

# TOPDON®



# TC003

See More Than The Human Eye



Thermal Imager



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## Brief

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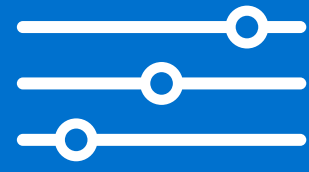
# TC003

The TC003 is a cutting-edge thermal camera that provides high-resolution thermal imaging to a wide audience. With its advanced features, the TC003 delivers high-quality imaging (256x192), exceptional temperature sensitivity (40mk), and unparalleled accuracy (down to 0.1°C). Additionally, the TC003 boasts a 5-inch touch screen, a 2-megapixel visible light camera for overlapping images, and temperature waveform graphing. The OTG function further expands the TC003's capabilities, enabling it to link to an endoscope for more specialized thermal work.

This versatile thermal imager is specially designed for maintenance and inspecting, providing accurate thermal imaging services to support various maintenance tasks, such as professional automotive repairs, HVAC systems, and protecting crops or livestock from predators.



Brief



# Specs

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## Specifications



**Screen:**  
5 inches, 800 X 480 Pixels

**Gross Weight:**  
900g (31.75oz)

**Dimensions:**  
7.0\*3.8\*0.8 inches (178\*96\*20 mm)

## Parameters

**Operating System:**  
Android 11.0

**IR Resolution:**  
256x192 Pixel

**Heat Sensitivity:**  
40mk

**Temp. Range:**  
-4°F to +1022°F (-20~550°C)

**Battery Capacity:**  
5000mAh

**Connectivity:**  
Bluetooth, Wi-Fi

**Memory:**  
2+32G

**Temp. Units:**  
Celsius, Fahrenheit

**FOV:**  
56.0° x 42.2° x 71.3°

**Refresh Rate:**  
25Hz

## Multilingual Support

**13 Languages:**  
English, Chinese, Japanese, French,  
Spanish, Italian, Portuguese, German,  
Polish, Russian, Dutch, Czech, Ukrainian





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## Superior Image Quality with an IR Resolution of 256x192

The TOPDON TC003 infrared thermal camera boasts an ultra-high resolution of 256x192, providing superior image quality and clarity for your thermal imaging needs.

With its high-resolution capabilities, the TC003 can display thermal images of your target with exceptional detail. Making the TC003 an ideal tool for inspecting objects where surface temperature is difficult to distinguish, such as circuit boards and other electronics.





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## Highly Accurate Temperature Readings

The TC003's thermal imager is equipped with an impressive heat sensitivity of 40mk, allowing it to detect even the slightest temperature changes with precision and accuracy.

With its advanced thermal imaging capabilities, the TC003 can perform temperature detection with an error rate of  $\pm 2^{\circ}\text{C}$  or 2% of the maximum temperature and measure temperatures with an accuracy of up to  $0.1^{\circ}\text{C}$ .

This ensures that you get reliable and accurate temperature readings every time.

Specs

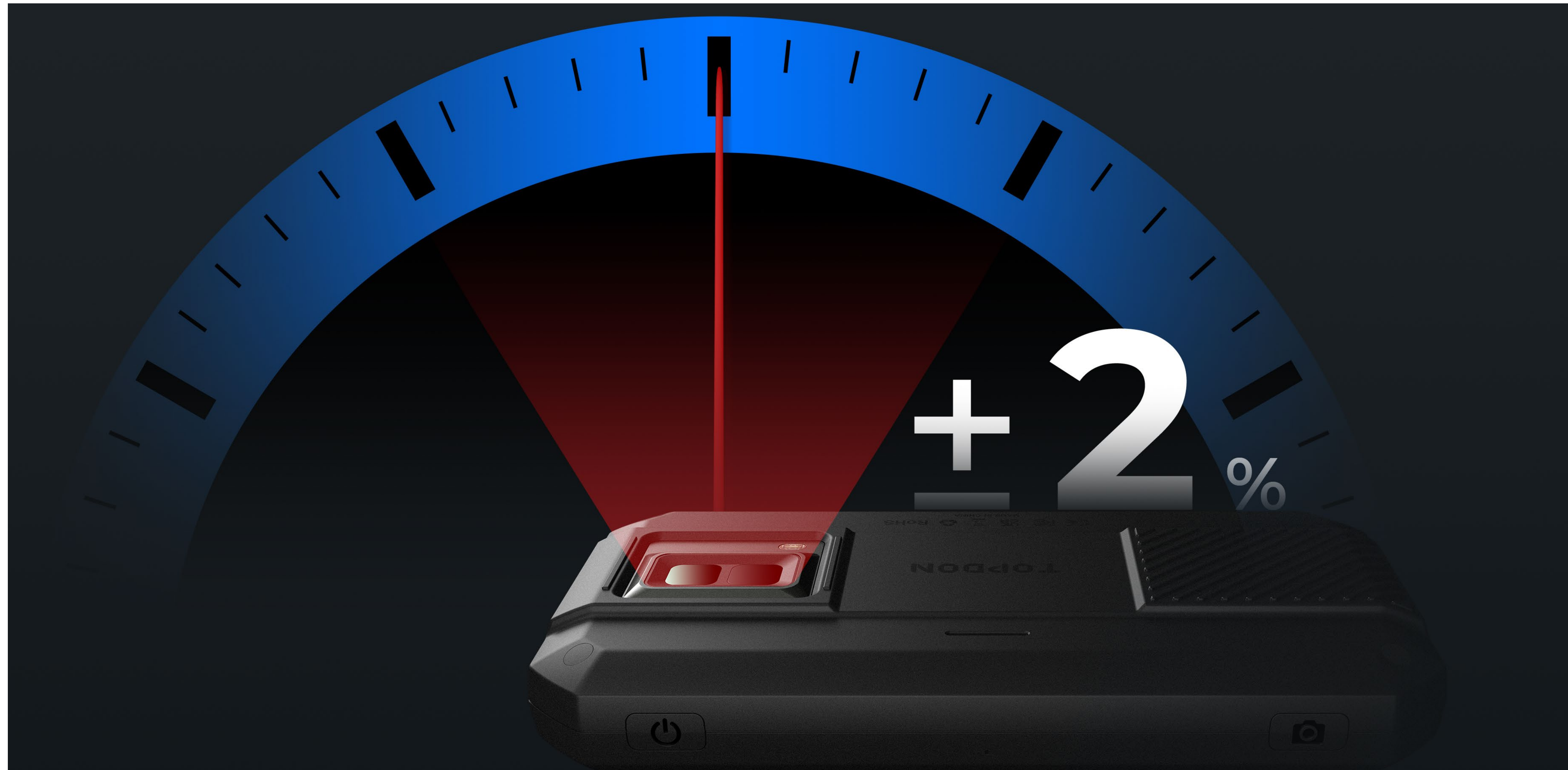
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## Expanded Capabilities with OTG Functionality

The TC003 comes equipped with OTG (On-The-Go) functionality, which allows the tool to function as a host computer, expanding its capabilities beyond

temperature reading and into your daily life. With OTG support, the TC003 can be used with a variety of external devices, such as endoscopes, oscilloscopes, and USB drives

with storage functions, enabling additional functional expansion and solving a wider range of problems.





Brief

## Optimized Testing Range

The TOPDON TC003 thermal camera offers an expansive thermal testing range that spans from  $-4^{\circ}\text{F}$  to  $+1022^{\circ}\text{F}$  ( $-20\sim 550^{\circ}\text{C}$ ), allowing it to perform temperature readings in a wide variety of environments.

Whether you need to detect high temperatures in industrial settings or low temperatures in refrigeration systems, the TC003 has you covered.

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## 4 Temperature Reading Modes

The TC003 comes with 4 different temperature detecting modes that allow you to take temperature readings in a dot format, a line (highest and lowest), a square plane (highest and lowest), or analyze the full camera view (center spot, highest and lowest).

Select up to 3 areas for each dimension, enabling you to read temperatures in multiple areas at once. Additionally, the pseudo color bar on the right side of the screen displays the highest and lowest temperatures of the targeted area, making it easy to identify temperature differences and hotspots.





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## 4 Imaging Modes & 11 Palettes

The TC003 thermal camera is designed with both infrared and visible light dual camera modes, and supports 4 imaging modes for thermal analysis: visible light, thermal imaging, thermal fusion (which blends 50% of the visible light image to provide a clearer view of the object), and outline fusion (ideal for objects with surface temperatures that are difficult to distinguish).

In addition, this versatile tool offers 11 unique color palettes that allow users to customize the temperature display according to their preferences.

Specs

### Features

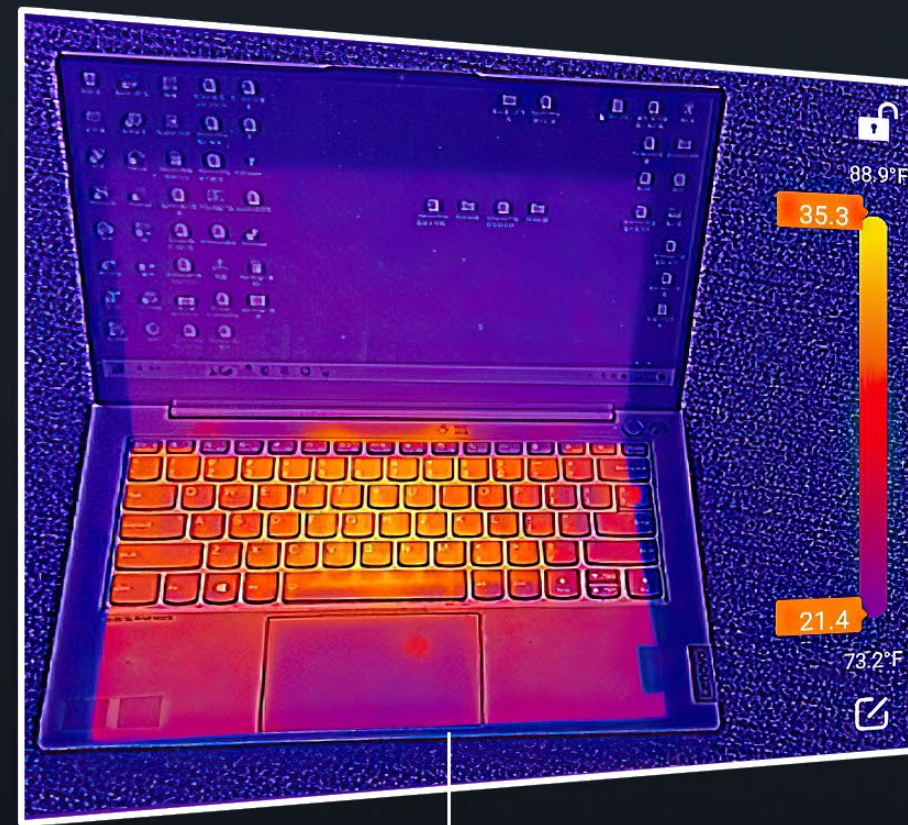
Functions

What's In The Box?

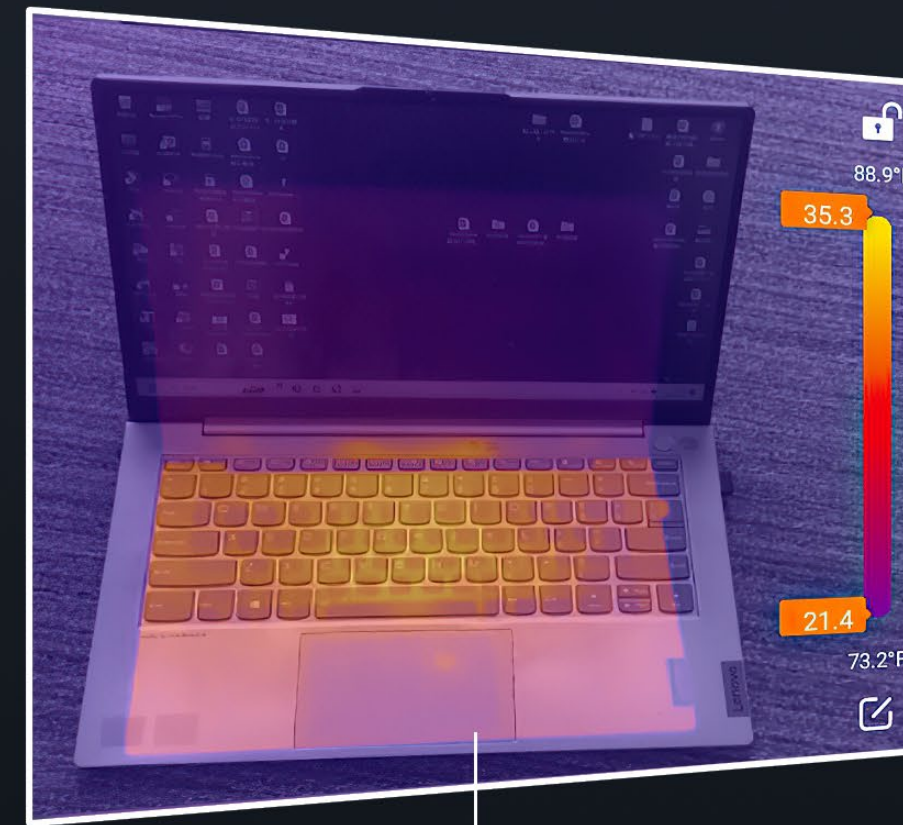
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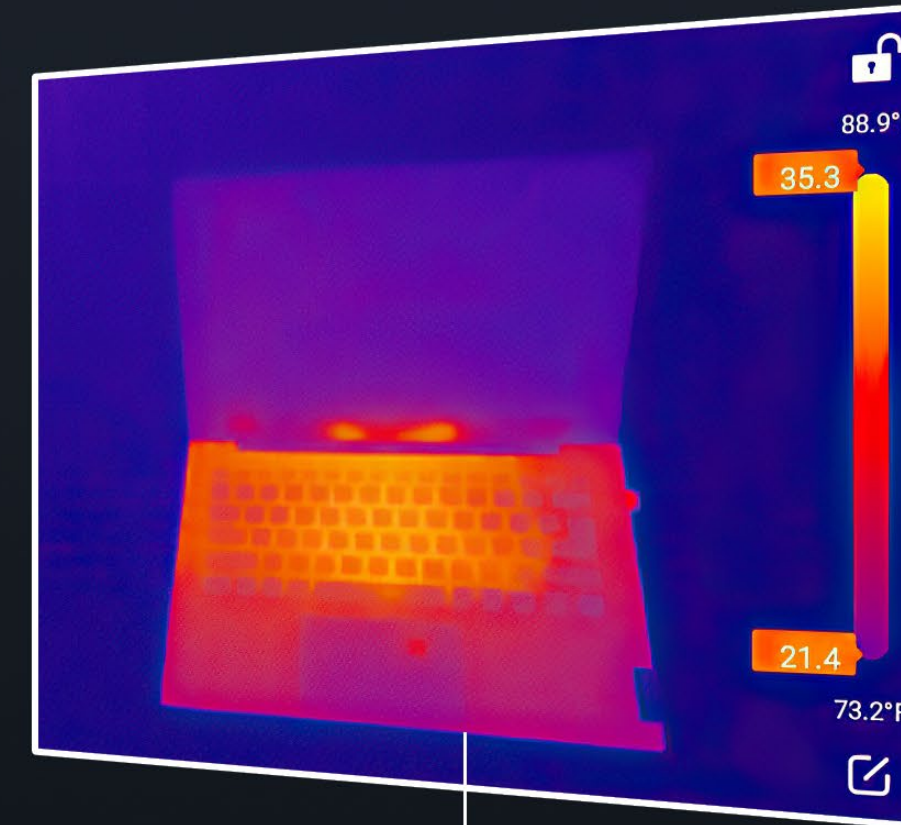
## 4 IMAGING MODES



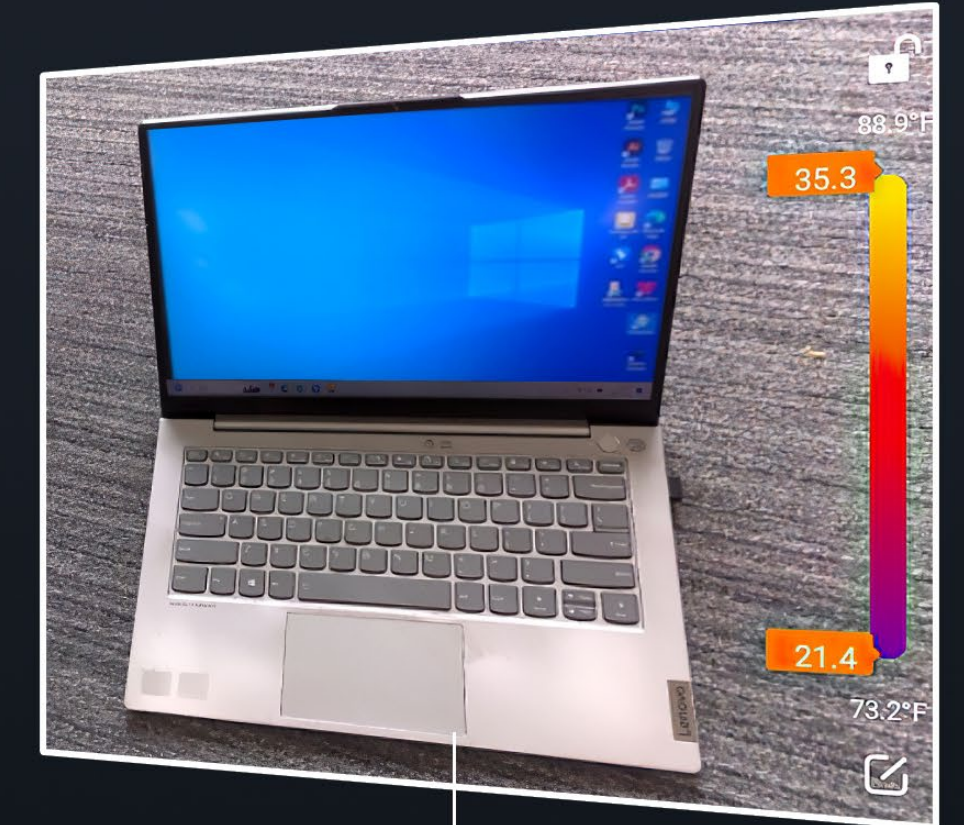
Outline Fusion



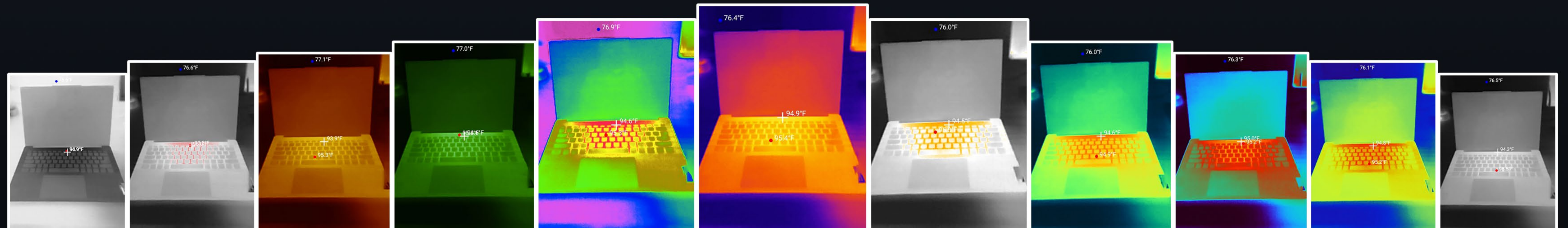
Thermal Fusion



Thermal Imaging



Visible Light





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## View Temperature Differences Easily

The TC003 thermal camera empowers users to set upper and lower limits to highlight the temperature of targeted areas. It features an intuitive color bar, allowing for easy swiping to select the temperature range you wish to highlight. When the temperature exceeds the set range, it is displayed in black and white colors, providing clarity when viewing temperature differences.

The TC003 thermal camera goes above and beyond most thermal cameras by providing clear images with greater detail. Users can adjust the image sharpness and contrast to make the field of view even clearer, making it easier to identify hotspots and temperature variations.

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# Advanced Secondary Analysis - Unlock the Full Potential of Thermal Imaging

Perform advanced secondary analysis on saved thermal images to reveal the temperature of each pixel. This advanced infrared thermal camera now supports detailed analysis for saved thermal images in your gallery.

Swipe the color bar to highlight the desired temperature range, Read Dot, Line, and Plane temperatures on any pixel for in-depth analysis, Use this feature to gain a comprehensive understanding of thermal data.

Specs

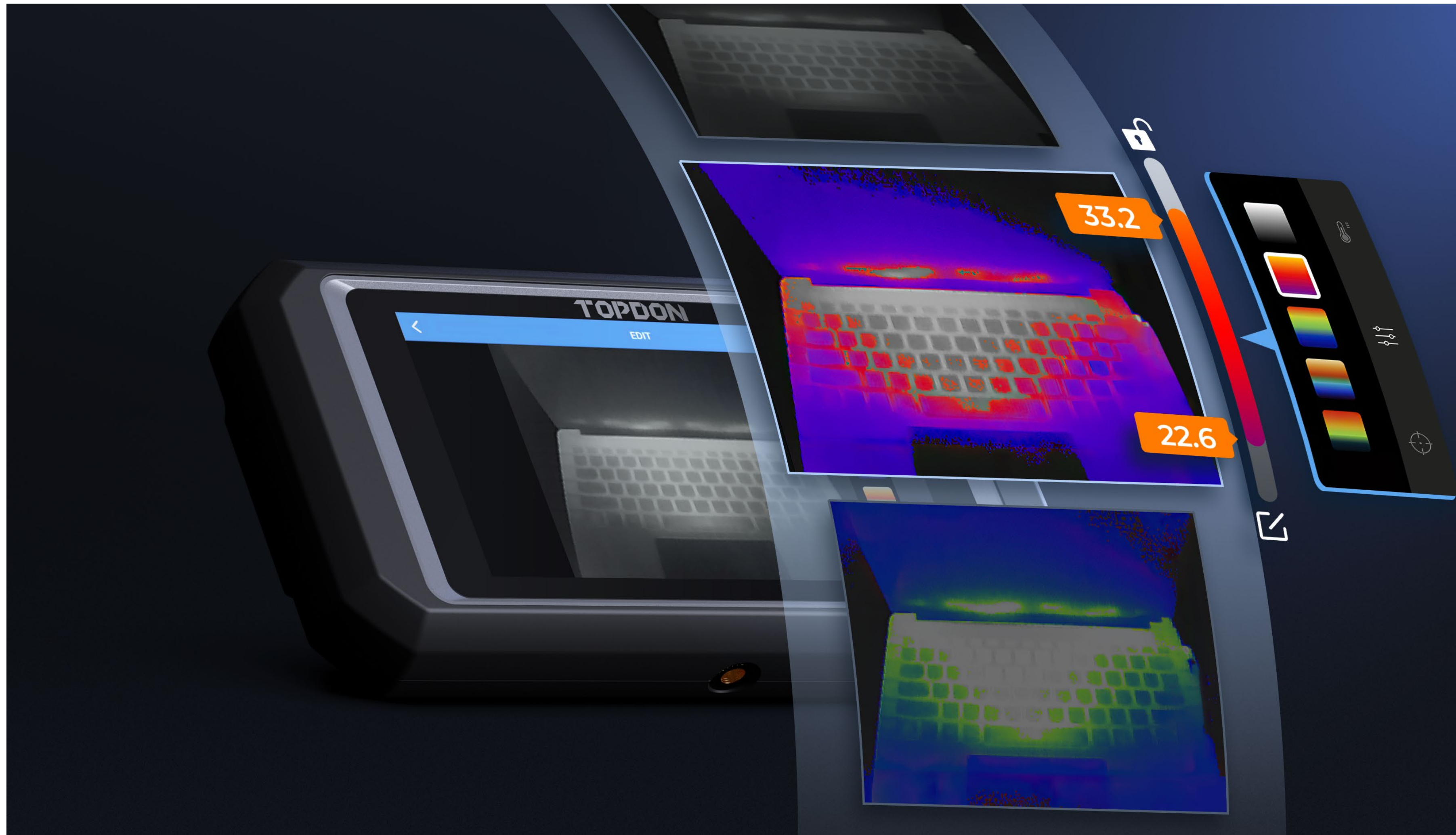
## Features

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## Monitor Temperature Change by Waveform Graph

The TOPDON infrared thermal camera can continuously measure the temperature of an area in dot, line, or plane format and store the data in the app.

This data can provide you with the high and low temperatures of objects in the area over time, which can be used to generate a waveform graph.

This feature is particularly useful for determining if a device is regularly overheating, and easily tracks temperature changes to ensure the safe and efficient operation of your equipment.

Specs

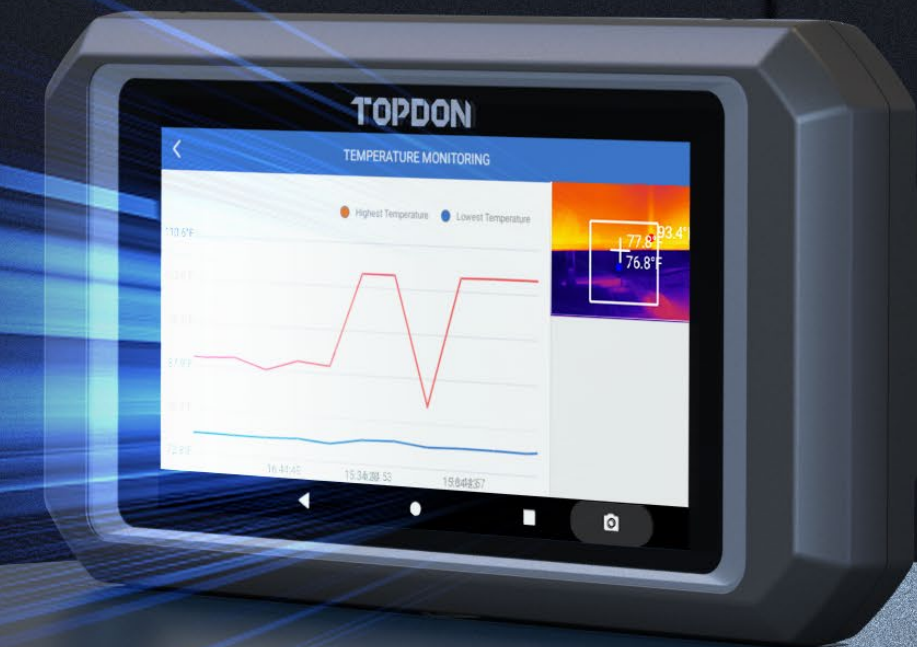
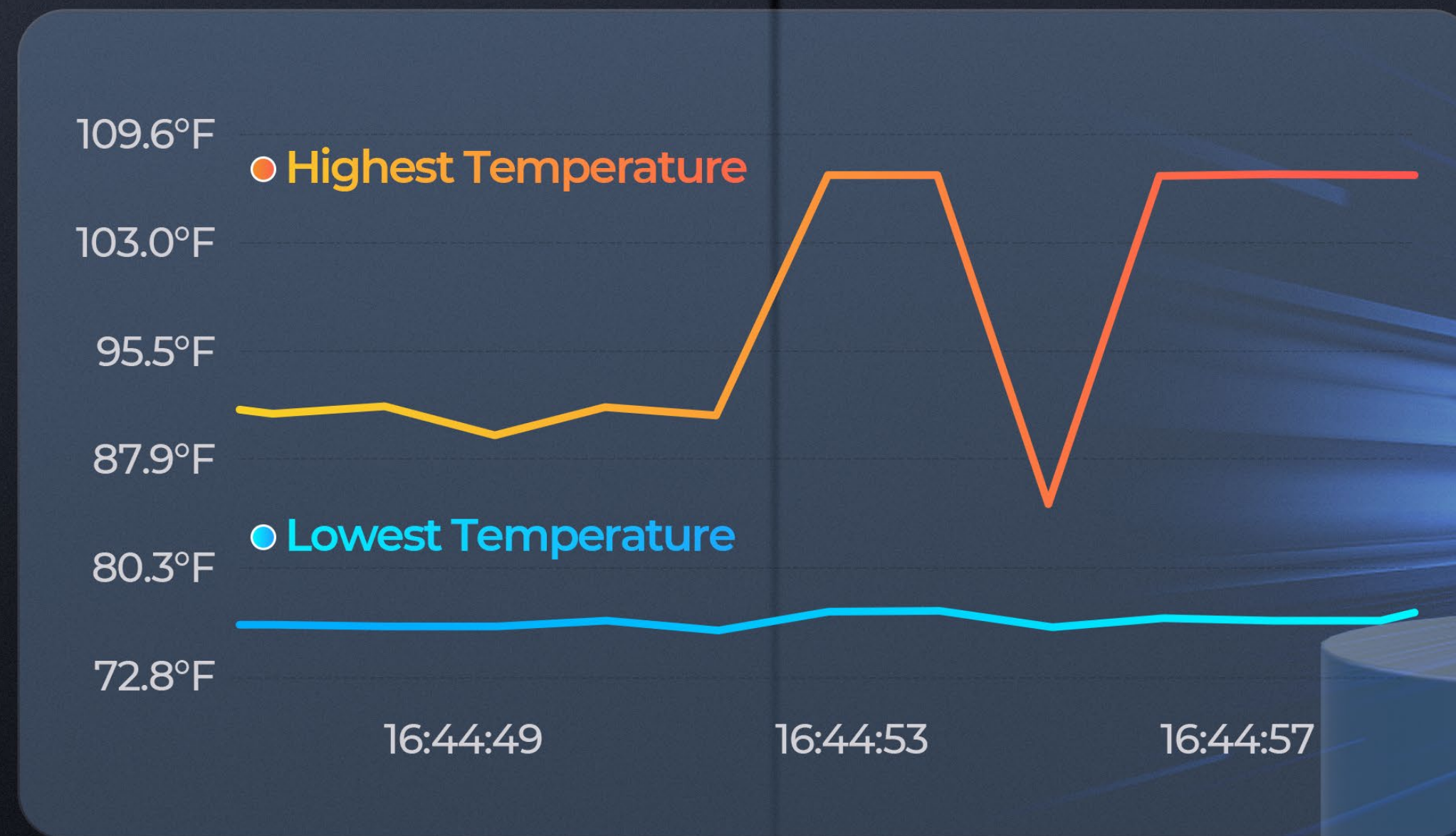
### Features

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## Durable and Resilient Thermal Camera

This device is designed to withstand drops up to 2 meters, making it highly durable and resistant to damage.

Additionally, it has overcharge protection, which prevents the battery from getting damaged or overheating.

The device's IP55 water and dust-resistant design means that it can withstand exposure to grime and humidity.

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## Hardware That Matters

- 800 x 480 resolution, the 5" touch screen
- Screw Hole (1/4-20 unc)
- Easily switch between landscape and portrait mode
- Low-light night vision lens

- Built-in Speaker
- Built-in flashlight
- Screen shot and screen recording functions
- Project temperature readings

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## Unparalleled Accuracy with Temperature Correction

Adjust for Ambient Temperature, Distance to Spot, and Emissivity with the TC003 Thermal Camera. An emissivity chart of common materials is available under Personal Information.

This function is especially helpful in situations where surfaces have different emissivity values, which can affect the accuracy of temperature readings.

Specs

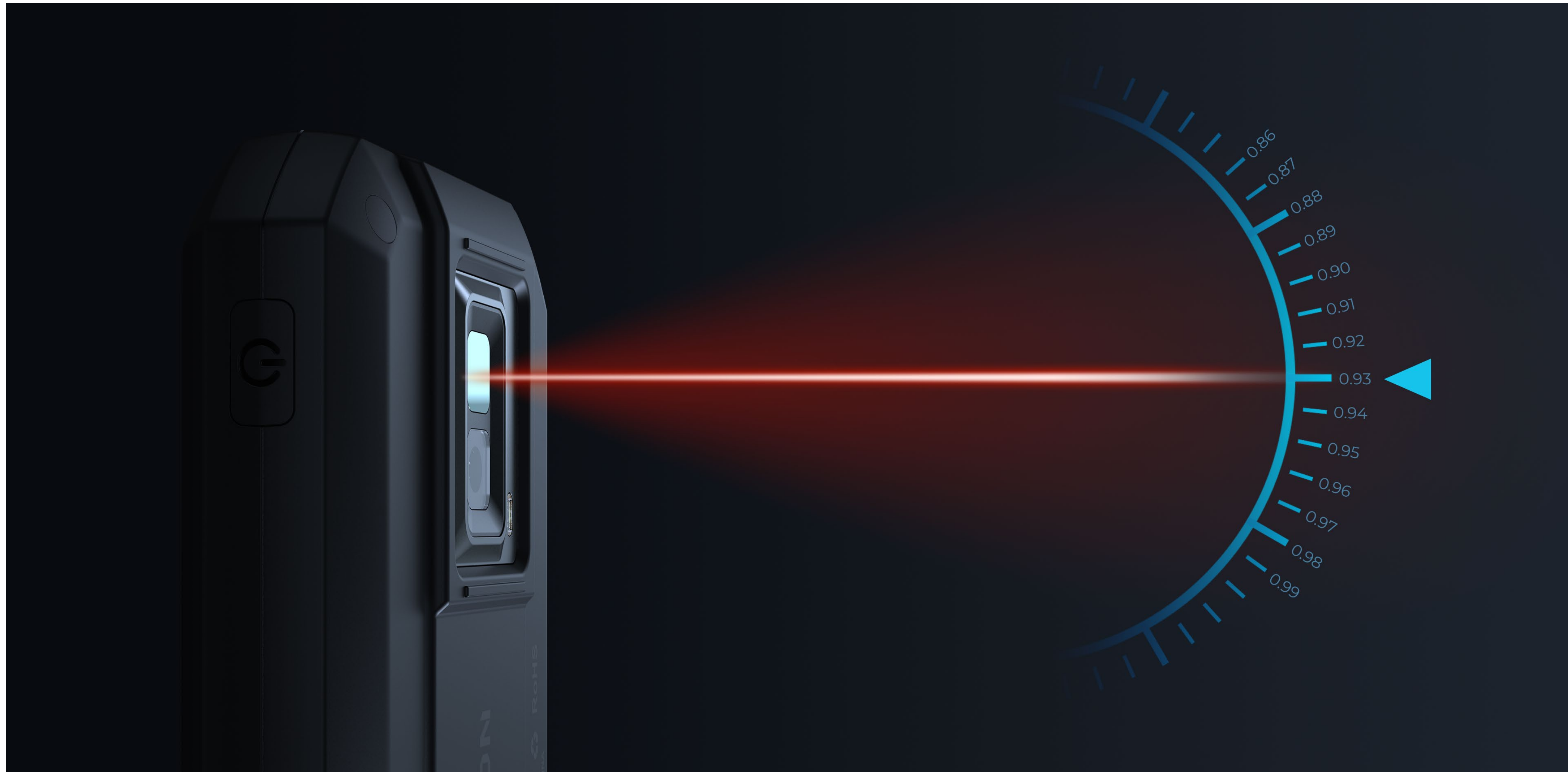
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## Compatible with Windows Laptops

With the TCView software installed, the TC003 is fully compatible with Windows laptops. By connecting the TC003 to a laptop, users can test a wider range of areas using the dimensions selection (Point, Line, Surface).

The PC app also offers a vast selection of 99 color palettes, providing users with convenient customization options.

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# TC003 Functions

Unleash the Power of Thermal Imaging with the TC003

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Keep your Thermal Imaging App and OS up-to-date with Over-The-Air (OTA) updates, for free.



Share your thermal images and videos easily through Bluetooth, App, or USB connection.



Experience a smoother and faster operation with the Android 11.0 operating system.



Store up to 120,000 thermal images and 45 hours of videos for easy access and analysis.

What's In The Box?



Mount your device on a tripod for a stable view and more precise temperature readings.



Enjoy the convenience of a tablet with features such as a camera, Chrome, and a video player.



View thermal images fluently with a 25Hz refresh rate.



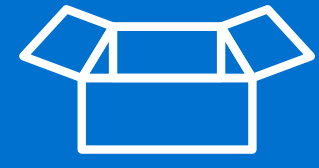
Adjust the image sharpness and contrast to get the clearest possible view of your data.

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# What's In The Box?

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TC003 Thermal Camera



x1

Carrying Bag



x1

USB Cable (Type-A to Type-C)



x1

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Package Box

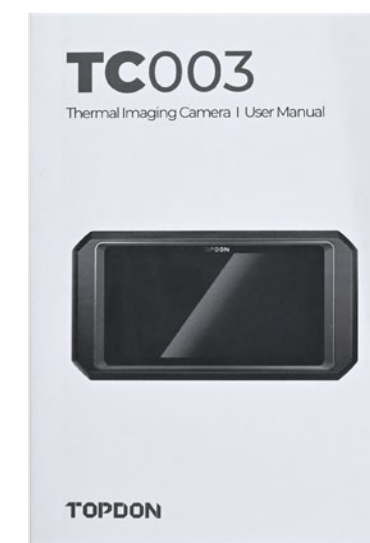


Power Adapter



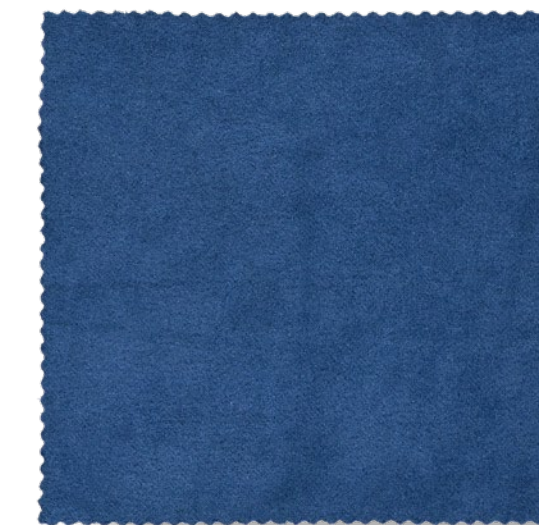
x1

User Manual



x1

Cleaning Cloth








x1

**What's In The Box?**

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MODEL	TC001	TC002	TC003	TC004	TC005
SPECIFICATIONS					
Display screen	NA	NA	5-inch, 854*480 touchscreen	2.8 inch, 320*240 screen	
Operating system	NA	NA	Android	Linux	Linux
Compatible systems	Android/Windows devices	iOS devices	Android/Windows devices	Standalone use/ Windows devices	Standalone use/ Windows devices
Storage	NA	NA	2GB RAM+32GB storage	2GB RAM+16GB TF card	
Battery type	NA	NA	Built-in 5000 mAh battery	Built-in 5000 mAh battery	Built-in 5000 mAh battery
Charging time	/	/	3h	4h	
Standby time	/	/	4h	12h	
Operating temperature	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C	
Operating voltage	5V	5V	5V	5V	5V
Measuring range	-20 ~550 °C (-4 ~ 1022°F)	-20 ~550 °C (-4 ~ 1022°F)	-20 ~550 °C (-4 ~ 1022°F)	-20-350 °C (-4 ~ 662°F)	-20 ~550 °C (-4 ~ 1022°F)
Temperature resolution	0.1°C	0.1°C	0.1°C	0.1°C	
Temperature units	Celsius, Fahrenheit	Celsius, Fahrenheit	Celsius, Fahrenheit	Celsius, Fahrenheit, Kelvin	
Measuring modes	Dot, line, plane	Dot, line, plane	Dot, line, plane	Center spot/hot spot/ cold spot	Center spot/hot spot/ cold spot
Measuring accuracy	±2°C or ±2%	±2°C or ±2%	±2°C or ±2%	±2°C or ±2%	
Gross weight (g)	220	220	900	1100	1100
Device weight (g)	30	30	367	520	520
Dimensions (mm)	140*102*46	140*102*46	221*140*186	280*165*120	280*165*120
LED flashlight	NA	NA	Yes	Yes	
Visible light camera	NA	NA	2-megapixel low-light night vision camera	NA	2 megapixels
Infrared light resolution	256*192	256*192	256*192	256*192	
Image modes	Thermal Imaging, PIP,	Thermal Imaging, PIP,	Thermal Imaging, Visible, Dual Light, PIP	Thermal Imaging	Thermal Imaging, Dual Light, Visible, Picture-in-Picture
Pseudo color bar	9 colors	11 colors	9 colors	4 colors (white hot, black hot, iron, rainbow)	7 colors (white hot, black hot, lava, iron, rainbow, rainbowHC, RdCy)
Frame rate	25Hz	25Hz	25Hz	20Hz	
NETD	<40mK	<40mK	<40mK	<40mK	
Spectral range	8 – 14µm	8 – 14µm	8 – 14µm	8 – 14µm	
FOV	56.0°×42.2°×71.3°	56.0°×42.2°×71.3°	56.0°×42.2°×71.3°	52.5°x 39.5°	
Focal range	3.2mm	3.2mm	3.2mm	3.2mm	
Tripod screw hole	/	/	Yes	Yes	
Drop, Impact, & Vibration Resistance	2m	2m	1.5m	2m, impact 25g (IEC 60068-2-27), vibration 2.5g (IEC60068-2-6)	
Waterproof	/	/	IP54	IP54	
High/low temperature alarms	Available soon	Available soon	Available soon	Yes	
Video recording	Yes	Yes	Yes	Yes	
Video transfer via USB	Yes	No	Yes	Yes	
PC-based analysis software	Yes	No	Yes	Supports imagery analysis with PC	
Auto shutdown	/	/	Yes	5 mins, 10 mins, 20 mins, Off	
Languages	English, Chinese, Japanese, French, Spanish, Italian, Portuguese, German, Polish, Russian, Dutch, Czech, Ukrainian	English, Chinese, Japanese, French, Spanish, Italian, Portuguese, German, Polish, Russian, Dutch, Czech, Ukrainian	English, Chinese, Japanese, French, Spanish, Italian, Portuguese, German, Polish, Russian, Dutch, Czech, Ukrainian	13 languages (English, Traditional Chinese, Korean, Japanese, French, Spanish, Italian, Portuguese, German, Polish, Russian, Hungarian, Turkish)	



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### Question

While I'm using the thermal imaging function, why is there a clicking sound with a frozen screen, once every few dozens of seconds?

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### Answer

As the temperature of the infrared imaging camera changes slightly during use, to ensure measurement accuracy, a periodic internal temperature calibration is needed every a few dozens of seconds. The micro-motor controlled activation or deactivation of such internal calibration makes a clicking sound during which the screen freezes for about one second. To turn off the internal calibration function, please open the TC003 app, go to Personal Information, and turn off Auto shutter."

Functions

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### Question

What's In  
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Can the TC003 detect objects underwater, through glass or a wall?

### Answer

No. Infrared detectors mainly detects 8 to 14  $\mu\text{m}$  long-wave infrared areas, and can only be used to measure surface temperature.

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### Question

Why is the temperature reading lower when the device is farther from the object and higher when the device gets closer to the object?

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### Answer

Infrared radiation attenuates when passing through the atmosphere. The longer the distance, the greater the attenuation. Thus, the accuracy of temperature measurement at a distance will decrease. To ensure accuracy of measurement, go to Personal Information > Temperature Correction > Distance to Spot, and input the actual distance (max: 5 meters) to get the corrected temperature.

Functions

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### Question

What's In  
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Why is the measured temperature range not accurate?

### Answer

The temperature resolution of the TC003 is 2%. This is likely because you have selected the wrong temperature range. The TC003 provides a normal temperature range of -4 to 302°F (-20 to 150°C), and a high temperature range of 302° to 1022°F (150 to 550°C). Please select the corresponding range in the app before measuring.

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### Question

What external factors will affect the infrared temperature measurement?

Features

### Answer

The following factors will have an impact on the measurement results:

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- a)** Emissivity of the object surface.
- b)** Ambient temperature: The object will reflect the infrared rays emitted by surrounding objects, which affects the temperature measurement of the object itself.
- c)** Atmospheric temperature: The atmosphere itself also emits infrared rays.
- d)** Atmospheric transmittance: the infrared rays emitted by the object are attenuated in the atmosphere.
- e)** Distance: the longer the distance, the greater the attenuation of the infrared rays emitted by the object in the atmosphere."

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