Specification of DP series Infrared Thermal Imaging Camera

V1.1

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1 Overview

Shenzhen Dianyang Technology Co., Ltd. DP series infrared thermal imaging handheld camera is a high-precision thermal imaging handheld device.

It combines thermal imaging and visible light to display the target object imaging, which can measure all the pixel temperature of the target object, can quickly locate the abnormal temperature point, to reduce the users' diagnostic time.

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2 Specification

The DP series Infrared thermal imaging camera specification is below,

Parameter		Specification	
		DP22	DP21
Infrared Thermal Imaging	Resolution	320x240	220x160
	Frequency band	8~14um	8~14um
	Frame rate	9Hz	9Hz
	NETD	70mK@25°C (77°C)	70mK@25°C (77°C)
	Field of view	Horizontal 56°, vertical 42°	Horizontal 35°, vertical 26°
	Lens	4mm	4mm
	Temperature range	-10°C ~ 450°C (14°F ~ 842°F)	-10°C ~ 450°C (14°F ~ 842°F)
	Temperature measurement accuracy	±2°C or ±2%	±2°C or ±2%
	Temperature measurement	Hottest, coldest, central point, zone area temperature measurement	Hottest, coldest, central point, zone area temperature measurement
	Color palette	Tyrian, white hot, black hot, iron, rainbow, glory, Hottest, coldest.	Tyrian, white hot, black hot, iron, rainbow, glory, Hottest, coldest.
Visible	Resolution	640x480	640x480
	Frame rate	25Hz	25Hz
	LED light	Support	Support
Display	Display Resolution	320x240	320x240
	Display Size	3.5 inch	3.5 inch
	Image mode	Outline fusion, overlay fusion, picture-in-picture, infrared thermal imaging, visible light	Outline fusion, overlay fusion, picture-in-picture, infrared thermal imaging, visible light
General	Working time	5000mah battery, >4 hours in 25°C (77°F)	5000mah battery, >4 hours in 25°C (77°F)
	Battery Charge	Built-in battery, it is recommended to use +5V & ≥2A universal USB charger	Built-in battery, it is recommended to use +5V & ≥2A universal USB charger
	WiFi	Support App and PC software data transmission	Support App and PC software data transmission
	Operating temperature	-20°C~+60°C (-4°F ~ 140°F)	-20°C~+60°C (-4°F ~ 140°F)
	Storage temperature	-40°C~+85°C (-40°F ~185°F)	-40°C~+85°C (-40°F ~185°F)
	Waterproof and dustproof	IP54	IP54
	Camera Dimension	230mm x 100mm x 90mm	230mm x 100mm x 90mm
	Net weight	420g	420g
	Package dimension	270mm x 150mm x 120mm	270mm x 150mm x 120mm
	Gross weight	970g	970g
Storage	Capacity	Built-in memory, about 6.6G available, can store more than 20,000 pictures	Built-in memory, about 6.6G available, can store more than 20,000 pictures

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	Picture storage mode	Simultaneous storage of infrared thermal imaging, visible light and fusion images	Simultaneous storage of infrared thermal imaging, visible light and fusion images
	File format	TIFF format, support full frame pictures temperature analysis	TIFF format, support full frame pictures temperature analysis
Image analysis	Windows platform analysis software	Provide professional analysis functions to analyze full pixels temperature analysis	Provide professional analysis functions to analyze full pixels temperature analysis
	Android platform analysis software	Provide professional analysis functions to analyze full pixels temperature analysis	Provide professional analysis functions to analyze full pixels temperature analysis
Interface	Data and charging interface	USB Type-C（Support battery charging and data transmission）	USB Type-C（Support battery charging and data transmission）
Secondary development	Open interface	Provide WiFi interface SDK for secondary development	Provide WiFi interface SDK for secondary development

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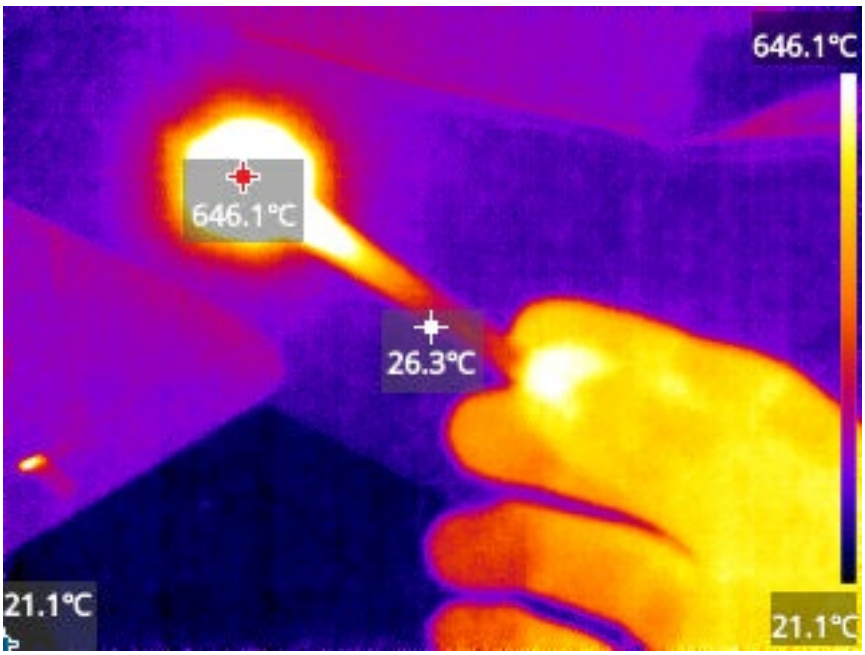
3 Features

3.1 High Resolution

The DP series will easily inspect the detail of object, and the customers can select 8 color palettes for different scenarios.

It support -10°C ~ 450°C (14°F ~ 842°F).

- Iron, the most common color palette.



- Tyrian, to stand out the objects.

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- White hot. Suitable for outdoor and hunting etc.

- Hottest. Suitable for tracing hottest objects, such as tunnel inspection.

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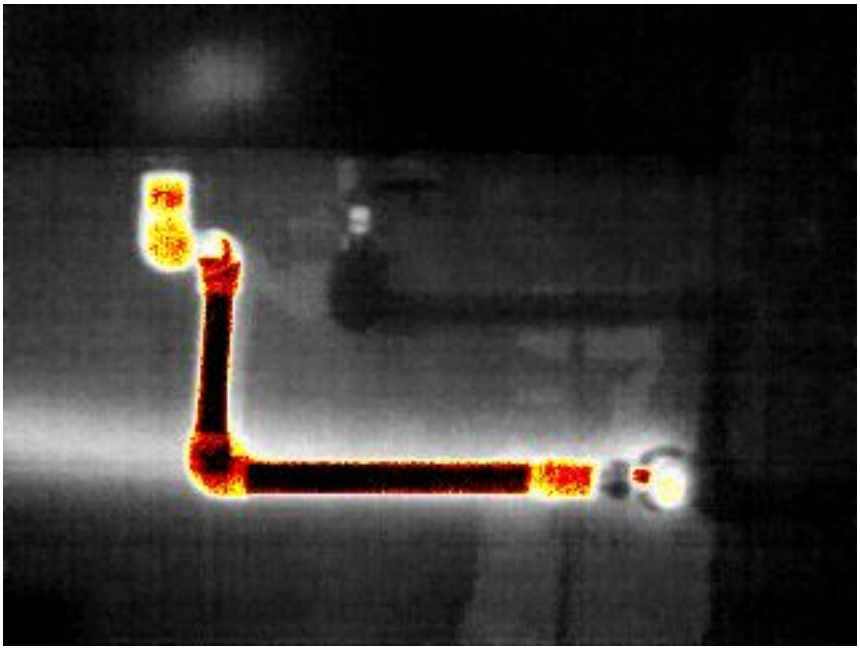
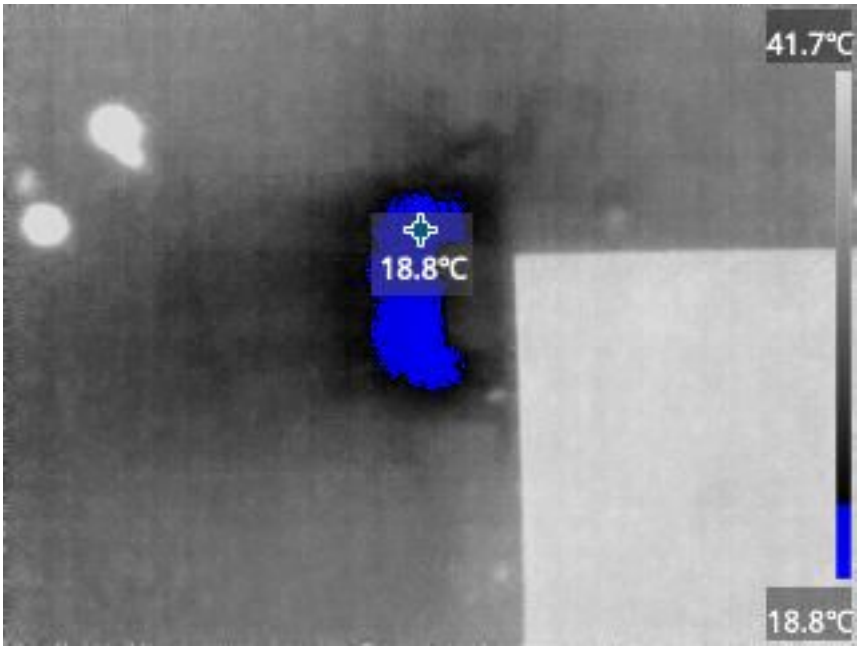


- Coldest. Suitable for air condition, water leakage etc.



3.2 Multi-mode Imaging Mode

- Thermal imaging mode. All the pixels in the screen can be measured and analyzed.

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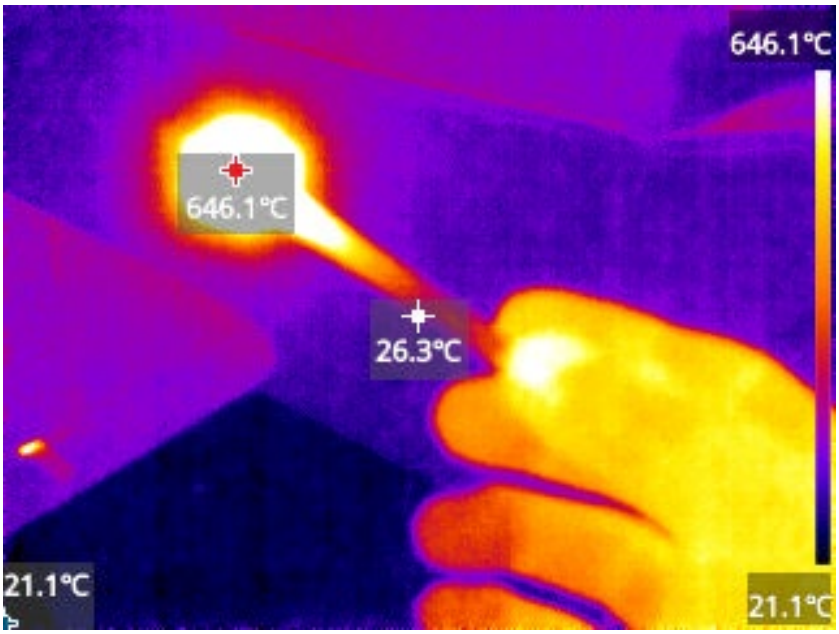
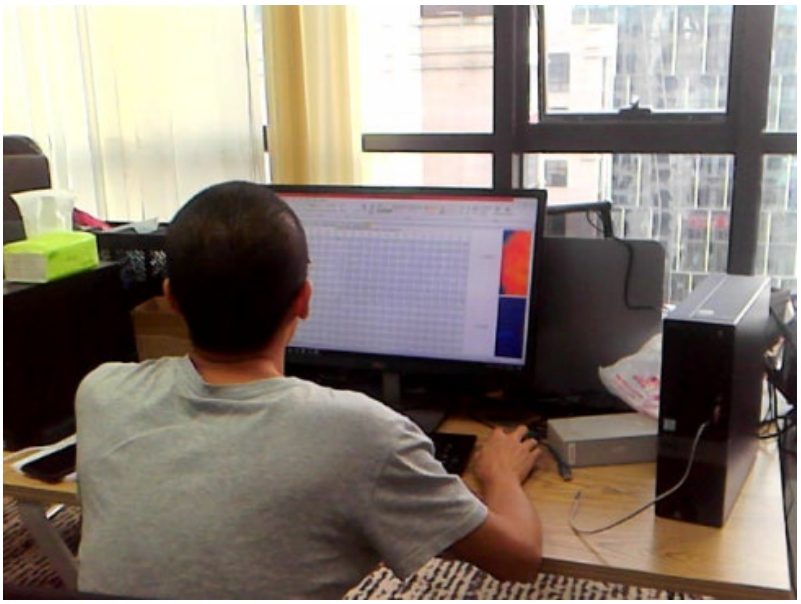


- Visible light mode to display as normal camera.



- Outline fusion. The visible camera shows the objects edge to fusion with thermal camera, the customers can inspect the thermal temperature and color distribution, also can check the visible details.

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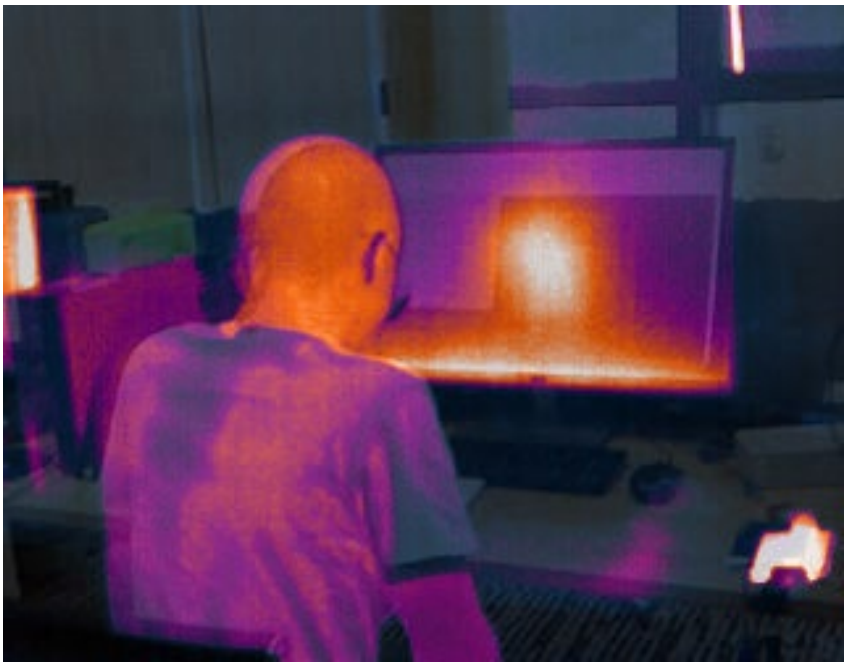
- Overlay fusion. The thermal camera overlay part of visible camera color, to let the background more clear, to identify the environment easily.



- Picture-in-Picture. To emphasize the central part thermal information. It can quickly switch visible and thermal image to find the defect point.

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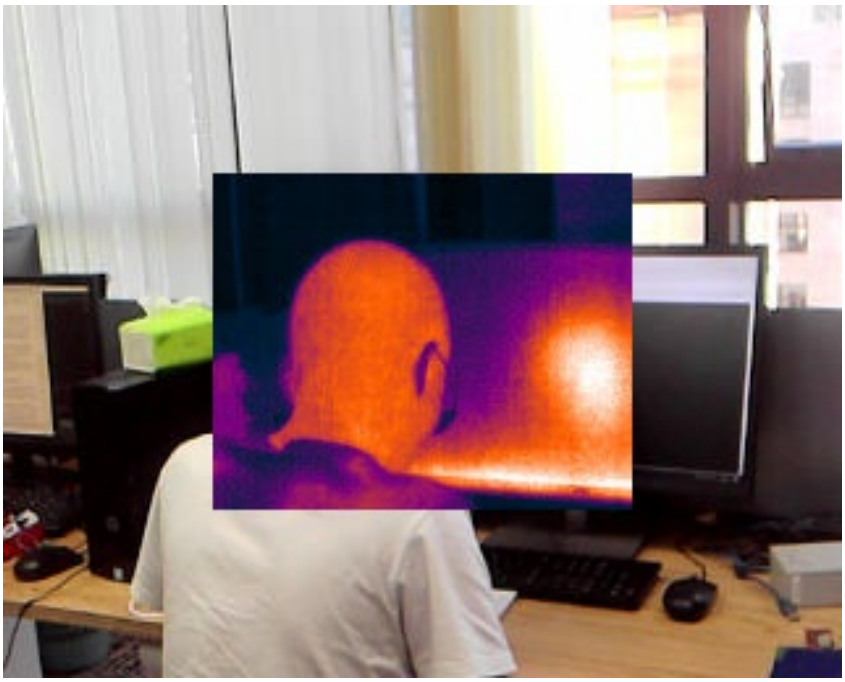
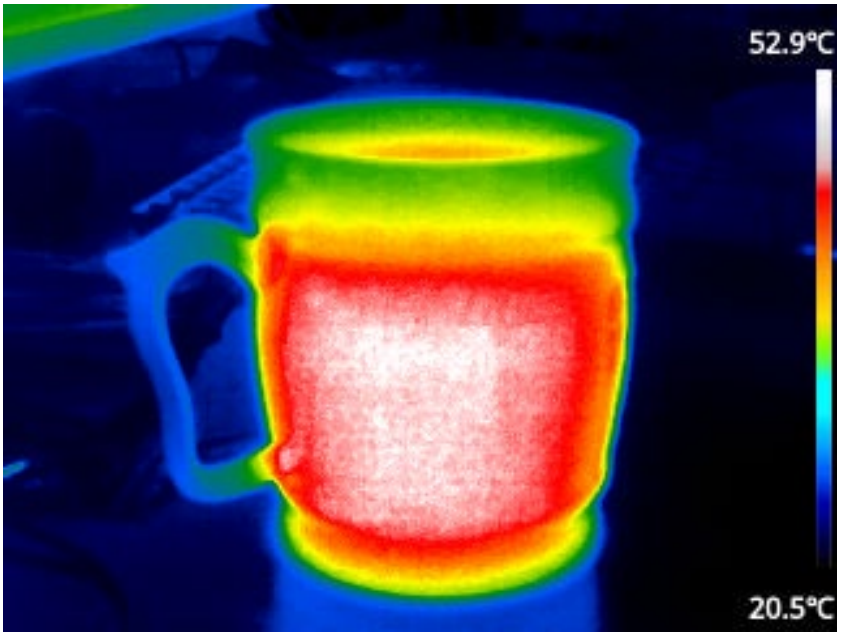


3.3 Image enhancement

All the color palettes have 3 different image enhancement modes to match different objects and environments, the customers can choose to display the objects or background details.

- High contrast



- Legacy

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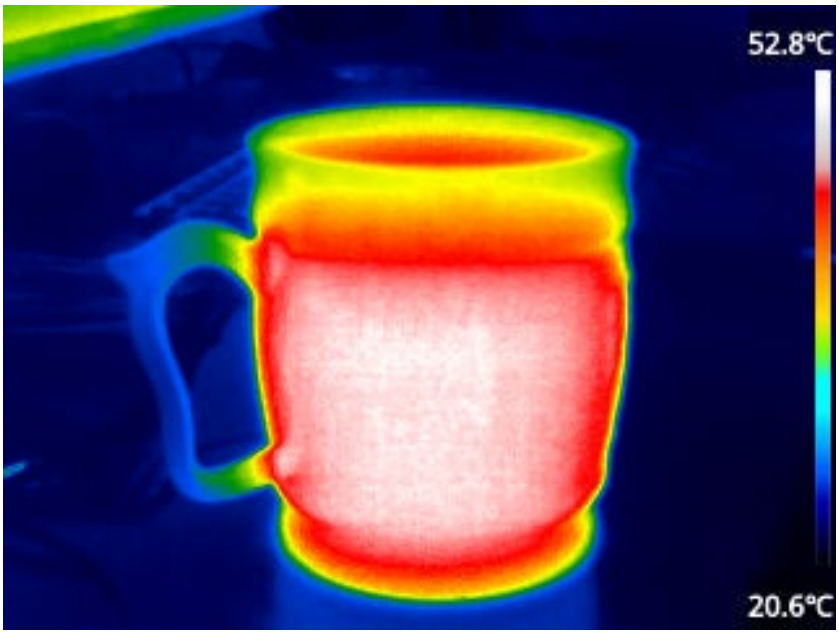
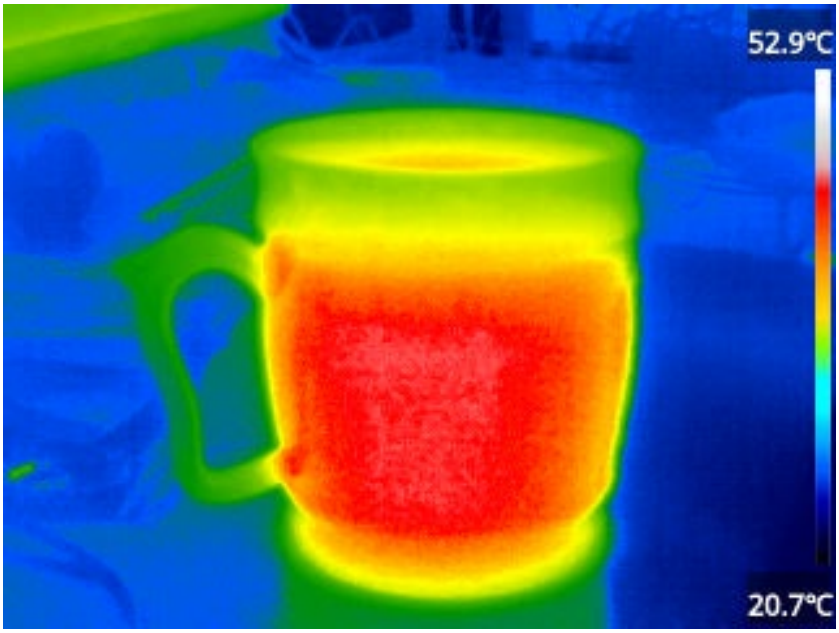


- Smooth



3.4 Flexible Temperature Measurement

- DP series support center point, hottest and coldest tracing.

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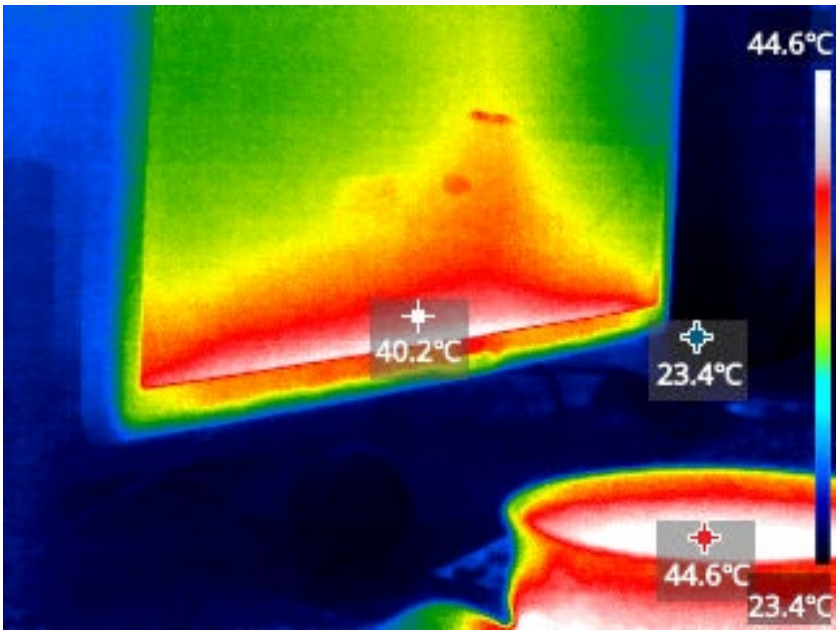
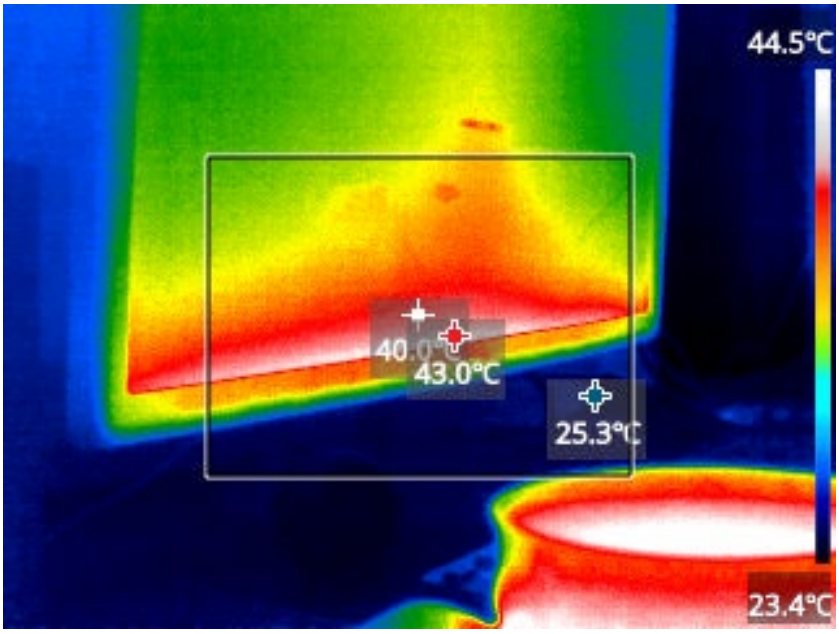


- Zone measurement
  The customer can choose central zone temperature measurement, the hottest and coldest temperature only tracing in the zone. It can filter other area hottest and coldest point's interference, and the zone area can be zoom in and out.
  (In the zone measurement mode, the right side bar will always display full screen highest and lowest temperature distribution.)



- Visible temperature measurement
  It suitable for the normal person to measurement the temperature to find the object details.

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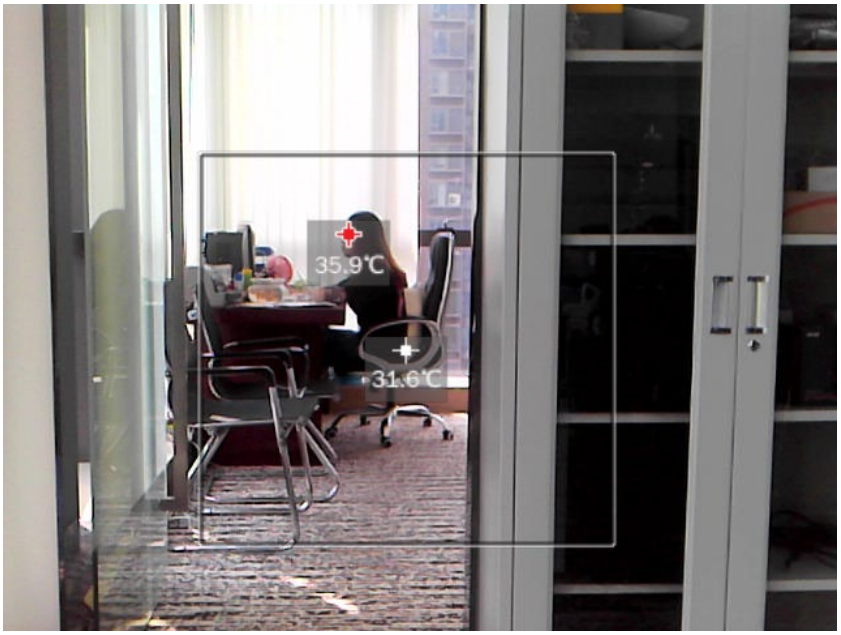
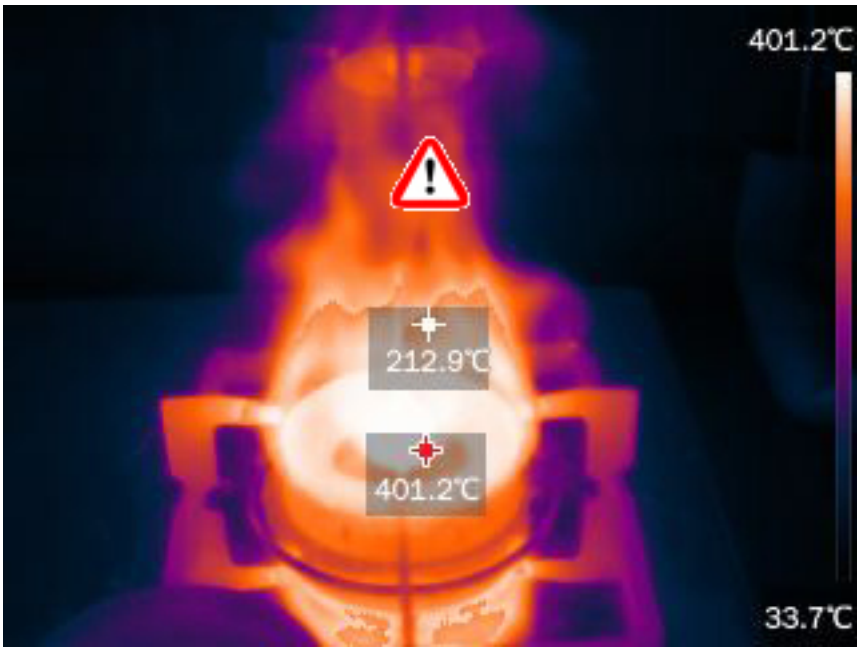


3.5 Alarm

The customers can configure high and low temperature threshold, if the objects temperature is over the threshold, the alarm will display on the screen.



3.6 WiFi

To enable the WiFi, the customers can transfer the pictures to PCs and Android devices without cable.

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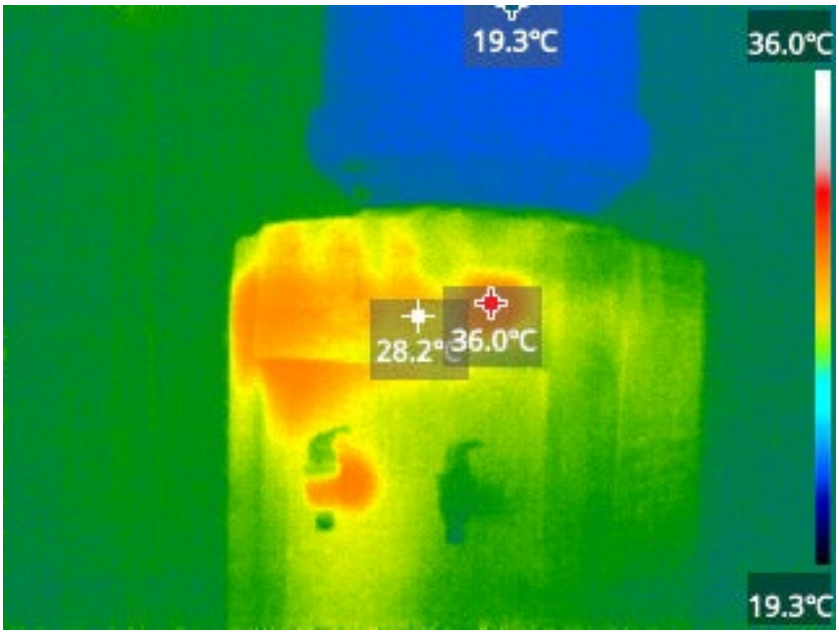
(Also can use USB cable to copy the pictures to PCs and Android devices.)

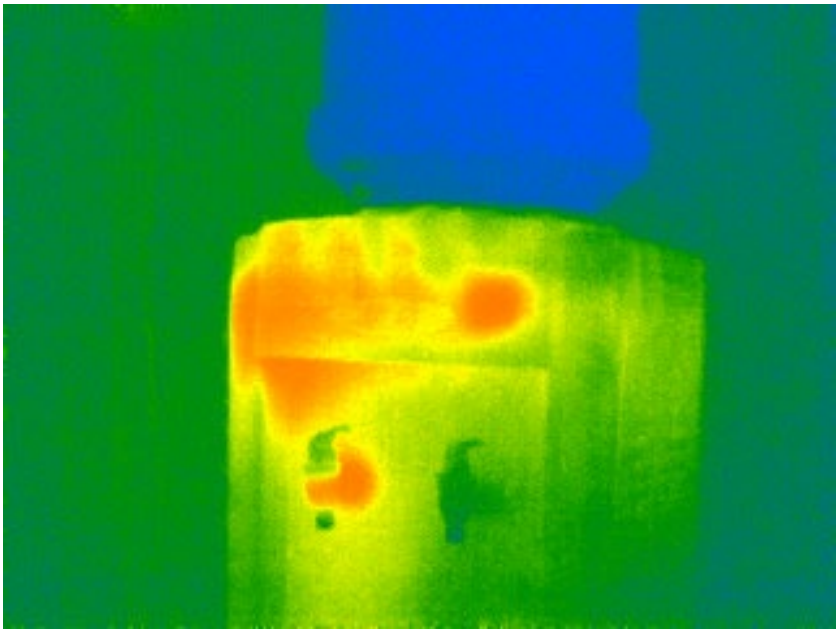
3.7 Image Saving and Analysis

When the customers take a picture, the camera will automatic save 3 frames into this picture file, the picture format is Tiff, it can be opened by any picture tools in Windows platform to view the image, for example, the customers will see below 3 pictures,

- The image customer took, what you see is what you get.



- Raw thermal image



- Visible image

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With Dianyang professional analysis software, the customers can analysis full pixels temperature.

3.8 Analysis Software

After import the pictures into analysis software, the customers can analyze the pictures easily, it support below features,

- Filter the temperature by range. To filter the higher or lower temperature pictures, or filter the temperature inside some temperature range, to quickly filter some useless pictures. Such as filter the temperature lower than 70°C (158°F), only leave the alarm pictures.
- Filter the temperature by temperature difference, such as only leave the temperature difference >10°C, only leave temperature abnormal pictures.

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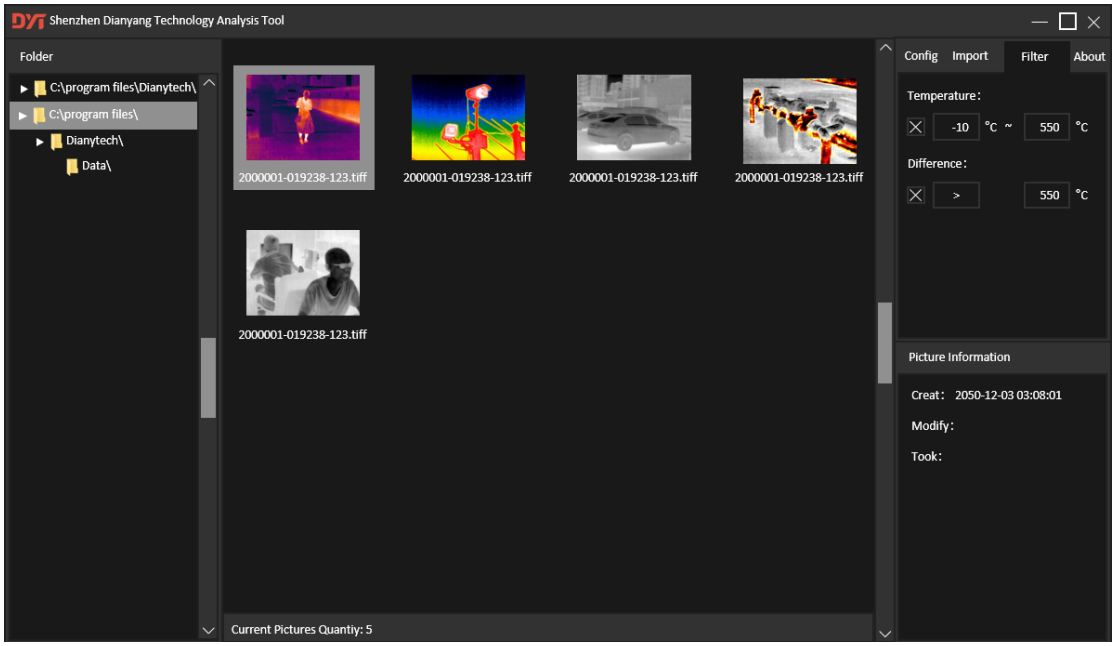
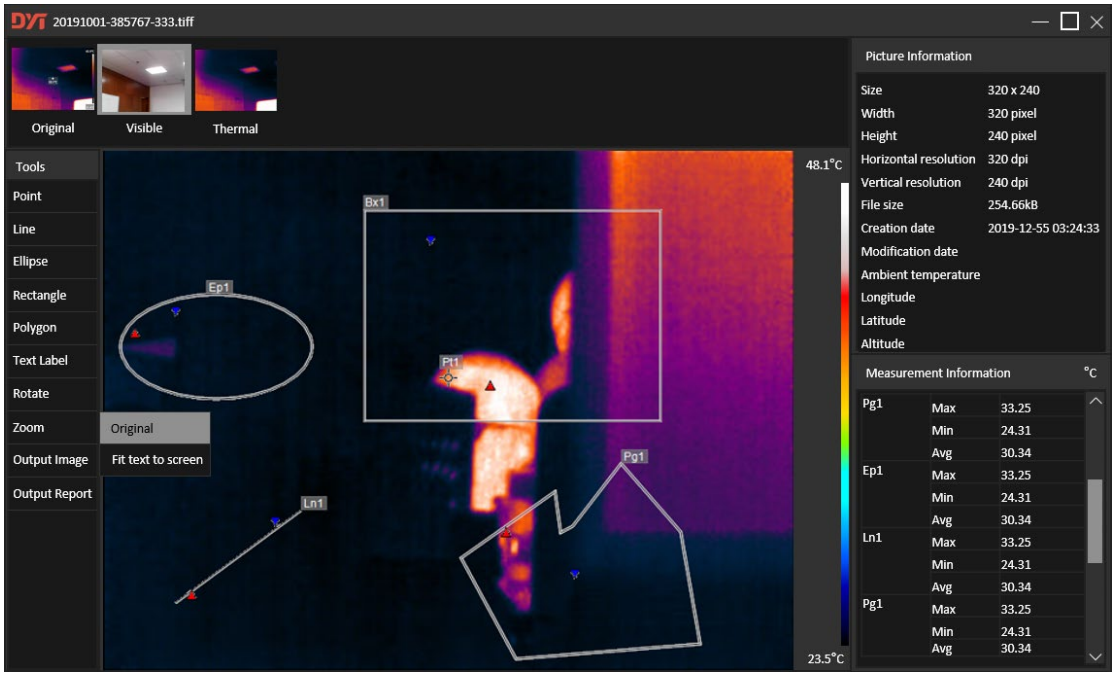


- If the customers are not satisfy with the field pictures, to analysis the raw thermal frame in the software, no need go to field and take pictures again, to increase the working efficiency.
- Support below measurement,
    - Point, Line, Ellipse, Rectangle, Polygon analysis.
    - Analyzed on thermal and visible frame.
    - Output to other file formats.
    - Output to be a report, the template can be customized by the users.



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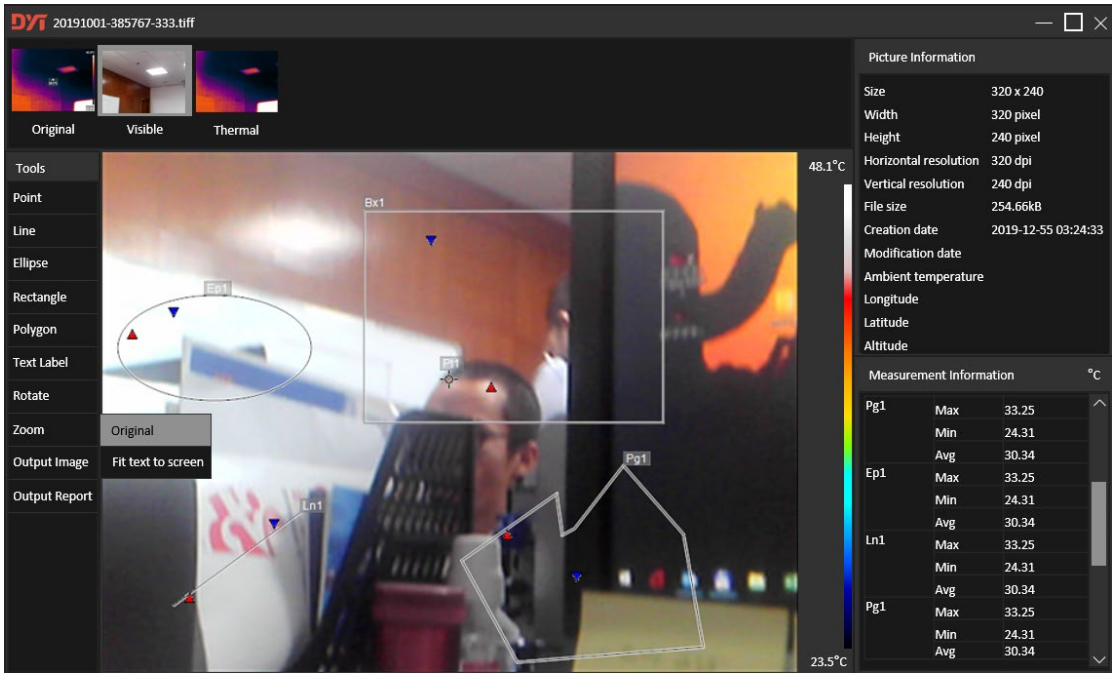

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4 Product Package

The product package is listed below,

No.	Item	Quantity
1	DP series infrared thermal imaging camera	1
2	USB Type-C data and charging cable	1
3	Lanyard	1
4	User manual	1
5	Warranty Card	1

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