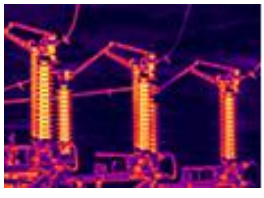
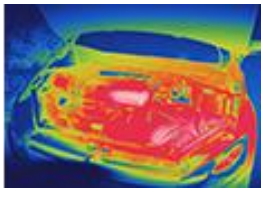
Compact Thermal Camera

T20 and T40

Manual



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www.uniks.it

The registration of your products will allow you to stay informed about the news, take advantage of advantageous discounts dedicated to you for the purchase of accessories and products for your daily work.

Registration is free

Statement

Our company is committed to providing customers with high-quality and high-performance infrared thermography products. We have a professional R&D team and advanced production technologies to ensure that each product meets strict quality standards. Our goal is to meet the needs of different industries in terms of infrared thermography technology through innovation and continuous improvement, and to provide customers with a better and more practical user experience. At the same time, we will continue to provide comprehensive after-sales service and technical support to ensure that any problems encountered by customers during use can be solved

To be timely.

Product Declaration

This product is a handheld infrared thermal imaging camera. We guarantee that this product has undergone rigorous quality control and calibration before leaving the factory, and that all performance parameters are in line with the product specification description. The software and applications installed in the product have been carefully designed and developed to ensure the accuracy and stability of its functions.

When using this product, be sure to carefully read and follow the operating instructions and precautions in the user manual. Because the company cannot control the user's specific operating environment and methods, it is not responsible for any damage or loss of data caused by misuse or unauthorized modification.

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1. Product Introduction

These infrared cameras represent a new generation of professional temperature measurement products. They support a high-definition thermal image resolution of 120*90 for the T20 and 256x192 for the T40, it is able to capture the temperature of each pixel of the target object, and combining it with visible light, it can capture the state of the object more clearly and realize a variety of applications.

Currently widely used in

- **Electric power industry:** inspection of the thermal status of transmission lines and electrical equipment and diagnosis of defects.
- **Electrical and mechanical industry:** overheating and fault diagnosis of electrical and mechanical equipment.
- **Construction industry:** Detection of moisture, air leaks, and insulation defects.
- **Petrochemical industry:** inspection of the condition of pipelines, detection of the interface of materials, heat loss and insulation structure, inspection of the condition of electrical equipment, etc.
- **Firefighting:** Forest fire prevention and search for potential fire sources, detection of spontaneous combustion prevention of special materials, detection of electrical fire safety.
- **Medicine:** Detection of the surface temperature of the human body and analysis of the distribution of the thermal field.

Other R&D sectors, automation sectors, preventive maintenance, etc.

1 Product features

- **Image Appearance:**
- Equipped with an infrared detector with 120*90 resolution for the T20 and 256x192 for the T40, the image is sharper.
- Using the unique TisoView image technology, you get super resolution, image enhancement, image saturation adjustment, gain adjustment, and other algorithms to make the image sharper.

- T20 from 120x90 to 240x180 simulated pixels
- T40 and 256x192 to 512x384 simulated pixels

Structural aspects

- Built-in 8GB memory, which can store more than 20,000 photos.

Equipped with a 2600mAh lithium battery, it has a lifespan of up to 4 hours, which is enough to meet most work needs.

Temperature measurement:

The temperature range is -20°C to 550°C and achieves the industrial-grade high accuracy standard

Software:

- Dedicated analysis software enables full-frame thermal image analysis. Download to the T20 or T40 product page on the www.uniks.it site
- It supports two recording modes: photo taking and video recording.

2 Technical Specifications

Parameters		Specification
Infrared thermal imaging	IR resolution	T20 120 x 90 pixels T40 256 x 192 pixels
	Wavelength	8~14um
	Size in pixels	17 um
	TisoView	It supports multiple technologies such as DDE enhancement, noise reduction, and super resolution, making the image sharper. ▪ T20 from 120x90 to 240x180 simulated pixels ▪ T40 and 256x192 to 512x384 simulated pixels
	Frame rate	25 Hz
	NETD	6 0mK at 25 ℃
	Field of view	38° x 50°
	Lens	2.3 mmF1.1
	Measuring range	-20℃~550 ℃
	Measurement accuracy	±2℃ or ±2% of reading, whichever is greater
	Temperature measurement	Supports full-screen temperature measurement of high point, lowest point, center point, and regional temperature
	Temperature compensation	Supports distance compensation within 2 meters
	Color palette	Iron Red, Hot White, Hot Black, Rainbow, Hot Red, High Contrast, Lava, Arctic, Chilly
Visible light	Resolution	1080P
	Field of view	55°×83°
Image Display	Screen size	2.8 inches
	Picture Mode	Fusion of contours, fusion of overlays, Picture in Picture, thermal image, visual image
General	Language	It supports English, French, German, Spanish, Portuguese, Italian, Russian, Arabic, Japanese, Korean, Simplified and Traditional Chinese.
	Interface	USB Type-C (supports charging and data transfer)

	Flashlight	Support
	Battery	2600mAh
	Working hours	Once fully charged, the battery can be used for approximately 4 hours
	Operating Temperature	-10°C~+60°C
	Storage temperature	-40°C~+85°C
Memory	Capacity	Built-in 8G memory, 6.19G actually usable storage space, can store more than 20,000 images
	How to store images	JPG
	Video Format	MP4

3 Thermal Camera Parts Introduction

NO.	Part	Description
①	Menu/ok button	● On the main interface, short press to enter the top-level menu; ● In the first-level menu, short press to enter the second-level menu; ● Select the corresponding option in the setting interface, and short press to save the setting;
②	Custom button	● After setting the custom button function in the setting interface, you can perform shortcut operations
③	Power/Return Button	● Long press to turn on the device when it is turned off; ● Long press in the power-on state to turn off; ● Short press Enter on the menu interface;
④	Button Album	● Short press to enter the gallery
(5)	Arrow button	Up and down arrow button ● On the main interface, short press to switch the picture mode; ● In the menu setting interface, short press up and down to move the selection; Left and right arrow button ● Short press on the main interface to change the color palette; ● In the menu setting interface, short press to move left or right to select;
⑥	Flashlight	● Open or close via the menu function
⑦	Type-C interface	● Users can connect to the PC through this interface to perform operations,

		including exporting images, deleting, formatting, etc.
⑧	Camera	● 1080P visible light camera
(9)	Lenses	● Original detector lens
Evaluaciones (10)	Trigger	● In the main interface, short press this button to take a photo. After taking the photo, short press the OK button to save it, or short press the Back button to cancel the save. ● On the main interface, press and hold this button until the recording time appears in the upper left corner of the screen, indicating that the video has started. Short press the button to stop recording.
⑪	Laser	Pointer and Distance Meter up to 40m

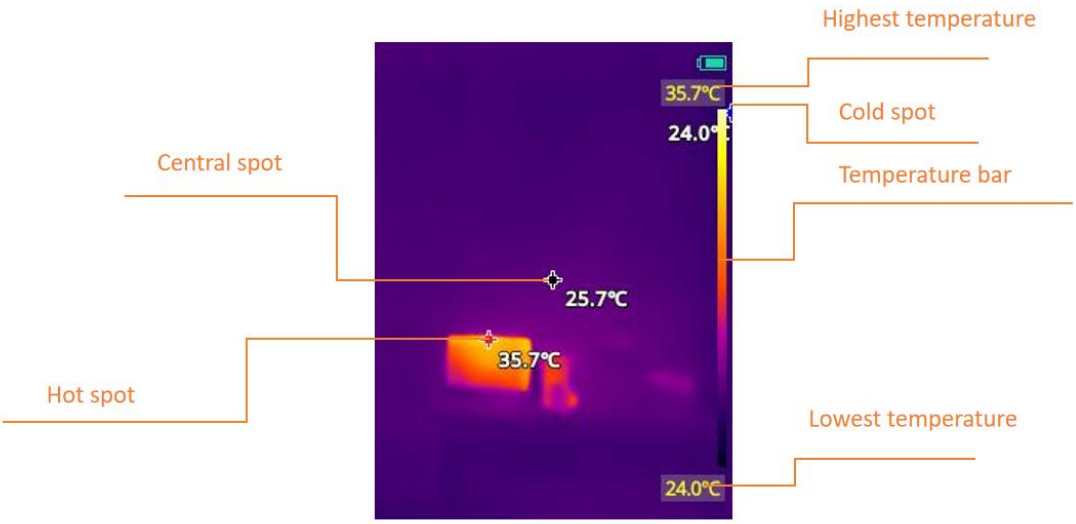
4 Feature Introduction

5.1 Button Description

NO.	Button	Description
1	Power On	● In the off state, press and hold for 1 second to turn on the device; ● In the power-on state, press and hold for 3 seconds to power off; ● Short press Enter on the menu interface;
2	Menu /ok	● On the main interface, short press to enter the top-level menu; ● In the first-level menu, short press to enter the second-level menu; ● Select the corresponding option in the setting interface, and short press to save the setting;
3	Up and down button	● In the main menu, short press to switch the picture mode; ● In the menu setting interface, short press up and down to move the selection;
4	Left and right button	● Short press on the main interface to change the color palette; ● In the menu setting interface, short press to move left or right to select;
5	Trigger	● In the main interface, short press this button to take a photo. After taking the photo, short press the OK button to save it, or short press the Back button to cancel the save. ● On the main interface, press and hold this button until the recording time appears in the upper left corner of the screen, indicating that the video has started. Short press the button to stop recording.

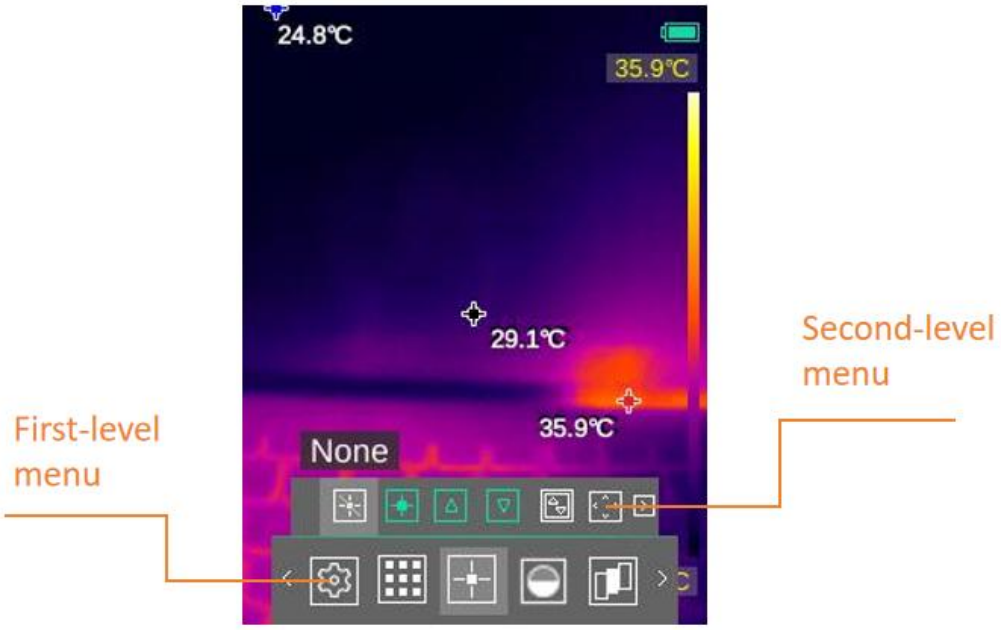
6	Album button	● In the main interface, short press the album button to enter the album
7	Custom button	● After setting the custom button function in the setting interface, you can perform shortcut operations

5.2 Main Interface



5.2.1 Measurement

Select "measure" in the first-level menu to enter the interface of the second-level menu of the measurement function. The interface of the second-level menu of the measurement function is shown in the figure below:



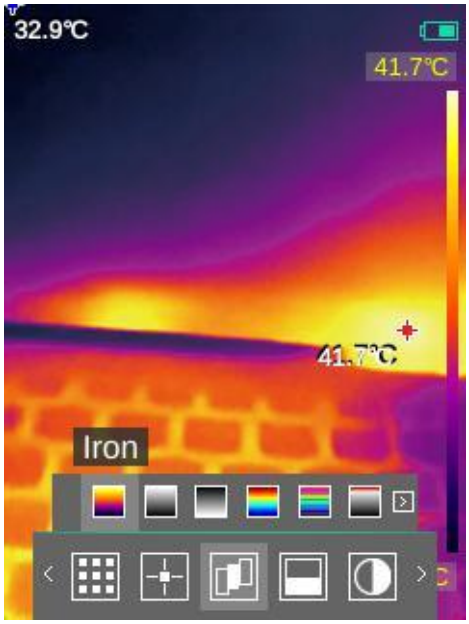
5 .2.2 Picture Mode

Select the picture mode in the top-level menu to enter the second-level menu and select the corresponding picture mode. The interface of the second level menu of the picture mode is shown below:

NO.	Picture Mode	icon	Description
1	Thermal		thermography, full-frame temperature measurement, support to display the temperature of any point on the screen
2	Visible		Razor-sharp image display
3	Contour Blending		Available to view thermal distribution and temperature measurement, it also displays visible light details
4	Overlapping Blending		Part of the color of visible light can be superimposed on the thermal image to make the background lighter and make it easier to identify the environment
5	Picture In Picture		The measurement of the temperature of the central part should be highlighted in particular. Suitable for quick switching between visible and thermal images to pinpoint problem spots.
6	Fusion ADJ.		Thermal and visible light fusion, 0% is a single visible image, 100% is a single thermal image, can be adjusted in the integration adjustment interface via the up and down buttons
7	Offset ADJ.		Thermal and visible images are offset. You can choose to blend the deviation and adjust it using the up, down, left, and right buttons.

5.2. 3 Color palette

Select the color palette in the top-level menu to access the second-level menu. The color palette second-level menu interface is shown below:

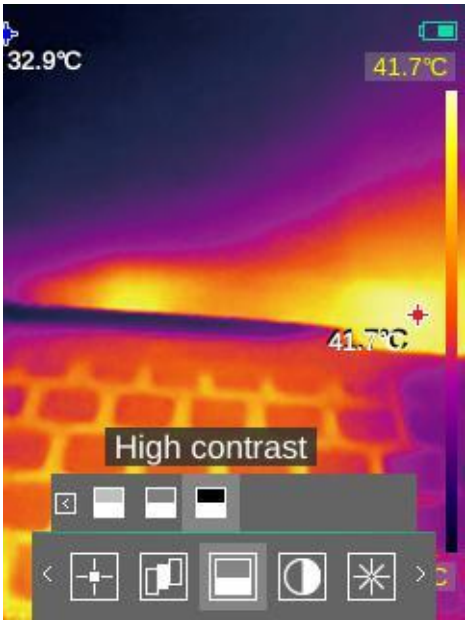


NO.	Function	Description
1	Iron	In high-temperature areas, the color red is more prevalent, which is suitable for detecting scenes where high-temperature areas are widespread.
2	Warm white	In the high temperature range, white is used, and the entire screen mainly has a black and white transition, which is suitable for those using the traditional black and white mode.
3	Warm Black	In the high temperature range, black is used, and the entire screen is mainly a transition between black and white, which is suitable for users of the traditional black and white mode.
4	Rainbow	The highest temperature is indicated by red, the average temperature by yellow, and the lowest temperature is mainly blue and black, which is suitable for scenes with distinctive colors at low temperature.
5	Scorching red	The main color is red, and the transition from the lowest to the highest temperature is composed of black, white, and red, which is

		suitable for scenes focused on high-temperature conditions.
6	High contrast	Rich colors increase the contrast of the image, and small temperature differences can be accurately identified, which is suitable for use in scenes with small temperature differences
7	Lava	Similar to Iron and Arctic, the Lava palette displays warmer objects in warm tones and cooler objects in blue, making it another good choice for quickly capturing body heat and other details in low-contrast environments.
8	Arctic	The Arctic palette combines the simple, Iron Red palette with the low-contrast performance of the Rainbow High Contrast palette, using gold to identify warm objects and blue for cooler ones. The different colors quickly detect heat sources, while the darker shades allow you to distinguish slight variations in temperature.
9	The coldest	Blue indicates lower temperatures and is suitable for use in situations such as air conditioning water leaks and air conditioning leaks.

5.2.4 Infrared Effect

Select Infrared Effect in the first-level menu to enter the interface of the second-level menu of the infrared effect. The thermal effect includes three modes: "Soft", "Enhanced" and "High Contrast". The interface of the second-level menu of the infrared effect is shown in the following figure:



5.2.5 Saturation

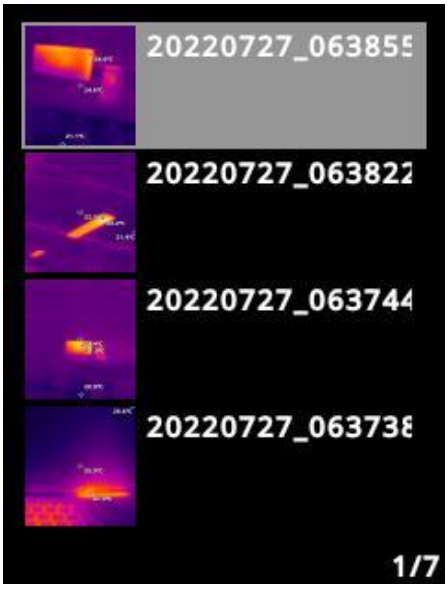
Select "Saturation" in the top-level menu to access the second-level menu, which includes "Low Saturation" and "High Saturation."

5.2.6 Flashlight

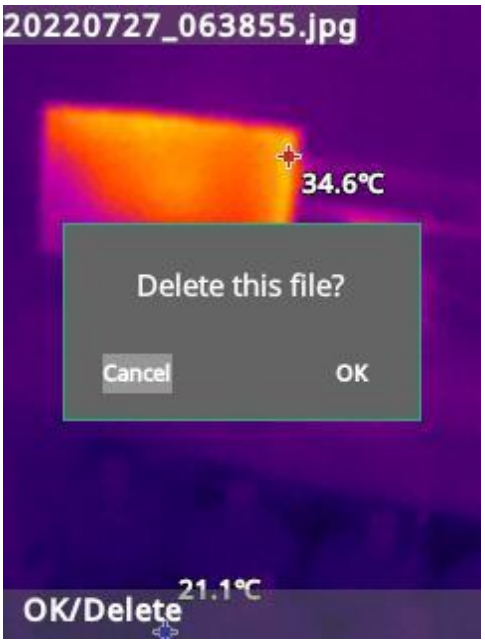
Selecting the flashlight in the top-level menu will turn the icon green to indicate that the flashlight is on. As shown below:

5.3 Albums

In the top-level menu, select Albums, or access the album via the Albums button.

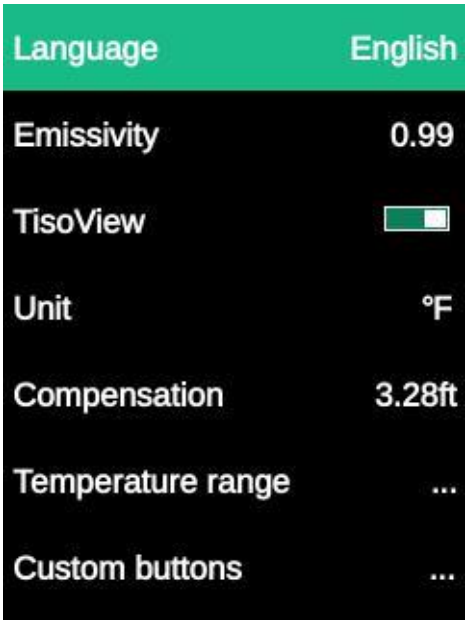


Up and down arrow buttons to select the corresponding photo, press MENU/OK to enlarge the photo, and once enlarged, press the MENU/OK button to choose whether to delete the photo.



5.4 Settings

After entering the top-level menu, select the Settings function. The settings interface includes the following:



Options	Parameter
Language	Supports Italian, English, French, German, Spanish, Russian, Portuguese, Arabic, Japanese, Korean, and Chinese
Emissivity	Adjustable from 0.01 to 0.99
TisoView	Is the image enhancement algorithm feature enabled?

Units	Celsius, Fahrenheit, Kelvin
Compensation	Compensation based on the distance of the measured object
Temperature range	-20 °C ~550 °C
Custom button	None, calibration, change infrared effect, switch to previous color palette, scroll through color palettes, change temperature gears, change all temperature measurement points, light switch, all alarm switches
Date	Year/Month/Day Hour/Minute/Second
Storage	View or format storage
Temperature alarm	Setting the Temperature Alarm Threshold
Auto Power Off	You can set the automatic shutdown time after a long period of inactivity
Distance and nit	Selectable in meters (m) or feet (ft)
Temperature bar	Turn it on or off
Brightness	10th level
Restore factory settings	Emissivity, TisoView, temperature alarm, temperature compensation, temperature change, automatic switch-off, brightness, display colour palette, measurement, palette, infrared effect, reset to initial state
Updates	To upgrade the version
About	View device model, serial number, firmware version, software version, and website information

6 Analysis software

6.1 Overview

Thermal Tools is a professional computer-based data analysis software capable of performing secondary analysis and processing on images acquired by specific infrared equipment. Download the Software on the www.uniks.it website

6 . 2 Feature

- The software interface is easy to understand and use;
- The temperature can be displayed anywhere on the entire screen;
- Multiple image modes can be switched;
- Processed images can generate corresponding reports;
- Available to integrate other related software or hardware cameras;

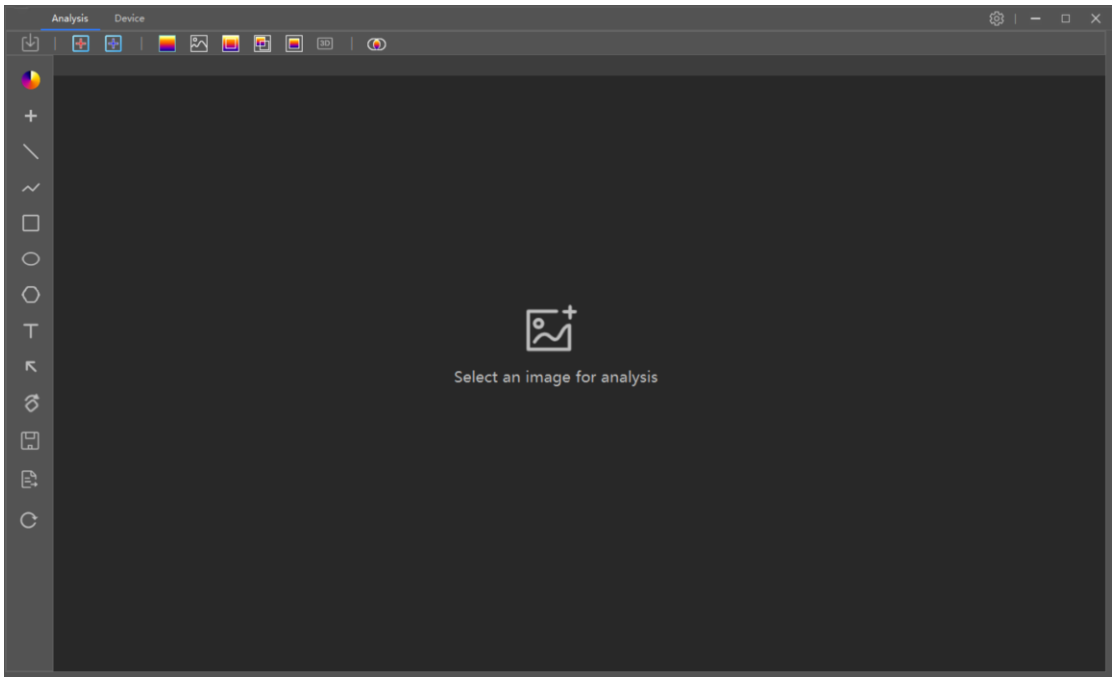
6 . 3 Details

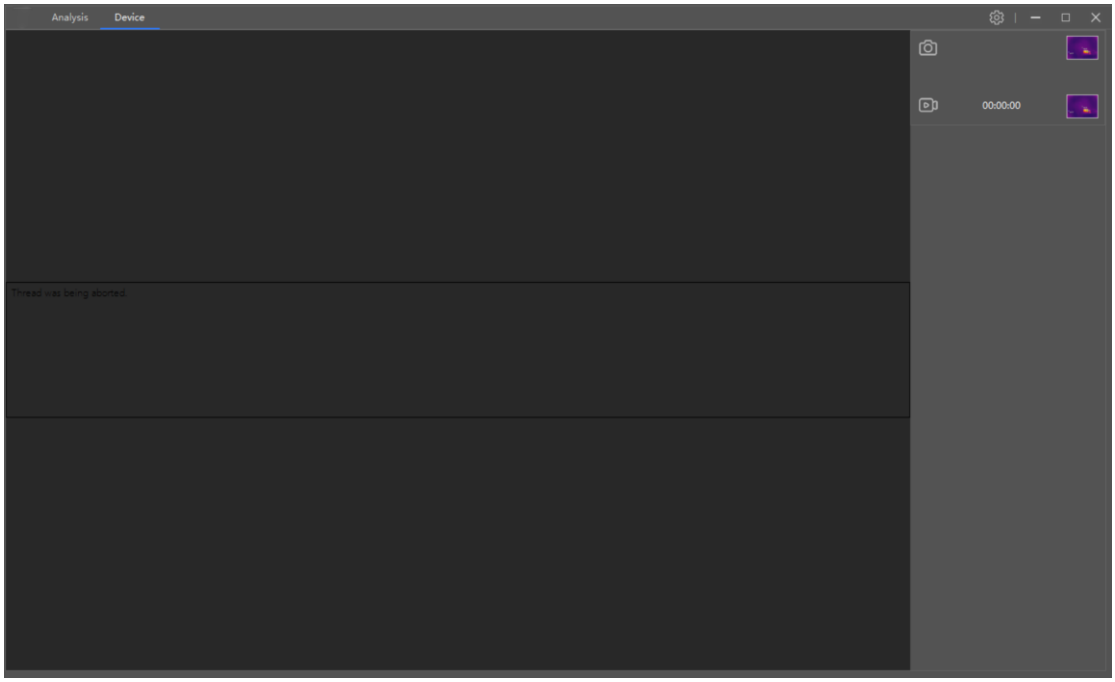
6 . 3 .1 Operating Environment

It is recommended to install this software on Windows 10 and later operating systems to ensure normal and stable operation of the software.

6 . 3 . 2 Main Interface

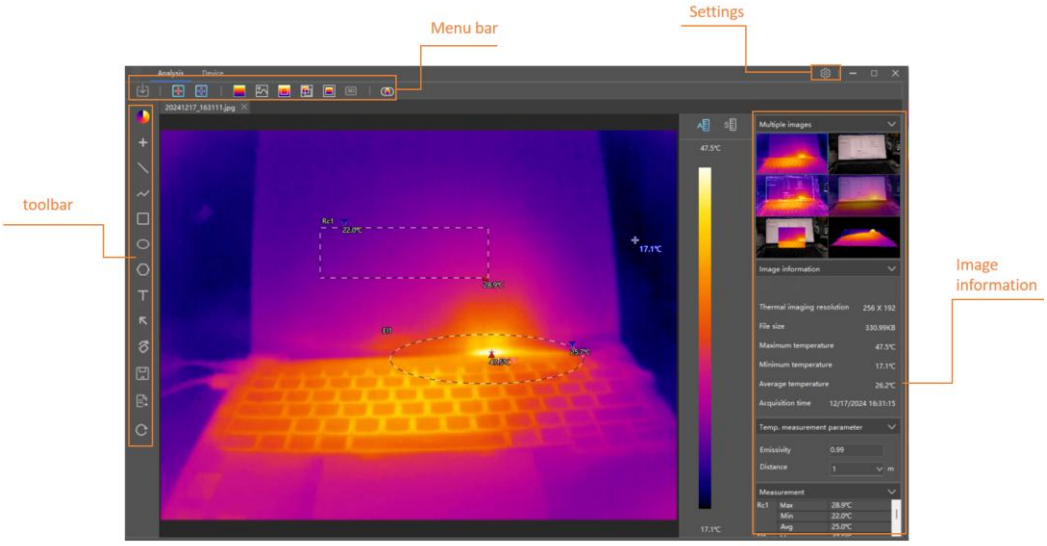
Open the software, which includes the thermal image analysis section and camera import section. The interface is shown in the figure below.





6 .3.3 Radiometric analysis

Import the image into the radiometric analysis sector for analysis. The interface is shown in the figure below.



The toolbar contains the following functions:

NO.	Function	Functional description
1	Color palette	Different color palettes can be replaced as needed
2	Points	Select to display the temperature information of the corresponding point on the image
3	Line	Draw a line on the image and observe the highest and lowest temperature on the line.
4	Polyline	Draw a polyline on the image and observe the highest and lowest temperatures on the line.
5	Rectangle	Draw a broken line on the image and observe the highest and lowest temperatures on the line
6	Ellipse	Draw an ellipse on the image and observe the highest and lowest temperatures on the line

7	Polygons	Draw a polygon on the image and observe the highest and lowest temperatures present on the polygon.
8	Text	Annotate images with text
9	Arrow	Markup arrows on images
10	Rotate	Rotate the image 90° clockwise
	Horizontal mirror	Mirror image horizontally
	Vertical mirror	Mirror image vertically
11	Save	Save the image
12	Export Report	Export graphical analysis reports
13	Reset Screen	Restores the graphics, rotation angle, and color temperature area drawn on the screen to its initial state

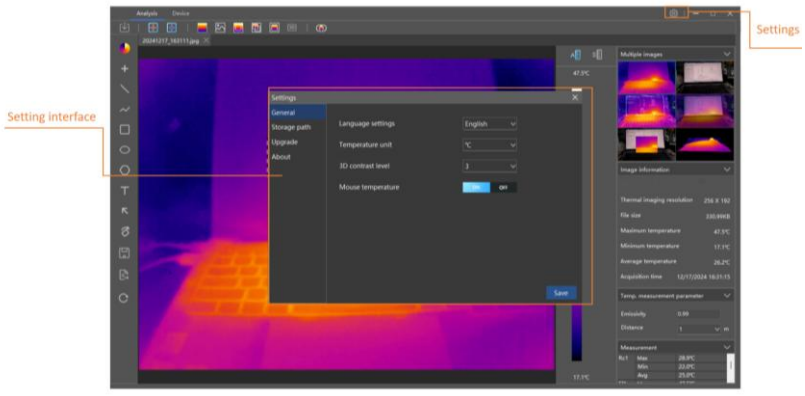
The bar menu contains the following functions:

NO.	Function	Functional description
1	Files	Open, close, save, export file reports
2	High temperature	Cancel or enable high temperature display in image
3	Low temperature	Cancel or enable low temperature display in image
4	Thermal imaging	Switch to thermal imaging
5	Visible light	Switch to visible light image
6	Feathering edges	Switch to edge blending image
7	Overlapping Blending	Switch to the Overlay Blending Image

8	Picture in picture	Switch to picture-in-picture
9	3D	Change 3D Image
10	Fusion alignment	Thermal and visible light images are not completely fused, so they can be universally fused, aligned, and adjusted.

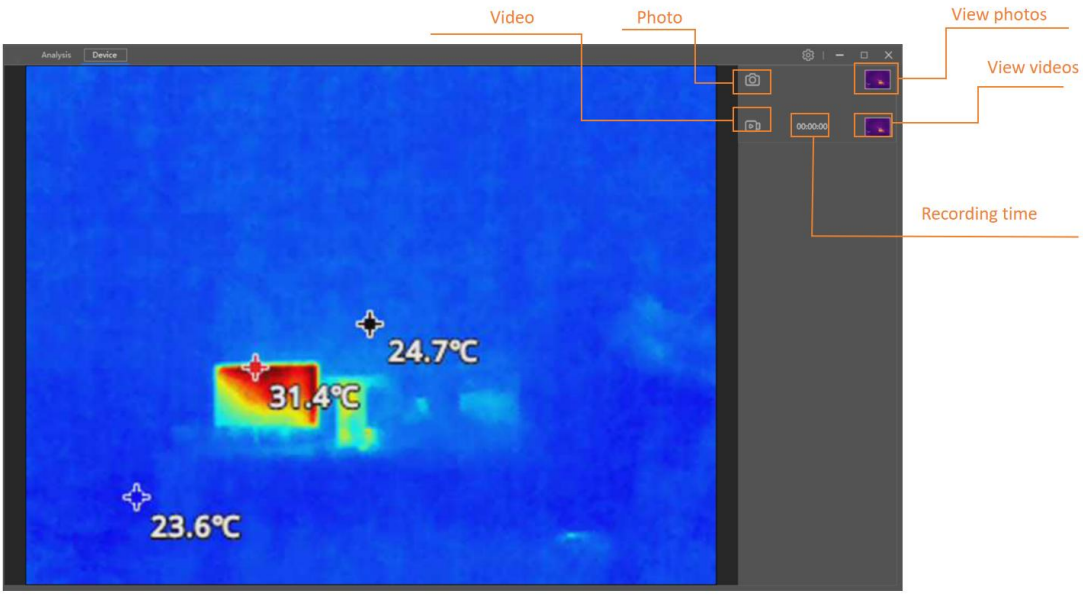
 "In the upper right corner of the software you will find the setting options, which include the following:

NO.	Options	Description
1	Language settings	It supports English, French, German, Spanish, Russian, Japanese, Korean, and Chinese.
2	Temperature unit	Celsius , Fahrenheit, Kelvin
3	3D contrast level	Adjust image contrast in 3D mode
4	Mouse temperature	Enable or disable the temperature display feature on the image when the mouse is turned on
5	Storage location	Storage location for images, reports, and videos
6	Update	To upgrade the version
7	About	Software name, version number.



6 .3.4 Importing the Camera

The camera import section requires the portable camera to be connected to the computer via USB. Once connected, the camera screen can be synchronized with the camera's import section, and photo/video operations can be completed in the upper left corner.



The camera import interface feature contains the following contents:

NO.	Function	Functional description
1	Photos	After successfully connecting the camera, click the camera to take photos.
2	Video	After successfully connecting the camera, click the record button with the mouse: the recording icon turns red, and the recording time on the right starts to change, indicating that the recording was successful. Click Register again to complete the registration.
3	View photos	By clicking with the mouse on the photo you can enter and see more details

4	Watch videos	By clicking with the mouse on the video you can enter and see more details

7 Precautions and Warranty

WARRANTY CONDITIONS

This instrument is guaranteed against defects in materials and workmanship, in accordance with the general conditions. During the warranty period, defective parts may be replaced, but the manufacturer reserves the right to repair or replace the product. If the instrument is to be returned to the after-sales service or to a dealer, the transport is at the expense of the customer. The shipping wort, however, be agreed. In a report to send an explanatory note about the reasons for the tool must always be included. Only for transport use the original packaging. Any damage caused by the use of non-original packaging is the responsibility of the customer. The manufacturer accepts no liability for damage caused to persons or property.

The warranty does not apply in the following cases:

- Repair and/or replacement of accessories and battery (not covered by warranty).
- Repairs required due to incorrect use of the tool or its use with incompatible equipment.
- Repairs made due to improper packaging.
- Repairs required due to work carried out by unauthorized personnel.
- Modification of the instrument without the explicit permission of the manufacturer.
- Use not covered by the instrument specifications or instruction manual.
- The contents of this manual may not be reproduced in any form without the permission of the manufacturer.
- Our products are patented and of their own brands. The manufacturer reserves the right to change specifications and prices if this is due to technological improvements.

ASSISTANCE

If the tool is not working properly, check the condition of the battery and the wear of the cables before contacting Customer Service and replace them if necessary. If the instrument continues to malfunction, check whether the procedure for using it complies with the instructions in this manual. If the instrument is to be returned to the after-sales service or to a dealer, the transport is at the expense of the customer. The shipping wort, however, be agreed. In a report to send an explanatory note about the reasons for the tool must always be included. Use only the original packaging for shipping; Any damage caused by the use of non-original packaging is the responsibility of the customer.

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