



Thermographic Handheld Camera User Manual

About this Manual

The Manual includes instructions for using and managing the Product. Pictures, charts, images and all other information hereinafter are for description and explanation only. The information contained in the Manual is subject to change, without notice, due to firmware updates or other reasons. Please find the latest version of this Manual at the company website

Please use this Manual with the guidance and assistance of professionals trained in supporting the Product.

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Regulatory Information

FCC Information

Please take attention that changes or modification not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment.

FCC compliance: This equipment has been tested and found to comply with the limits for a Class A digital

device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC Conditions

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.
2. This device must accept any interference received, including interference that may cause undesired operation.

EU Conformity Statement



This product and, if applicable, the supplied accessories are marked with “CE” and comply therefore with the applicable harmonized European standards listed under the Radio Equipment Directive 2014/53/EU, the EMC Directive 2014/30/EU, the RoHS Directive 2011/65/EU.



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.



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.

Safety Instruction

These instructions are intended to ensure that user can use the product correctly to avoid danger or property loss.

The precaution measure is divided into **Warnings** and **Cautions**:

Warnings: Neglecting any of the warnings may cause serious injury or death.

Cautions: Neglecting any of the cautions may cause injury or equipment damage.

Warnings Follow these safeguards to prevent serious injury or death.	Cautions Follow these precautions to prevent potential injury or material damage.



Warnings

- The device should be used in compliance with local laws and electrical safety regulations. Refer to the appropriate documentation for detailed information.
- The device should be used in the environment within temperature range from -10 °C to 50 °C (14 °F to 122 °F), humidity ≤90%, and height ≤5000 m.
- The input voltage should conform to IEC61010-1 standard: SELV (Safety Extra Low Voltage) and the Limited Power Source ((5 V DC/0.3 A).
- Make sure the plug is properly connected to the power socket.
- If smoke, odor, or noise arises from the device, immediately turn off the power, unplug the power cable, and contact the service center.
- The installer and user are responsible for password and security configuration and its settings.



Cautions

- Do not drop the device or subject it to physical shock.
- Wipe the device gently with a clean cloth and a small quantity of ethanol, if necessary.
- Do not aim the lens at the sun or any other bright light.
- When any laser equipment is in use, make sure that the device lens is not exposed to the laser beam, or it may burn out.
- Do not expose the device to high electromagnetic radiation or extremely hot, cold, dusty, or damp environments.
- Place the device in a dry and well-ventilated environment.
- Keep non-waterproof devices away from liquids.
- Keep the device in original or similar packaging while transporting it.
- A few device components (e.g., electrolytic capacitor) require regular replacement. The average lifespan varies, so periodic checking is recommended. Contact your dealer for details.
- Never attempt to disassemble the device.
- Improper use or replacement of the battery may result in explosion hazard. Replace with the same or equivalent type only. Dispose of used batteries in conformance with the instructions provided by the battery manufacturer.
- The built-in battery cannot be dismantled. Please contact manufacture for repair if necessary. The battery type is E097-27-1P1S18650, and the rated voltage and capacity is 3.6 VDC/3.35 Ah (12.06 Wh). The battery may explode if it is replaced by an incorrect type. Dispose of used batteries according to the instructions.
- For long-term storage of the battery, make sure you fully charge it every half year, to ensure the battery quality. Otherwise, you may damage the battery.

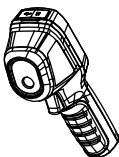
If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

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REFERENCE

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1 Introduction

1.1 Box Content



Thermographic Handheld Camera (×1)



Power Adapter (×1)



USB Cable (×1)



Wrist Strap (x1)



Manual (x1)

Note: The Handheld Thermography Camera includes one battery and one micro SD card.

1.2 Product Introduction

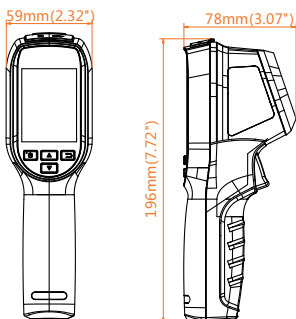
The handheld Thermography camera is a camera with thermal images. It can do thermometry, and snapshot capturing. The built-in high-sensitivity IR detector and high-performance sensor detects the temperature change and measure the real-time temperature. The temperature measurement range is -20°C to 550°C (-4°F to 1022°F) with thermometry accuracy $\pm 2^{\circ}\text{C}$.

It helps the users to find the risky part and lower their property loss. The device supports live viewing, and capturing, etc.

The handheld Thermography camera, adopting ergonomic design, is easy to use.

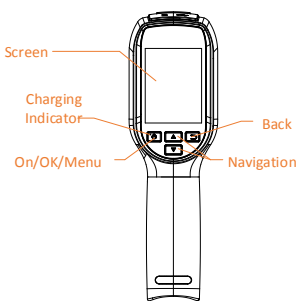
2 Appearance

2.1 Dimensions



The dimension may vary according to different camera model.

2.2 Interfaces



Hold: Power On/Off
Press: Display menu or confirm operation



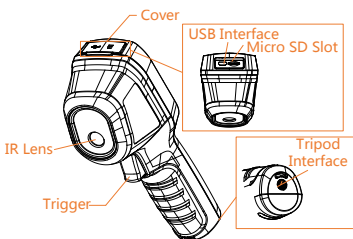
Exit the menu or return to previous menu.



Navigation Button
Press the ∇ , Δ button to select parameters.



Press the  button to confirm.



Charging Indicator

When the device is charging, the LED indicator is red. When the device is fully charged, the LED indicator is green.

USB Interface

Charge the battery and export snapshots with the USB cable.

Trigger

Pull the trigger to capture snapshots.

2.3 Install Memory Card

Insert memory card to record videos, capture snapshots, and mark and save important data.

Steps:

1. Open the top cover of the device.
2. Insert memory card slowly into the micro SD slot. When you hear the click sound, the memory card is installed.
3. Close the cover after installation.

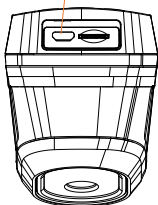
3 Basic Operations

3.1 Charging the Device

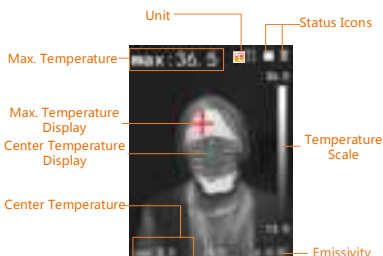
Steps:

1. Open the top cover of the device.
2. Connect the USB interface and the power adaptor with USB cable.

USB interface



3.2 Interface Description



3.3 Format Micro SD Card

Before you start:

Confirm the Micro SD card is properly installed before use.

Steps:

4. In the live view interface, press  button to show the menu bar.
5. Press  /  button to select **Format Micro SD**.
6. Press  button and select **OK** to start format Micro SD Card.

Note:

Format Micro SD Card before first use of it.

3.4 Capture Snapshots

Steps:

1. In the live view interface, pull the trigger to capture snapshot. The live view freezes and device displays the snapshot with temperature information.
2. Press  button to save the picture, press  button to cancel it.

Note:

You cannot capture when the device is connected with PC.

3.5 View Snapshots

Steps:

1. Go to **Menu > Picture** to view the capture snapshots.
2. Press  button to view the selected picture, press  /  button to switch pictures.
3. (Optional) Press  button to delete picture in picture view interface.

3.6 Export File

Purpose:

Connect the handheld Thermography camera to your PC with USB cable, you can export the captured snapshots.

Steps:

1. Open the USB cover.
2. Connect the camera to your PC with USB cable and open the detected disk.
3. Select and copy the snapshots to PC and view the files.
4. Disconnect the device from your PC.

Note:

For the first time connection, the driver will be installed automatically.

Do not disconnect the USB connection from PC or pull out the Micro SD card during drive installation or it may cause the device damage.

3.7 Upgrade

Steps:

1. Connect the thermography camera to your PC with USB cable and open the detected disk.
2. Copy the upgrade file and replace it to the root directory of the device.
3. Disconnect the device from your PC.
4. Reboot the device and then it will upgrade automatically. The upgrading process will be displayed in the main interface.

Note: After the upgrading, the device automatically reboots. You can view the current version in **Menu > About**.

4 Main Configurations

4.1 Temperature Measurement

Purpose:

The thermometry (temperature measurement) function provides the real-time temperature of the scene and display it on the left of your screen. The thermometry function is turned on by default.

The thermometry parameters affect the accuracy of temperature measurement.

Steps:

1. In the live view interface, press  button show the menu bar.
2. Press  /  button to select desired setting bar.
3. Press  button to go to the setting interface.

- **Emissivity:** Set the emissivity of your target as the effectiveness in emitting energy as thermal radiation.

Note: Refer to the 6.1 Common Material Emissivity Reference for emissivity values.

- **Distance (m/feet):** Set the straight-line distance between the target and the device.

Note: The recommended thermometry distance is 0.2 m to 2 m with target size 80 × 80 mm.

- **Rule:** Select **Hot Spot**, **Cold Spot** to show the center temperature, min. temperature in the live view interface.

- 4 Press  /  button to select desired parameter, and press  button to enable it.
- 5 If necessary, press  /  button to increases / decrease the setting values. Hold  /  button to change the value quickly.
- 6 Press  button to save and exit.

4.2 Set Palette

Different palette modes display different temperature colors. You can analyze image by different palette colors.

Steps:

- 1 In the live view interface, press  button show the menu bar.
- 2 Press  /  button to select **Palette**.
- 3 Press  button to select palette mode and the live view interface displays the according palette color.
- 4 Press  button to save and exit.

4.3 Set Temperature Alarm

After enabling this function, when the device detects temperature that is higher than the set alarm threshold, **Max. Temperature** on the live view interface will flash.

Steps:

- 1 In the live view interface, press  button show the menu bar.
- 2 Press  /  button to select **Temperature Alarm**.
- 3 Press , and press  /  button to increase or decrease alarm temperature threshold.
- 4 Press  button to exit.

Note: If the palette is set as **Above Alarm**, when the detected temperature is higher than the set alarm temperature, the target is colored in the live view interface.

Note: Other parameters, such as temperature measurement range, unit, palettes and so on, can be configured as steps above.

5 System Information

Go to **Menu > About** to view the device information: Model, Version No., FPGA Version No., Serial No., Capacity and so on. You can also set the auto power-off duration, date and time in **Menu**.

6 Appendix

6.1 Common Material Emissivity Reference

Material	Emissivity
Human Skin	0.98
PCB	0.91
Cement Concrete	0.95
Ceramics	0.92
Rubber	0.95
Paint	0.93
Wood	0.85
Asphalt	0.96
Brick	0.95
Sand	0.90
Soil	0.92
Cotton	0.98
Cardboard	0.90
White Paper	0.90
Water	0.96

6.2 Frequently Asked Questions (FAQ)

Q: The charge indicator flashes red.
A: Examine the items below.

1. Examine whether the device is charged with the standard power adapter.
2. Plug and unplug the battery once.
3. Make sure the environment temperature is above 0°C (32°F).

Q: Capturing or recording fails.

A: Examine the items below:

1. Whether the device is connected to your PC and the capture function is unavailable.
2. Whether the storage space is full.
3. Whether the device is low-battery.

Q: The PC cannot identify the camera.

A: Examine whether the device is connected to your PC with standard USB cable.

Q: The camera cannot be operated or no responding.

A: Hold  button to reboot the camera.

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