# Handheld Thermal Camera

# HIKMICRO E Series

## User Manual

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# Regulatory Compliance and Safety Information

Read all information and instructions in this document carefully before using the device and keep it for further reference.

For more device information and instructions, please visit our website at www.hikmicrotech.com. You can also refer to other documents (if any) accompanying the device or scan the QR code (if any) on the packaging to get more information.

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**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 HIKMICRO website (www.hikmicrotech.com).

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

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Note: The products with the input voltage of within 50 to 1000 VAC or 75 to 1500 VDC comply with Directive 2014/35/EU (LVD), and the rest products comply with Directive 2001/95/EC (GPSD). Please check the specific power supply information for reference.

UK CA This product and - if applicable - the supplied accessories too are marked with "UKCA" and comply therefore with the following directives: Electromagnetic Compatibility Regulations 2016, Electrical Equipment (Safety) Regulations 2016, the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012.

For the device without a supplied battery, use the battery provided by a qualified manufacturer. Refer to the product specification for detailed battery requirements

For the device without a supplied power adapter, use the power adapter provided by a qualified manufacturer. Refer to the product specification for detailed power requirements.

Directive 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.

According to the Waste Electrical and Electronic Equipment Regulations 2013: Products marked with this symbol cannot be disposed of as unsorted municipal waste in the United Kingdom. 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.

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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.

According to the Batteries and Accumulators (Placing on the Market) Regulations 2008 and the Waste Batteries and Accumulators Regulations 2009: This product contains a battery that cannot be disposed of as unsorted municipal waste in the United Kingdom. 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.

**Industry Canada ICES-003 Compliance**

This device meets the CAN ICES-003 (B)/NMB-003 (B) standards requirements.

Cet appareil répond aux exigences des normes CAN ICES-003 (B)/NMB-003 (B).

**KC**

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## Safety Instruction

The symbols that may be found in this document are defined as follows.

| Symbol | Description |
|---|---|
| ⚠ **Danger** | Indicates a hazardous situation which, if not avoided, will or could result in death or serious injury. |
| ⚠ **Caution** | Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results. |
| **Note** | Provides additional information to emphasize or supplement important points of the main text. |

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

**Laws and Regulations**

- Use of the product must be in strict compliance with the local electrical safety regulations.

**Transportation**

- Keep the device in original or similar packaging while transporting it.
- Keep all wrappers after unpacking them for future use. In case of any failure occurred, you need to return the device to the factory with the original wrapper. Transportation without the original wrapper may result in damage on the device and the company shall not take any responsibilities.
- Do not drop the product or subject it to physical shock. Keep the device away from magnetic interference.

**Power Supply**

- The input voltage should meet the Limited Power Source (5 VDC, 2 A) according to the IEC61010-1 standard. Please refer to technical specifications for detailed information.
- Make sure the plug is properly connected to the power socket.
- DO NOT connect multiple devices to one power adapter, to avoid over-heating or fire hazards caused by overload.
- Use the power adapter provided by a qualified manufacturer. Refer to the product specification for detailed power requirements.

**Battery**

- The built-in battery cannot be dismantled. Please contact the manufacture for repair if necessary. The battery may explode if it is replaced by an incorrect type. Replace with the same or equivalent type only. Dispose of used batteries in conformance with the instructions provided by the battery manufacturer.
- For long-term storage of the battery, make sure it is fully charged every half year to ensure the battery quality. Otherwise, damage may occur.
- Make sure the plug is properly connected to the power socket.
- When the device is powered off and the battery is full, the time settings can be kept for 60 days.
- The standard adapter power supply is 5 V.
- The battery is certified by UL2054.

**Maintenance**

- If the product does not work properly, please contact your dealer or the nearest service center. We shall not assume any responsibility for problems caused by unauthorized repair or maintenance.
- Wipe the device gently with a clean cloth and a small quantity of ethanol, if necessary.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the device may be impaired.
- Your camera will periodically perform a self-calibration to optimize image quality and measurement accuracy. In this process the image will pause briefly and you will hear a “click” as a shutter moves in front of the detector. The self-calibration will be more frequent during the startup or in very cold or hot environments. This is a normal part of operation to ensure optimum performance for your camera.

**Calibration Service**

We recommend you send the device back for calibration once a year, and please contact the local dealer for the information on maintenance points. For more detailed calibration services, please visit https://www.hikmicrotech.com/en/support/calibration-service.html.

**Technical support**

https://www.hikmicrotech.com/en/contact-us.html portal will help you as a HIKMICRO customer to get the most out of your HIKMICRO products. The portal gives you access to our support team, software and documentation, service contacts, etc.

**Using Environment**

- Make sure the running environment meets the requirement of the device. The operating temperature shall be -10 °C to 50 °C (14 °F to 122 °F), and humidity shall be 95% or less.
- Place the device in a dry and well-ventilated environment.
- DO NOT expose the device to high electromagnetic

radiation or dusty environments.

- 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.
- The device is suitable for indoor and outdoor uses, but do not expose it in wet conditions.
- The level of protection is IP 54.
- The pollution degree is 2.

**Emergency**

If smoke, odor, or noise arises from the device, immediately turn off the power, unplug the power cable, and contact the service center.

**Laser Light Supplement Warning**

Warning: The laser radiation emitted from the device can cause eye injuries, burning of skin or inflammable substances. Prevent eyes from direct laser. Before enabling the Light Supplement function, make sure no human or inflammable substances are in front of the laser lens. The wave length is 650 nm, and the power is less than 1 mW. The laser meets the IEC60825-1:2014 standard.

Laser maintenance: It is not necessary to maintain the laser regularly. If the laser does not work, the laser assembly needs to be replaced in the factory under warranty. Keep the device power off when replacing laser assembly. Caution-Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

**Manufacture Address:**

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Hangzhou Microimage Software Co., Ltd.

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# 1 Introduction

## 1.1 Packing List

Handheld Thermal Camera (× 1)

USB Cable (× 1)

Wrist Strap (× 1)

QSG (× 1)

Calibration Certificate (× 1)

## 1.2 Product Introduction

The handheld thermal camera is a camera with thermal and optical images. The built-in high-sensitivity IR detector and high-performance sensor detects the temperature change and measures the real-time temperature.
The handheld thermal camera is based on the thermal technology, specially designed for the needs of temperature measuring applications. People can quickly troubleshoot faults on-site.

## 1.3 Main Function

**Temperature measurement**
Device detects the real-time temperature, and display it on the screen.
**Alarm**
Device outputs audible and visual alarm when the target's temperature is higher than the threshold value.
**SuperIR**

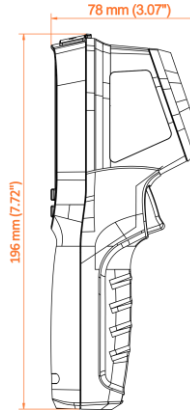
Device supports superior to increase the image quality.

**Client Software Connection**

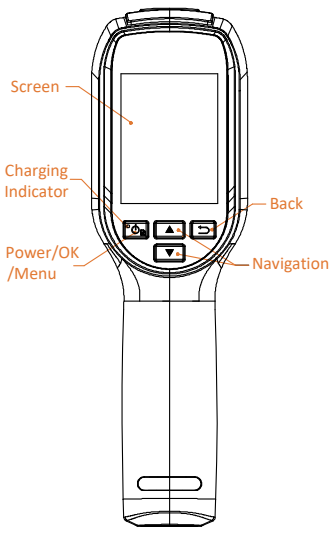
PC: You can download HIKMICRO Analyzer (https://www.hikmicrotech.com/en/industrial-products/hikmicro-analyzer-software.html) to analyze pictures offline professionally, and generate a custom format report on your PC. You can cast the real-time live view of the device to your PC through the UVC alarm client.

# 2 Appearance

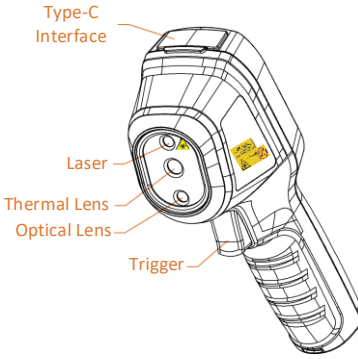
## 2.1 Dimensions

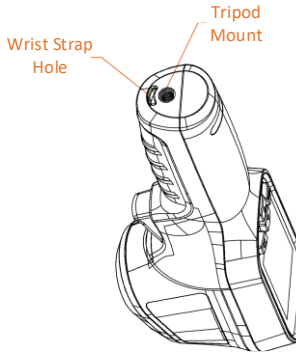


## 2.2 Components




| Button | Function |
|---|---|
| | Hold: Power On/Off<br>Press: Display menu or confirm operation |
| | Exit the menu or return to previous menu. |
| | In menu mode: Press and to select parameters.<br>In live view mode: Press to switch image modes (only supported by certain models).<br>Press to switch palettes. |






| Component | Function |
|---|---|
| Charging Indicator | Solid Red: Charging.<br>Solid Green: Fully charged. |
| Type-C Interface | Charge the battery or export snapshots. |
| Trigger | In live view:<br>● Press: Capture snapshots.<br>● Hold: Locate the target with laser light, and release to capture snapshots.<br>In menu mode, press the trigger to go back to live view. |
| Tripod Mount | Connect to UNC 1/4”-20 tripod. |

**Note**

- The appearance and button functions vary according to different models.
- The optical lens is only supported by certain models. Please refer to the actual device or datasheet.
- The warning sign is beside the laser and on the left side of the device.

**Warning:**

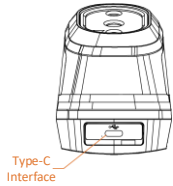
The laser radiation emitted from the device can cause eye injuries, burning of skin or inflammable substances. Prevent eyes from direct laser. Before enabling the Light Supplement function, make sure no human or inflammable substances are in front of the laser lens. The wave length is 650 nm, and the power is less than 1 mW. The laser meets the IEC60825-1:2014 standard.

# 3 Preparation

## 3.1 Charge Device

***Steps:***

1 Lift the type-C interface cover.
2 Connect the device to power supply using the type-C cable to charge the device.




**Note**
The device is equipped with the built-in battery. For the first charge, charge the device for more than 3 hours when the device is turned on.

## 3.2 Power On/Off

**Power On**

Remove the lens cover, and hold for over six seconds to turn on the device. You can observe the target when the interface of the device is stable.

**Power Off**

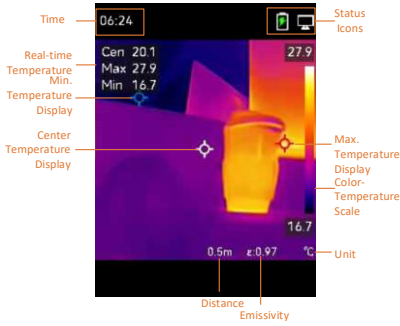
When the device is on, hold for six seconds to power off the device.

**Set Auto Power-off Duration**

In the live view interface, press and go to **More Settings → Auto Power-off** to set the automatic shutdown time for device as required.

## 3.3 Live View

The live view interface of different models may vary. Take the actual product for reference.



# 4 Display Settings

## 4.1 Set Image Mode

You can set image modes of the device. **Image Mode** is only supported by certain models. Please refer to the actual device or the datasheet.

***Steps:***

1 Select an image mode by the following ways:

- Go to **Settings → Image Settings → Image Mode**, and select a preferred image mode.
- Press in live view to switch image modes.

  - Thermal: Display the thermal image only.
  - Fusion: Fuse the optical image with the thermal image. The fused image with clear edge is displayed in this mode.
  - Visual: Display the visual image only.

2 **Optional**: When selecting the fusion mode, you need to select the distance in **Image Settings → Parallax Correction** according to the distance to the target, so as to better overlap the thermal and optical images.

3 Press to save and exit.

**Note**

Your camera will periodically perform a self-calibration to optimize image quality and measurement accuracy. In this process the image will pause briefly and you will hear a “click” as a shutter moves in front of the detector. The self-calibration will be more frequent during the startup or in very cold or hot environments. This is a normal part of operation to ensure optimum performance for your camera.

## 4.2 Set Palettes

The palettes allow you to select the desired colors. You can switch palettes by the following ways:

- Go to **Settings → Palettes** to select a preferred palette, and press ⮌ to save and exit.
- Press ▼ in live view to switch palettes.

### 4.3 Set Level & Span

Set a display temperature range and palette only works for targets within the temperature range. You can get better image contrast by adjusting the level & span parameters.

***Steps:***

1 In the live view interface, press ⚙ to show the menu.

2 Press ▲/▼, and select **Level & Span**.

3 Select **Setting Mode**, and press ⚙ to switch auto and manual adjustment.
   - In **Auto** mode, the device adjusts display temperature range automatically.
   - In **Manual** mode, select **Parameters** to enter the setting interface. Press ⚙ to lock or unlock the max. temperature and min. temperature, and press ▲/▼ to adjust unlocked value. Or, unlock the max. temperature and min. temperature, and press ▲/▼ to increase or decrease the individual values while remaining the same temperature range.

4 Press ⮌ to save and exit.

### 4.4 Display OSD Info

Go to **Settings → Display Settings** to enable the information on-screen display**.**

**Parameters**

Temperature measurement parameters such as emissivity and distance.

**Brand Logo**

The brand logo is a manufacturer logo displayed on the lower left corner of the screen. You can turn it off if not needed.

## 5 Temperature Measurement

The temperature measurement function provides the real-time temperature of the scene. The temperature information is displayed on the left top of your screen. The function is enabled by default.

## 5.1 Set Measurement Parameters

You can set temperature measurement parameters to improve the accuracy of temperature measurement.

***Steps:***

1 In the live view interface, press to show the menu.

2 Press / to select desired parameters.

3 Press to go to the setting interface.

- **Emissivity**: Enable **Custom**, and select **Emissivity** to set the emissivity of the target as the effectiveness in emitting energy as thermal radiation by pressing /. Or you can select a preset emissivity.

- **Distance**: Set the distance between the target and the device.

- **Unit:** Go to **More Settings → Unit**, and press to set the temperature unit.

- **Temperature Range**: Select a temperature range or select **Auto Switch**. The device can detect the temperature and switch temperature range automatically in **Auto Switch** mode.

4 Press to save and exit.

## 5.2 Set Image Measurement

Device measures the temperature of the whole scene and can be managed to display the center, hot, and cold spot in the scene.

***Steps:***

1 In the live view interface, press to show the menu.

2 Press / to select **Display Settings**.

3 Select the desired sports to show their temperatures, and press to enable them.

- **Hot**: Display the hot spot in the scene and show the max. temperature.

- **Cold**: Display the cold spot in the scene and show the min. temperature.

- **Center**: Display the center spot in the scene and show the center temperature.

4 Press [↩] to save and exit.

***Result:***

The device shows the real-time temperature on the upper left side of live view interface.

### 5.3 Enhance High-Temperature Target

In target enhancement function, when the target's temperature is higher than the set value, the target will become red.

***Steps:***

1 You can enable target enhancement function by the following ways:
   - Go to **Settings → Palettes**, and select **Above Alarm**.
   - Press [▲] in live view to switch the palette to **Above Alarm**.
2 Go to **Settings → Palettes → Temperature,** and press [▲]/[▼] to configure the enhancement temperature threshold. When the temperature of target is higher than the set value, the target will be red in live view.
3 Press [↩] to save and exit.

### 5.4 Set Temperature Alarm

Set the alarm rules and the device will alarm when the temperature triggers the rule.

***Steps:***

1 In the live view interface, press [⚙] to show the menu.
2 Press [▲]/[▼], and select **Alarm**.
3 Press [⚙] to enable the function.
4 Select **Measurement** to set the alarm rule. Select **Alarm Threshold** to set the threshold temperature. When the target's temperature is higher or lower than the threshold value, the device will output alarm.
5 Press [↩] to save and exit.

## 6 Capture Snapshots

### 6.1 Capture One Image

You can capture snapshots in live view. The snapshot will be automatically saved in the albums.

***Steps:***

1 In the live view interface, you can capture snapshots by the following ways.
   - Press the trigger in live view to capture snapshots.
   - Hold the trigger in live view to locate the target with laser light, and release the trigger to capture snapshots.

**Note**

- Go to **More Settings → Laser** to turn on/off laser light.
- You cannot capture snapshots when the device is connected with PC.

2 **Optional**: If the thermal images are exported and viewed on a high resolution screen, enable **SuperIR** in the menu before capturing. Resolution of captured images with **SuperIR** is 4 times higher the original one.

3 **Optional:** If a visual image is needed to be saved separately, enable **Save Visual Image** (only supported by the models with optical lens).

**What to do next:**

You can view and manage the snapshots in the album, and export them to PC.

## 6.2 View Snapshots

***Steps:***

1 In the live view interface, press to show the menu.

2 Press / to select **Albums**, and press to enter the album.

3 Press / to select the picture, and press to view it.

4 **Optional**: Press to delete picture in picture view interface. Press / to switch the picture.

5 Press to exit.

## 6.3 Export Snapshots

***Purpose:***

Connect the device to your PC with Type-C cable, and then you can export the captured snapshots.

***Steps:***

1 Lift the type-C interface cover.

2 Connect the camera to your PC with Type-C cable and open the detected disk.

3 Copy and paste the snapshots to PC and view the files.
4 Disconnect the device from your PC.

**Note**

- For the first connection, the driver will be installed automatically.
- DO NOT disconnect the Type-C cable from PC during drive installation, or it may cause damage to the device.

# 7 Cast Screen

The device supports casting screen to PC by UVC protocol-based client software or player. You can connect the device to your PC via a type-C cable, and cast the real-time live view of the device to your PC through the UVC client software.

***Before You Start***

- Connect the device and PC with supplied Type-C cable.
- Download the UVC client software from and install the client on your PC. Refer to the user manual of the Client for detailed operation.

***Steps:***

1 In the live view interface, press and go to **More Settings → USB Cast Screen**.
2 Press to enable the function.
3 Open the Client on your PC, and you can view the live view and operation of the device.

# 8 Maintenance

## 8.1 View Device Information

In the live view interface, press and go to **More Settings → About** to view the device information.

## 8.2 Set Time and Date

In the live view interface, press and go to **More Settings → Time and Date** to set the information.

## 8.3 Format Storage

***Steps:***

1 In the live view interface, press and go to **More Settings → Format Storage**.
2 Press and select **OK** to start formatting storage.

**Note**

Format storage before first use.

## 8.4 Upgrade

***Before You Start:***

Download the upgrade file from the official website first.

***Steps:***

1. Connect the device to your PC with Type-C 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 reboot. You can view the current version in **More Settings → About**.

## 8.5 Restore Device

In the live view interface, press and go to **More Settings → Restore Device** to initialize the device and restore default settings.

# 9 Appendix

## 9.1 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 |

## 9.2 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. Make sure the environment temperature is above 0°C (32°F).

Q: Capturing 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 Type-C cable.

Q: The camera cannot be operated or no responding.

A: Hold  to reboot the camera.

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