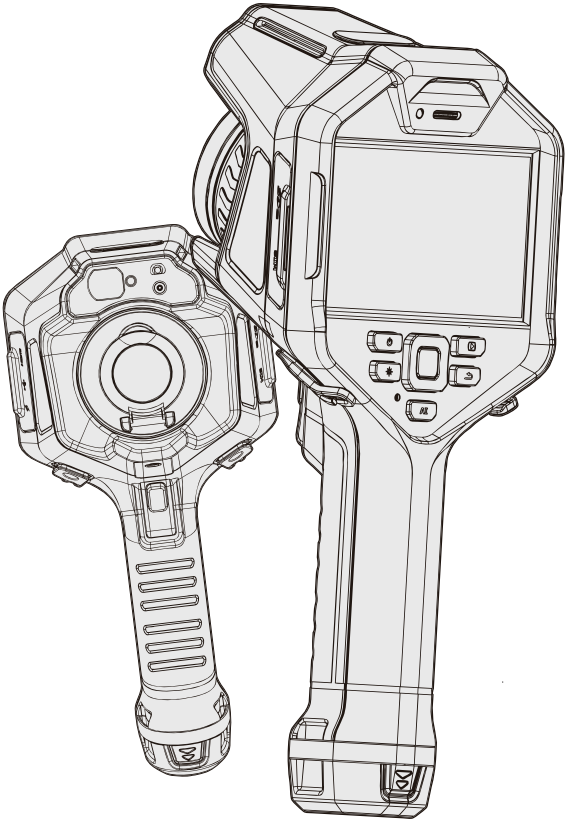
Advanced Thermal Camera

Quick Start Manual



Symbols

For the symbols that appear in the documentation, the descriptions are listed below.

⚠ Warning	⚠ Caution
Potential death or serious injury inducing hazards	Potential danger of injury or property damage

Safety information

The purpose of this section is to ensure that the user uses the product properly to avoid danger or property damage.

Before using this product, please read this instruction manual carefully and keep it in a safe place for future reference.

⚠ Warning

- Never disassemble or modify the thermal imaging camera battery. The battery is equipped with safety and protective devices which, if tampered with, may cause the battery to overheat and may also cause an explosion or burn. If the battery is leaking and the leak gets into your eyes, do not rub it, wash it with water and get immediate medical attention.
- Thermal imaging cameras that use a laser pointer. Do not view the laser beam directly with the human eye. The laser beam can cause eye irritation.
- If the unit is not working properly, contact your dealer or our company and do not disassemble or modify the unit in any way (unauthorized modifications or repairs cause problems at your own risk).

⚠ Caution

- Avoid using the product in humid, dusty, extremely hot or cold environments, please refer to the product's parameter table for specific temperature and humidity requirements.
- Do not touch the sensor or lens directly to avoid staining and damage from oil and various chemicals. If cleaning is necessary, moisten a clean cloth and gently wipe off any dust. Close the lens cap when the camera is not in use.
- When the camera is turned on, it may take approximately 5-10 minutes for the camera to warm up before taking accurate readings.
- Avoid focusing or prolonged observation on the sun or objects with extremely high temperatures, as this may result in reduced sensor life damage or temporary black spots (minor cases can be recovered after calibrating the NUC, severe cases can result in permanent irreversible damage to the detector).

- Avoid damage to the sensor caused by over-range use of the device.
- It is strongly recommended to use the original power adapter, the specific requirements of the power adapter are shown in the product data sheet.
- To prevent the potential danger of data loss, always make a copy (backup) of your data on a computer.
- When storing the camera, it is strongly recommended to use the original box and to keep it in a cool, dry, ventilated environment free from strong electromagnetic fields.
- When shipping the camera, it is strongly recommended that it be shipped protected in its factory packaging.

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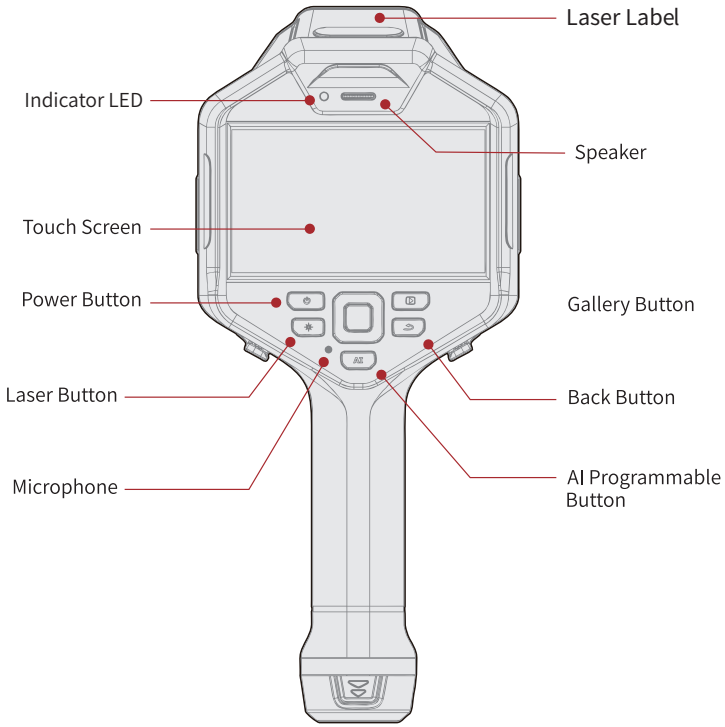
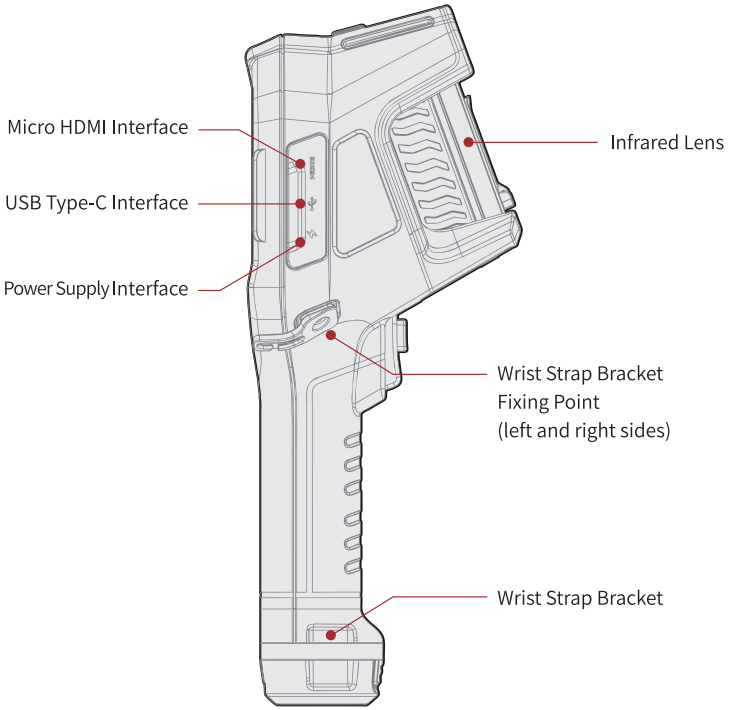
Camera Components

Front View

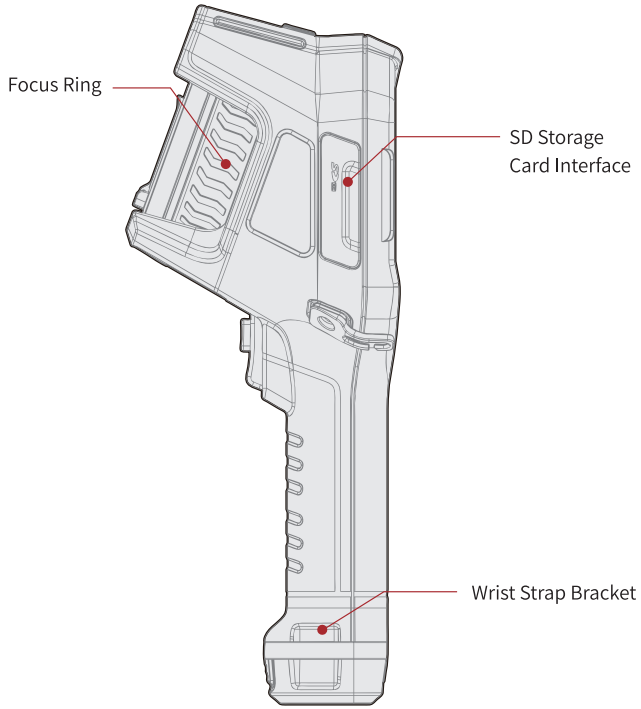


Rear View

Right View

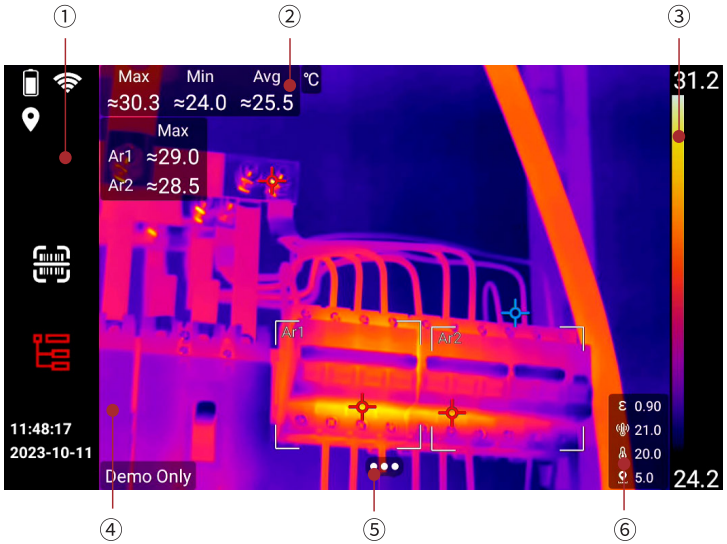


Left View



Interface Introduction

Main Interface



① Display reminder icons such as battery, Wi-Fi, low SD card capacity, laser warning, time, logo, GPS, etc.

② Display overall and area temperature, emissivity, and other values.

③ Display the color band of the palette, and the upper and lower limits of the temperature scale.

④ Display real-time thermal image, digital, PIP, imageblend , videos, measurement tool, and others.

⑤ Enter temperature scale, temperature measurement parameters, image mode, ROI measurement tools, color palette, and settings.

⑥ Display emissivity, reflected temperature, ambient temperature, relative humidity, distance and others.

System Menu

① Auto temperature scale, manual temperature scale, touch scale.

② Emissivity, reflected temperature, ambient temperature, relative humidity,target distance, infrared window compensation.

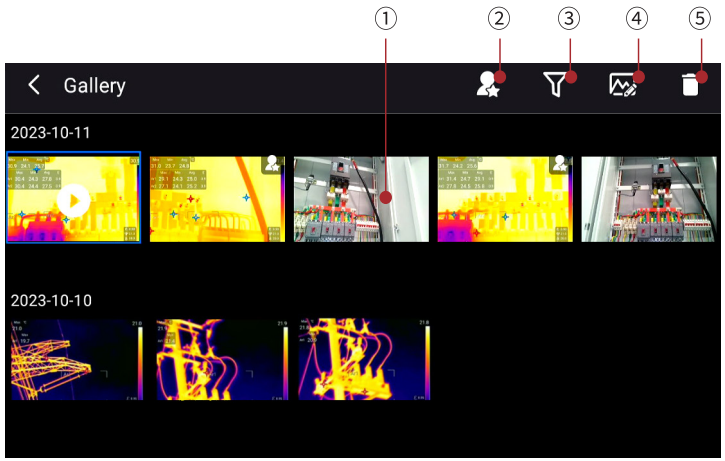
③ Thermal image, digital camera, picture-in-picture, thermal &digital camera blend mode.

④ Add temperature measurement tools such as points, rectangles, circles, lines etc., temperature rise and temperature difference, delete and display settings.

⑤ Various palettes and inverted palettes, as well as color alarms (isotherms) and palettes.

⑥ Capture mode, connection, temperature measurement range, storage and save options, device set.

Gallery



① Display the thermal image photos, digital camera photos, full radiationthermal image video, non-radiation thermal image video thumbnails, click to select, long press for multiple choices.

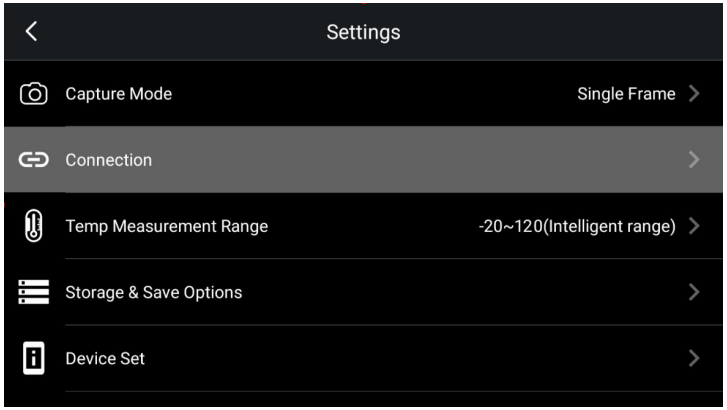
② Only display files with selected favorite files.

③ Filter by tags, and only display the filtered files in the lmage Display Area.

④ Enter the Analysis mode to analyze the thermal photos and full-radiation video files.

⑤ Delete selected files.

System Settings



① Single frame capture, video recording and time lapse settings.

② WLAN, Bluetooth, FTP

③ Can be set to lntelligent range.

④ Settings such as super resolution, video format, saving digital camera file as aseparate JPEG photo, and deleting all saved files.

⑤ Settings for language, date & time and region, display settings, geographiclocation, screen-off time, manual adjustment mode, volume, reset, andinformation of thermal imager.

Quick Start

For quick start of the thermal imager, please follow the procedures as below:

1. Insert the battery into the battery compartment of the thermal imager. (Make sure the battery is fully charged before starting up the thermal imager)
2. Insert SD storage card into the SD card slot.
3. Long press the Power Button to turn on the thermal imager.
4. Aim the thermal imager toward the object of interest.
5. Make sure the FOV of the lens is proper for the intended application. If not, change the observing position or change the lens.
6. Press the Autofocus Button or adjust the Manual focus ring to get a clear image of the object.
7. Press the Capture Button to freeze the thermal image, so that it can be analyzed in this interface.
8. Press the Capture Button again; the analyzed thermal image will be saved.
9. Download and install the appropriate PC software.

10. Transfer the images from the camera to PC, import them into the software for furtherf analysis and report generation.

Maintenance Instructions

- Temperature measuring equipment is recommended for temperature calibration measurement once every one to two years.
- Pay attention to keep the lens clean, use a soft non-woven cloth to gently wipe and brush away dust, or use an oil-free cotton cloth dipped in 96% concentration of ethanol, wring it out and wipe it gently, avoid wiping it hard to cause permanent damage to the lens.
- Please ensure that the battery is fully charged when storing for a long time.

Appendix

Emissivity Table

(For reference only)

Material Name	Surface Condition	Temperature (°C)	Emissivity (ε)
Aluminum	Non-oxidized	100	0.2
	Oxidized	100	0.55
	Polished brown	20	0.4
Brass	Unpolished	38	0.22
	Oxidized	100	0.61
Copper	Severely oxidized	20	0.78
Iron	Oxidized	100	0.74
	Rusty	25	0.65
Cast iron	Oxidized	200	0.64
	Non-oxidized	100	0.21
Wrought iron	Roughened	25	0.94
	Polished	38	0.28
Nickel	Oxidized	200	0.37
Stainless steel	Oxidized	60	0.85
Steel	Oxidized at 800°C	200	0.79
Common brick	Surface	20	0.93
Concrete	Surface	20	0.92
Glass	Polished plate	20	0.94
Lacquer	White	100	0.92
	Natural color black	100	0.97

Carbon	Smoke black	25	0.95
	Candle soot	20	0.95
	Graphite rough surface	20	0.98
Paint	Average of 16 colors	100	0.94
Paper	White	20	0.93
Sand	Surface	20	0.9
Wood	Polished	20	0.9
Water	Distilled water	20	0.96
Skin	Human	32	0.98
Pottery	Fine	21	0.9
	Abrasive	21	0.93

About This Brochure

The photographs, graphics, icons, and illustrations provided in this manual are for illustrative purposes only and may differ from the actual product. This manual may be updated by the company without prior notice due to product version upgrade or other needs.

The trademarks and images used in this manual are for illustrative purposes only and are the copyright of the trademark owner.

Disclaimers

The products (hardware, software, etc.) provided in this manual may be defective, faulty or malfunctioning, and the company disclaims all warranties of any kind, express or implied, including, but not limited to, warranties of merchantability, satisfactory quality, fitness for a particular purpose, non-infringement of third party rights, etc. The company shall not be liable for any special, incidental, consequential or indirect damages arising out of the use of this manual or our products including, but not limited to, loss of business profits, loss of data or documentation.

To the maximum extent permitted by law, none of our liability will exceed the amount you paid for this product.

After the product is connected to the Internet, it may be exposed to risks including but not limited to network attacks, hacker attacks, virus infections, etc. The company will not be responsible for any abnormal work of the product, information leakage and

Warranty Card

Thank you for choosing this thermal imaging camera. We design products to deliver long-lasting performance under our warranty policy (starting from date of original purchase). If any manufacturing defects appear under normal use, the product will be repaired or replaced by us with no cost to the owner

Certificate of QC

This is to certify that the thermal imaging camera listed on this card meets the requirements of quality control procedures.

Technical standards are formulated following the international standards for the industrial testing infrared thermal imager and the relevant standards cited therein, as listed below:

- IEC 60529:1989+A1:1999+A2:2013 Enclosure protection grade (IP 54)
- IEC 60068-2-27:2008 Environmental test (Shock)
- IEC 60068-2-6:2007 Environmental test for electrical and electronic products (Vibration)
- IEC 62368-1:2018/COR1:2020 (Power supply) Audio/video, information, and communication technology equipment - part1: Safety requirements
- EN 61326-1:2013 Electrical equipment for measurement, control, and laboratory use-EMC requirements - Part 1: General requirements
- EN 301 489-1 V2.2.3:2019 Electro Magnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonised Standard for ElectroMagnetic Compatibility
- Draft EN 301 489-3 V2.1.2:2021 Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 246 GHz
- EN 301 489-17 V3.2.4:2020 Specific conditions for Broadband Data Transmission Systems
- FCC 47 CFR Part 15 Class A RADIO FREQUENCY DEVICES
- Class 2 Laser Product: Complies with 21 CFR 1040.10 and 1040.11 except for conformance with IEC 60825-1