import the package into the device following the instructions above.

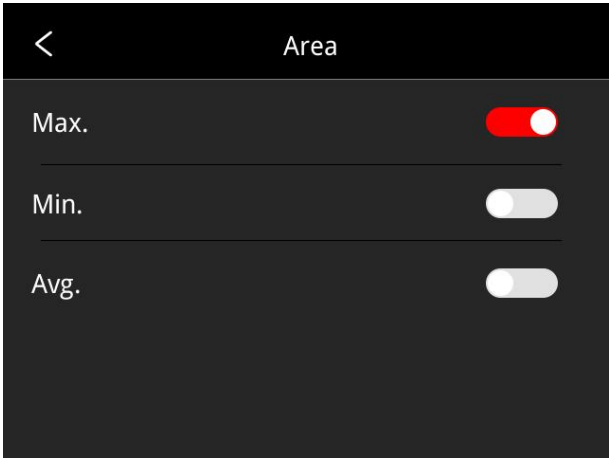
Analyze Settings(This function is only available for some models)

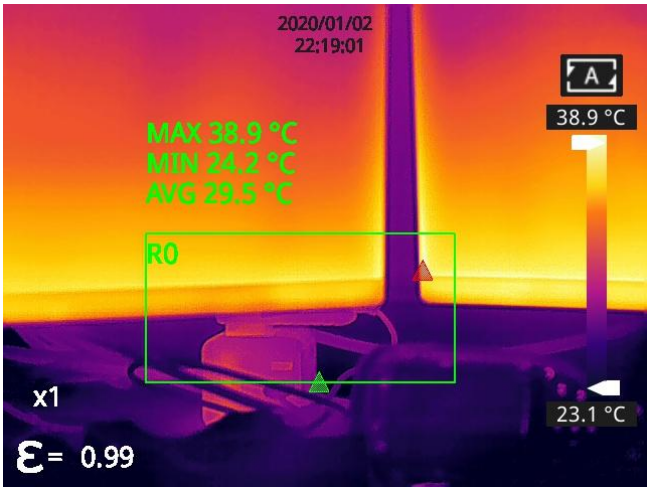


- **Temperature measurement lines**: temperature trend display can be enabled, disabled by default. The following is an illustration of temperature measurement line.

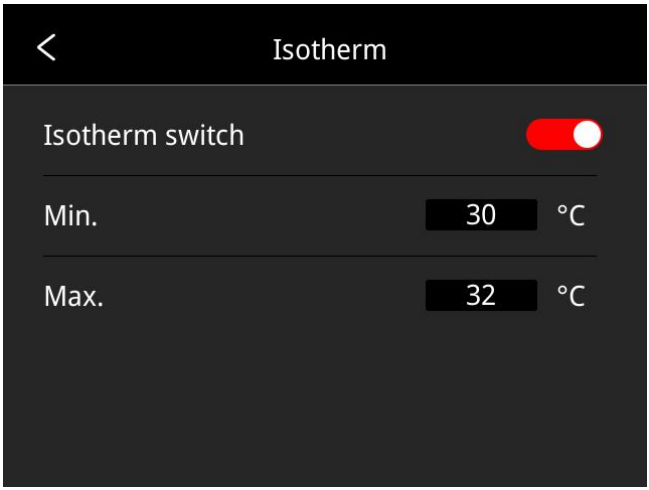


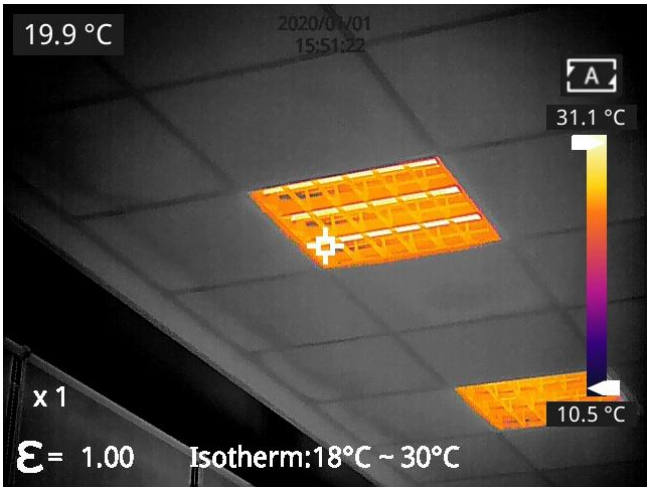
- **Temperature measurement areas**: the Max. temperature, the Min. temperature and the AVG temperature can be displayed; The Max. temperature is enabled, the Min. temperature and the AVG. temperature is disabled by default.





- **Isotherm:** click to enable or disable the function of isotherm, disabled by default. The Max and Min of isotherm value can be self-defined; the image in a certain temperature range can be selected and auto fill the image color according to the temperature scale to better view the temperature distribution of a certain interested temperature range.

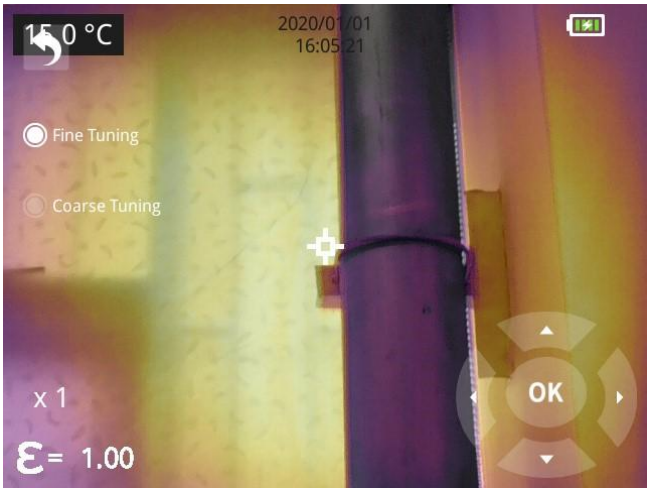




Dual-spectrum Alignment

- **Dual-spectrum Fusion Alignment**

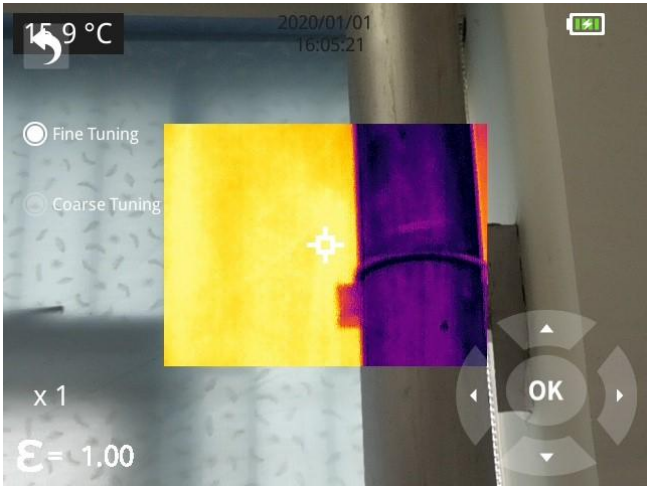
This function can be used to manually register infrared and visible images. First select coarse tuning and fine tuning, and then perform image alignment through navigation buttons. After finished, click OK or enter button to save the settings. (You can drag on the touch screen with one finger to achieve fusion alignment in dual-spectrum fusion mode).



- **Picture-in-picture Adjustment**

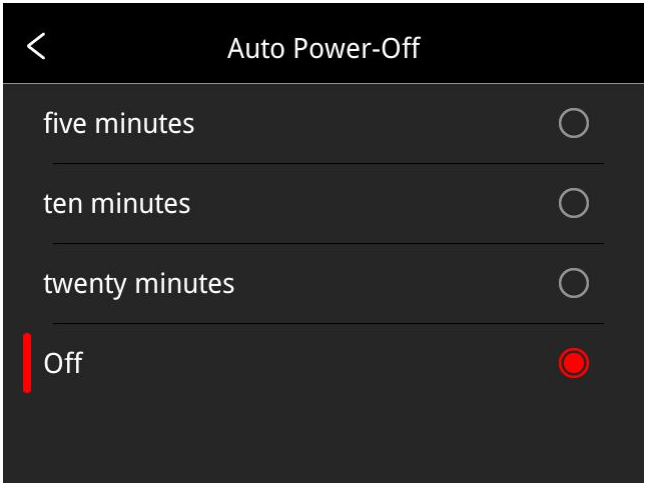
This function can be used to adjust the position of the picture-in-picture. First select coarse tuning and fine tuning, and then adjust the position of

the picture-in-picture by the navigation buttons. When finished, click OK or enter button to save the settings. (You can move the PIP by dragging the picture with your one finger, and adjust the PIP size by dragging the picture edges).



Automatic Power-off

- 5Min: click to perform auto shut down after 5 minutes.
- 10Min: click to perform auto shut down after 10 minutes.
- 20Min: click to perform auto shut down after 20 minutes.
- Off: Click to disable the function of auto shutdown, this function is disabled by default.



System Settings

1. Device Information

Click to check model, version, SD card capacity and other information.

2. Date & Time

Click to perform date and time settings. The year can be self-defined from the Year 2020 to the Year 2037, the month, day, hour and min can be changed.

3. Unit

(1) Temperature Unit: switch between Celsius, Fahrenheit and Kelvin.

(2) Distance Unit: switch between meter and foot.

4. Screen Brightness

(1) High: click to set the screen brightness as high brightness.

(2) Medium: click to set the screen brightness as medium brightness, medium brightness by default.

(3) Low: click to set the screen brightness as low brightness.

5. Formatting the SD Card

Click and then press OK to format the SD card as exFAT.

6. USB Mode

There are two options for data transmission: U disk and USB camera.

- **U disk mode**: the saved images and videos can be read and analyzed when the camera is connected with other devices via a data cable in this mode.
- **USB camera**: the real-time image view and spot/line/region analysis can be achieved on the PC when the camera is connected with the PC via a data cable in this mode.

7. Restore Factory Settings

Click and then press OK, the camera will power off automatically a few seconds later, the settings will restore to the factory default state after reboot.

8. Software Update

Download the latest software to *Update* file in SD memory, click *Update from SD memory* to update. The camera will power off automatically, the software will update to the latest version after reboot.

Technical Data

SC256M

Thermal Module	
Detector Type	VOx Uncooled FPA detector
Resolution of Detector	256*192
Response Band	8~14μm
Pixel	12μm
NETD	35mK
IFOV	3.8mrad
Frequency	25Hz
Focus	3.2mm
FOV	56°*42°
Focus Mode	Fixed
Temperature Measuring Range	-20 ℃~150℃, 100℃~ 550 ℃
Temperature Measuring Accuracy	±2% or ±2℃, the greater value shall prevail
Camera Functions	
Temperature Measuring Mode	Center spot/hot and cold spot tracking and temperature display
Custom Point/Line/Area Temperature Measurement	Movable spot/line/area temperature measurement, up to 10 spots, 10 areas,10 lines
Temperature	Celsius, Fahrenheit, Kelvin

Measuring Unit	
Emissivity Setting	Adjustable between 0.01 and 1.0, step 0.01
Ambient Temperature Setting	-10℃~50℃, step 1℃
Distance Setting	0.25~4m, step 0.25m
Image Mode	Thermal, visual, PIP, DDE(unavailable for some models), dual-spectrum fusion
Color Palettes	7 kinds (Whitehot, Blackhot, Iron, Lava, Rainbow, Rainbow HC, Blackred)
E-zoom	1×,2×,4×
Temperature Scale	Auto/Manual
Temperature Alarm	Make alarm when the temperature is above/below the threshold in the full frame
Temperature Scale	Manual/Auto
Laser Pointer	Available
Visual Camera	2 MP
Image Capture	XX-IR.jpg (thermal image with temperature data) and XX-DC.jpg (visual image), short press the trigger to capture image
Time-lapse Image Capture	Set time interval and number of image captures according to actual needs
Annotation Function	Voice annotation via microphone
Video Recording	Long press the trigger to start the recording
Language	English, Polish, Korean, Hungarian,

	Brazilian Portuguese, German, French, Spanish, Italian, Turkish, Traditional Chinese
Screen	3.5-inch touch screen (480*640)
Video Transmission	UVC video transmission, video stream+ temperature data of full frame
Above Alarm	Set value of high temperature and low temperature, set auto image capture
File Naming	Manual Input, QR code scanning
Memory	Micro SD card (max. 32G)
Battery Type	Rechargeable Li-ion Battery, dismountable
Power Interface	USB-C
Connecting Type	USB, Wi-Fi
Charging Time	3h
Operating Time	8h
Power Management	Automatic shutdown: 5 minutes, 10minutes, 20 minutes, disable
Others	
Analysis Software	PC (Thermal Analysis Software) or Mobile device (IOS/Android APP)
Tripod Mounting Socket	Yes, 1/4″-20-UNC
Operating Temperature	-10℃~+50℃
Storage Temperature	-20℃~+60℃

RH	10% ~ 95%, non condensing
Drop	2m
Encapsulation	IP54(IEC 60529)
Shock &Vibration	Shock 25g(IEC 60068-2-27); Vibration 2.5g(IEC60068-2-6)

SC384M

Thermal Module	
Detector Type	VOx Uncooled FPA detector
Resolution of Detector	384*288
Response Band	8~14μm
Pixel	12μm
NETD	35mK
IFOV	1.98mrad
Frequency	30Hz
Focus	6.2mm
FOV	43.7°*31.9°
Focus Mode	Manual focus
Temperature Measuring Range	-20 ℃~ 150 ℃ , 100 ℃~ 550 ℃
Temperature Measuring Accuracy	±2% or ±2℃
Camera Functions	
Temperature Measuring Mode	Center spot/hot and cold spot tracking and temperature display

Custom Point/Line/Area Temperature Measurement	Movable spot/line/area temperature measurement, up to 10 spots, 10 areas,10 lines
Temperature Measuring Unit	Celsius, Fahrenheit, Kelvin
Emissivity Setting	Adjustable between 0.01 and 1.0, step length 0.01
Ambient Temperature Setting	-10℃~50℃, step length 1℃
Distance Setting	1~20m, step length 1m
Digital Zoom	1×, 2×, 4×,8×
Visible Light and Dual-spectrum Fusion	Available , thermal, dual-spectrum fusion, visible light, PIP, DDE(only available for some models)
Palette	10 palettes
Temperature Alarm	Alarm when the temperature is above or below the threshold in the full frame
Camera Functions	
Temperature Scale	Manual/Auto
Laser Indicator	Available
Digital Camera	5 MP
Image/video Storage	XX-IR.jpg (thermal image with temperature data) and XX-DC.jpg (visible image) H.264 videos without temperature data
Annotation Function	Make voice annotations through

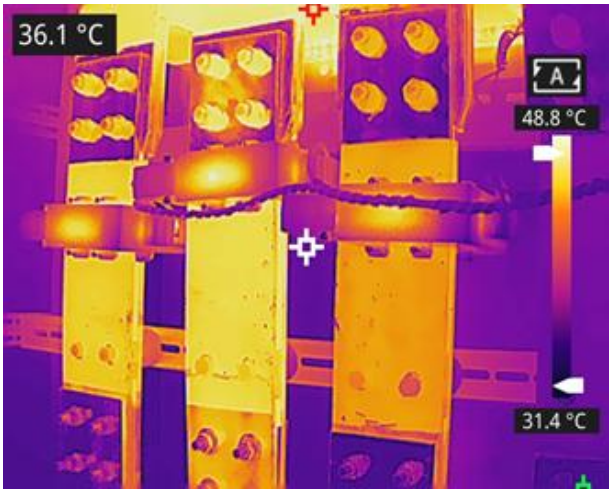
	microphone.
Language	English, Polish, Korean, Hungarian, Brazilian Portuguese, German, French, Spanish, Italian, Turkish, Traditional Chinese
Display Size	3.5-inch touchscreen (480*640)
Special Functions	Scan the QR code to name the image
Storage Card	Standard 32GB MicroSD card, extendable to Max. 512GB
Battery Type	Rechargeable and detachable Lithium battery
Power Interface	USB Type-C
Connecting Methods	USB, Wi-Fi
Charging Time	3 hours
Operation Time	4h
Battery Management	Auto shutdown: 5 minutes, 10 minutes, 20 minutes, off
Others	
Analysis Software	PC (Infrared analysis software) or mobile (IOS/Android APP)
Tripod mounting interface	1/4″-20-UNC
Operation Temperature	-10℃~+50°C
Storage Temperature	-20℃~+60°C
Relative Humidity	10% ~95%,non-condensing

Drop	2m
Encapsulation	IP54 (IEC 60529)
Shock and Vibration	Shock 25g(IEC 60068-2-27); Vibration2.5g(IEC60068-2-6)

Introduction of Application Scenarios

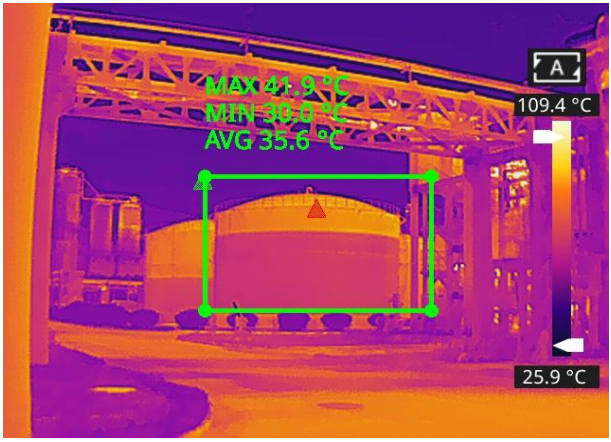
Detecting of Power Distribution Cabinet

The temperature distribution of power distribution equipment can directly reflect the running status of the equipment. Improper contact or damage may cause abnormal high temperature. The inspection personnel can detect anomalies in time and ensure the safety of power distribution equipment with the aid of handheld thermal cameras.



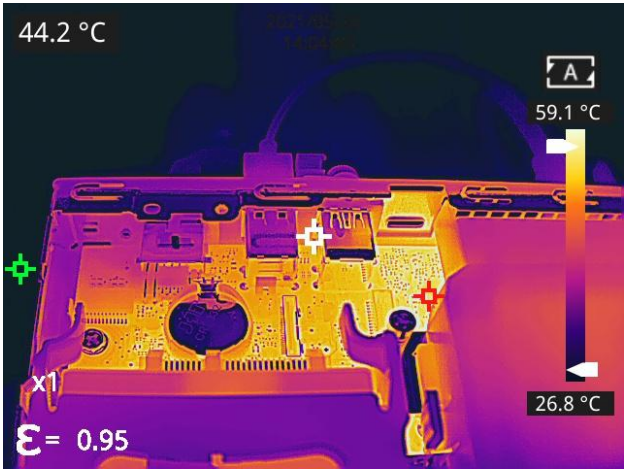
Liquid Level Detecting of the Storage Tank

There is a temperature difference between the liquid stored in the tank and the upper gas, which can be transmitted to the tank shell. The handheld thermal camera can be used to observe the liquid level of the storage tank from a far distance to prevent the accidental failure caused by the failure of the liquid level meter.



Circuit Board R&D

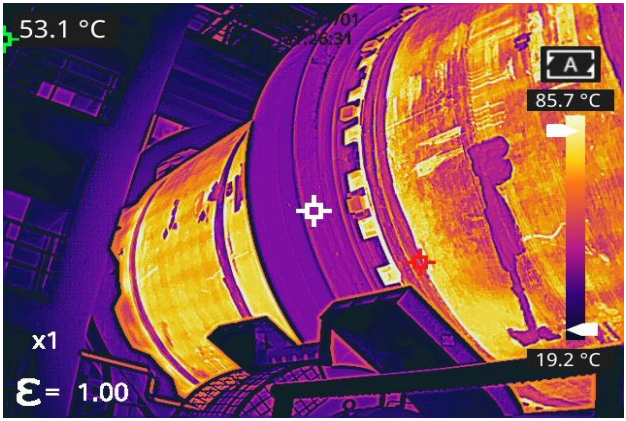
The circuit board is small in size, high in integration and complex in structure, so the traditional contact detection consumes lots of time and energy. Infrared thermal imaging technology has absolute advantage in detecting faulty circuit board. The handheld thermal cameras can be used to quickly find abnormal high or low temperature components and determine circuit board malfunctions.



Defect Detecting of Refractory Material in Rotary Kiln

Rotary kiln is an important equipment for hazardous waste incineration. As the rotary kiln runs for a long time, the lining material may erode and become thin or even fall off, resulting in abnormal external temperature.

The handheld thermal cameras can be used to detect the abnormal high temperature of the outer wall, find and locate the high temperature position, and take corresponding measures to avoid safety accidents.



Cleaning Thermal Camera

Cleaning Camera Housing, Cables and Other Items

Camera Housing, Cables and Other Items	
Liquids	One of the following liquids can be used. 1.Warm water 2.A Weak detergent solution
Cleaning Tools	A soft cloth
Cleaning Procedure	Please follow this procedure: 1.Soak a soft cloth in the liquid. 2.Twist the cloth to remove excess liquid. 3.Clean the camera parts with the cloth.

CAUTION

Do not apply solvents or similar liquids to the camera, the cables, or other items. This can cause damage.

Cleaning Infrared Lens

Cleaning Infrared Lens	
Liquids	One of the following liquids can be used.

	1.Commercial lens cleaning liquid with more than 30% isopropyl alcohol. 2. 96% ethyl alcohol(C2H5OH).
Cleaning Tools	cotton wool
Cleaning Procedure	Please follow this procedure: 1.Soak the cotton wool in the liquid. 2.Twist the cotton wool to remove the excess liquid. 3. Clean the lens one time only and discard the cotton wool.

CAUTION

Do not clean the infrared lens too vigorously. This can damage the anti-reflective coating.

Appendix A Emissivity of Commonly Used Materials

Metal

Material	**Temperature (°C)**	**Emissivity**
Aluminum		
Polished aluminum	100	0.09
Commercial aluminum foil	100	0.09
Mild aluminum oxide	25～600	0.10～0.20
Strong aluminum oxide	25～600	0.30～0.40
Brass		
Brass mirror (highly polished)	28	0.03
Brass oxide	200～600	0.59～0.61
Chromium		
Polished chromium	40～1090	0.08～0.36
Copper		
Copper mirror	100	0.05
Strong copper oxide	25	0.078

Cuprous oxide	800～1100	0.66～0.54
Molten copper	1080～1280	0.16～0.13
Gold		
Gold mirror	230～630	0.02
Iron		
Polished cast iron	200	0.21
Machined cast iron	20	44
Completely rusted surface	20	0.69
Cast iron (oxidized at 600°C)	19～600	0.64～0.78
Electrolytic iron oxide	125～520	0.78～0.82
Iron oxide	500～1200	0.85～0.89
Iron plate	925～1120	0.87～0.95
Cast iron, heavy iron oxide	25	0.8
Melted surface	22	0.94
Melted cast iron	1300～1400	0.29
Pure molten iron	1515～1680	0.42～0.45
Steel		
Steel (oxidized at 600°C)		
Steel oxide	100	0.74
Melted mild steel	1600～1800	0.28
Molten steel	1500～1650	0.42～0.53
Lead		

Pure lead (non-oxidized)	125～225	0.06～0.08
Mildly oxidized	25～300	0.20～0.45
Magnesium		
Magnesium oxide	275～825	0.55～0.20
Mercury		
Mercury	0～100	0.09～0.12
Nickel		
Electroplating and polishing	25	0.05
Electroplating without polishing	20	0.01
Nickel wire	185～1010	0.09～0.19
Nickel plate (oxidized)	198～600	0.37～0.48
Nickel oxide	650～1255	0.59～0.86
Nickel alloy		
Nickel-chromium (heat resistant) alloy wire (bright)	50～1000	0.65～0.79
Nickel-chromium alloy	50～1040	0.64～0.76
Nickel-chromium (heat resistant)	50～500	0.95～0.98
Silver		
Polished silver	100	0.05
Stainless steel		
18/8 stainless steel	25	0.16
304 (8Cr, 18Ni)	215～490	0.44～0.36

310 (25Cr, 20Ni)	215～520	0.90～0.97
Tin		
Commercial tin plate	100	0.07
Zinc		
Oxidation at 400°C	400	0.01
Galvanized bright iron plate	28	0.23
Grey zinc oxide	25	0.28

Non-metal

Material	**Temperature (°C)**	**Emissivity**
Brick	1100	0.75
Firebrick	1100	0.75
Graphite (lamp black)	96～225	0.95
Enamel (white)	18	0.9
Asphalt	0～200	0.85
Glass (surface)	23	0.94
Heat-resistant glass	200～540	0.85～0.95
Wall plaster	20	0.9
Oak	20	0.9
Carbon sheet	-	0.85
Insulating sheet	-	0.91～0.94
Metal sheet	-	0.88～0.90
Glass tube	-	0.9
Coil type	-	0.87
Enamel product	-	0.9
Enamel pattern	-	0.83～0.95
Capacitor		

Rotary type	-	0.30～0.34
Ceramic (bottle type)	-	0.9
Film	-	0.90～0.93
Mica	-	0.94～0.95
Flume type mica	-	0.90～0.93
Glass	-	0.91～0.92
Semiconductor		
Transistor (plastic package)	-	0.80～0.90
Transistor (metal)	-	0.30～0.40
Diode	-	0.89～0.90
Transmitting coil		
Pulse transmission	-	0.91～0.92
Flat chalk layer	-	0.88～0.93
Top ring	-	0.91～0.92
Electronic materials		
Epoxy glass plate	-	0.86
Epoxy phenol plate	-	0.8
Gold-plated copper sheet	-	0.3
Solder-coated copper	-	0.35
Tin-coated lead wire	-	0.28
Copper wire	-	0.87～0.88

Manufacturer: Shanghaimuxinmuyeyouxiangongsi
Address: Shuangchenglu 803nong11hao1602A-1609shi, baoshanqu, shanghai 200000 CN.
Imported to AUS: SIHAO PTY LTD. 1 ROKEVA STREETEASTWOOD NSW 2122 Australia
Imported to USA: Sanven Technology Ltd. Suite 250, 9166 Anaheim Place, Rancho Cucamonga, CA 91730

UK	REP

YH CONSULTING LIMITED. C/O YH Consulting Limited Office 147, Centurion House, London Road, Staines-upon-Thames, Surrey, TW18 4AX

EC	REP

E-CrossStu GmbH
Mainzer Landstr.69,
60329 Frankfurt am Main.

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

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of
the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that
interference will not occur in a particular installation.
If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
-- Reorient or relocate the receiving antenna.
-- Increase the separation between the equipment and receiver.
-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-- Consult the dealer or an experienced radio/TV technician for help.

Warning: changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment

The devices has been evaluated to meet general RF exposure requirement， the device can be used in portable exposure condition without restriction