Handheld Thermography Camera

HIKMICRO B Series

User Manual

©2022 Hangzhou Microimage Software Co., Ltd. All rights reserved.

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.

Trademarks Acknowledgement

HIKMICRO and other HIKMICRO's trademarks and logos are the properties of HIKMICRO in various jurisdictions.

Other trademarks and logos mentioned are the properties of their respective owners.

LEGAL DISCLAIMER

TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, THIS MANUAL AND THE PRODUCT DESCRIBED, WITH ITS HARDWARE, SOFTWARE AND FIRMWARE, ARE PROVIDED "AS IS" AND "WITH ALL FAULTS AND ERRORS". HIKMICRO MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY, SATISFACTORY QUALITY, OR FITNESS FOR A PARTICULAR PURPOSE. THE USE OF THE PRODUCT BY YOU IS AT YOUR OWN RISK. IN NO EVENT WILL HIKMICRO BE LIABLE TO YOU FOR ANY SPECIAL, CONSEQUENTIAL, INCIDENTAL, OR INDIRECT DAMAGES, INCLUDING, AMONG OTHERS, DAMAGES FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, OR LOSS OF DATA, CORRUPTION OF SYSTEMS, OR LOSS OF DOCUMENTATION, WHETHER BASED ON BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE), PRODUCT LIABILITY, OR OTHERWISE, IN CONNECTION WITH THE USE OF THE PRODUCT, EVEN IF HIKMICRO HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES OR LOSS.

YOU ACKNOWLEDGE THAT THE NATURE OF THE INTERNET PROVIDES FOR INHERENT SECURITY RISKS, AND HIKMICRO SHALL NOT TAKE ANY RESPONSIBILITIES FOR ABNORMAL OPERATION, PRIVACY LEAKAGE OR OTHER DAMAGES RESULTING FROM CYBER-ATTACK, HACKER ATTACK, VIRUS INFECTION, OR OTHER INTERNET SECURITY RISKS; HOWEVER, HIKMICRO WILL PROVIDE TIMELY TECHNICAL SUPPORT IF REQUIRED.

YOU AGREE TO USE THIS PRODUCT IN COMPLIANCE WITH ALL APPLICABLE LAWS, AND YOU ARE SOLELY RESPONSIBLE FOR ENSURING THAT YOUR USE CONFORMS TO THE APPLICABLE LAW. ESPECIALLY, YOU ARE RESPONSIBLE, FOR USING THIS PRODUCT IN A MANNER THAT DOES NOT INFRINGE ON THE RIGHTS OF THIRD PARTIES, INCLUDING WITHOUT LIMITATION, RIGHTS OF PUBLICITY, INTELLECTUAL PROPERTY RIGHTS, OR DATA PROTECTION AND OTHER PRIVACY RIGHTS. YOU SHALL NOT USE THIS PRODUCT FOR ANY PROHIBITED END-USES, INCLUDING THE DEVELOPMENT OR PRODUCTION OF WEAPONS OF MASS DESTRUCTION, THE DEVELOPMENT OR PRODUCTION OF CHEMICAL OR BIOLOGICAL WEAPONS, ANY ACTIVITIES IN THE CONTEXT RELATED TO ANY NUCLEAR EXPLOSIVE OR UNSAFE NUCLEAR FUEL-CYCLE, OR IN SUPPORT OF HUMAN RIGHTS ABUSES.

IN THE EVENT OF ANY CONFLICTS BETWEEN THIS MANUAL AND THE APPLICABLE LAW, THE LATTER PREVAILS.

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.

Note: This product has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This product generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this product does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.

—Increase the separation between the equipment and receiver.

—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

—Consult the dealer or an experienced radio/TV technician for help.

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, and

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

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

EU Conformity Statement

CE This product and - if applicable - the supplied accessories too are marked with "CE" and comply therefore with the applicable harmonized European standards listed under the Directive 2014/53/EU(RED),Directive 2014/30/EU(EMCD), Directive2014/35/EU(LVD), Directive 2011/65/EU (RoHS).

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

Directive 2006/66/EC and its amendment 2013/56/EU (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.

Industry Canada ICES-003 Compliance

This device meets the CAN ICES-3 (B)/NMB-3(B) standards requirements.

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

(1) this device may not cause interference, and

(2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radioexempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

(1) l'appareil ne doit pas produire de brouillage, et

(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment.

ce matériel est conforme aux limites de dose d'exposition aux rayonnements, CNR-102 énoncée dans un autre environnement.

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 (3.7 VDC, 0.5 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.
- Use the battery provided by a qualified manufacturer. Refer to the product specification for detailed battery requirements.
- 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.
- When the device is powered off and the RTC battery is full, the time settings can be kept for 4 months.
- Before the first use, charge the lithium battery for more than 8 hours.

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 HIKMICRO official website.

Technical support

The https://www.hikmicrotech.com 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 the operating humidity shall be 95% or less.
- 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.

Emergency

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

Manufacture Address:

Room 313, Unit B, Building 2, 399 Danfeng Road, Xixing Subdistrict, Binjiang District, Hangzhou, Zhejiang 310052, China

Hangzhou Microimage Software Co., Ltd.

COMPLIANCE NOTICE: The thermal series products might be subject to export controls in various countries or regions, including without limitation, the United States, European Union, United Kingdom and/or other member countries of the Wassenaar Arrangement. Please consult your professional legal or compliance expert or local government authorities for any necessary export license requirements if you intend to transfer, export, re-export the thermal series products between different countries.

CONTENTS

1 Introduction 1

1.1 Product Introduction 1

1.2 Main Function 1

2 Appearance 2

3 Preparation 3

3.1 Charge Device 3

3.2 Power On/Off 3

3.3 Interface Description 4

4 Temperature Measurement 4

4.1 Set Thermography Parameters 4

4.2 Set Level & Span 5

4.3 Set Thermography Rule 5

4.4 Enhance High-Temperature Target 6

4.5 Set Temperature Alarm 6

5 Capture Snapshots 6

5.1 View Snapshots 7

5.2 Export Snapshots 7

6 HIKMICRO Viewer Connection 7

6.1 Connect via Wi-Fi 7

6.2 Connect via Hotspot 8

7 Image Settings 8

8 Set Macro Mode (Optional) 9

9 Cast Screen 10

10 Set Brand Logo 10

11 Set LED Light 10

12 Maintenance 11

12.1 View Device Information 11

12.2 Set Date and Time 11

12.3 Format Memory Card 11

12.4 Upgrade 11

12.5 Restore Device 11

13 Appendix 12

13.1 Common Material Emissivity Reference 12

13.2 Frequently Asked Questions (FAQ) 12

1 Introduction

1.1 Product Introduction

The handheld thermography 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 measure the real-time temperature. The accuracy of temperature measurement is ± 2 °C (3.6 °F) or ± 2% when the ambient temperature is from 15 °C to 35 °C (59 °F to 95 °F) and the object temperature is above 0 °C (32 °F).

It helps the users to find the risky part and lower their property loss. The device supports live viewing, and capturing, etc. It is mainly applied to various industries, such as building, HVAC, and auto industry, etc.

The frequency bands and modes and the nominal limits of transmitted power (radiated and/or conducted) applicable to this radio device are the following:

Wi-Fi 2.4 GHz (2.4 GHz to 2.4835 GHz)	12.32 dBm

1.2 Main Function

Thermography

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.

Client Software Connection

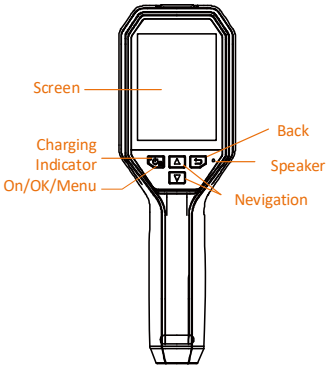
● Mobile Phone: You can view live view, capture snapshots, record videos via HIKMICRO Viewer App on your phone. You can also analyze radiometric images, generate and share a report via the App. Scan the QR codes to download the App.

HIKMICRO Viewer Android

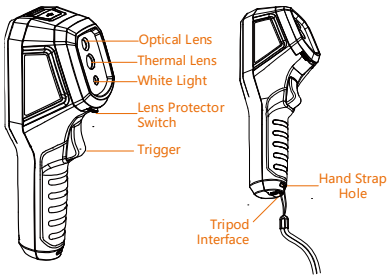
HIKMICRO Viewer iOS

● PC: You can download HIKMICRO Analyzer (https://www.hikmicrotech.com/en/product-c-detail/18) to analyze pictures offline professionally, and generate a custom format report on your PC.

2 Appearance



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



Component	Function
Charging Indicator	Solid Red: charging. Solid Green: fully charged.
Type-C Interface	Charge the battery or export snapshots.
Trigger	In live view interface, pull the trigger to capture snapshots. In menu mode, pull the trigger to switch to live view.

Note

- The appearance and button functions vary according to different models.
- The optical lens and white light are only supported by certain models. Please refer to the actual device or datasheet.

3 Preparation

3.1 Charge Device

Steps:

1. Open the top cover of the camera.
2. Connect the device interface and the power adapter with Type-C cable.

3.2 Power On/Off

Power On

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

Power Off

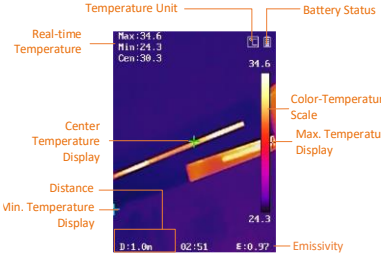
When the device is on, hold for three seconds to power off the device.

Set Auto Power-off Duration

In the live view interface, press and go to **Auto Off** to set the automatic shutdown time for device as required.

3.3 Interface Description

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



4 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.

4.1 Set Thermography Parameters

You can set thermography 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: Set the emissivity of the target as the effectiveness in emitting energy as thermal radiation.
- Distance: Set the distance between the target and the device.
- Unit: Set the temperature unit.
- Meas. Range: Select the temperature measurement range.

The device can detect the temperature and switch thermography range automatically in **Auto Switch** mode.

4 Press ⮌ to save and exit.

4.2 Set Level & Span

Set a 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 the setting mode.

- In Auto mode, the device adjusts temperature range parameters automatically.
- In Manual mode, select Parameter. Press ⏻ to select the max. temperature or min. temperature, and press ▲/▼ to adjust the value.

4 Press ⮌ to save and exit.

4.3 Set Thermography Rule

Steps:

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

2 Press ▲/▼, and select **Rule**.

3 Go to **Display Settings**, and select the hot spot, cold spot, center spot, or custom spot that you want to show on live view.

4 **Optional:** You can customize the custom spot if needed.

1) Go to **Custom Spot**. Select the custom spot as needed, and press ⏻.
2) Press ⏻ / ⮌ / ▲ / ▼ to adjust the position of the spot.
3) Press the trigger to finish setting.

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

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

2 Press ▲/▼, and select **Palettes**.

3 Switch the palette mode to **Above Alarm**.

4 Set the temperature. When the temperature of target is higher than the set value, the target will be red in live view.

5 Press ⮌ to save and exit.

4.5 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, and you can select flashing alarm or audible alarm as required.

Note

The white light will turn off automatically after enabling flashing alarm.

4 Select the alarm rule and set the alarm and pre-alarm 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.

5 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, and press ⮌ button to cancel it.

Note

You cannot capture when the device is connected with PC.

5.1 View Snapshots

Steps:

1. In the live view interface, press to show the menu.
2. Press ▲/▼, and select **Picture**.
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.

5.2 Export Snapshots

Purpose:

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

Steps:

1. Open the interface cover.
2. Connect the camera to your PC with Type-C 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 connection, the driver will be installed automatically.
- DO NOT disconnect the Type-C cable from PC or pull out the microSD card during drive installation, or it may cause damage to the device.

6 HIKMICRO Viewer Connection

The device supports both Wi-Fi connection and WLAN hotspot. Connect the device to HIKMICRO Viewer App, and you can control the device via mobile App.

6.1 Connect via Wi-Fi

Before You Start

Download and install HIKMICRO Viewer on your phone.

Steps:

1 In the live view interface, press to show the menu.
2 Press ▲/▼, and select **Wi-Fi**.
3 Press to enable the function.
4 Press ▲/▼ to select Wi-Fi, and enter the password.
5 Press ⮌ to save and exit.
6 Launch the App, and add the device to online devices.

Result

You can view the live view, capture snapshots, and record videos via the App.

Note

Wi-Fi function is only supported by certain models. Please refer to the actual device or datasheet.

6.2 Connect via Hotspot

Before You Start

Download and install HIKMICRO Viewer on your phone.

Steps:

1 In the live view interface, press to show the menu.
2 Press ▲/▼, and select **Hotspot**.
3 Press to enable the function.
4 Set the password.
5 Press ⮌ to save and exit.
6 Connect your phone to the hotspot of the device.
7 Launch the App, and add the device to online devices.

Result

You can view the live view, capture snapshots, and record videos via the App.

7 Image Settings

Steps:

1. In the live view interface, press to show the menu.
2. Press ▲/▼, and select **Image Settings**.
3. Press , go to **Image -> Image Mode**, and select the image mode as needed.

    - 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.

- PIP: Display a part of the thermal image on the optical image.
- Optical: Display the optical image only.

4. **Optional:** When selecting the fusion mode, you need to select the distance in **Image -> Parallax Correction** according to the distance to the target, so as to better overlap the thermal and optical images.
5. 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.
- Image Settings function is only supported by certain models. Please refer to the actual device or the datasheet.

8 Set Macro Mode (Optional)

The macro mode assists the handheld thermography camera to view very small objects. The camera can measure the temperature for the very small objects and locate the temperature exception points.

Before You Start

- Install the macro lens before using this function. Refer to the quick start guide of the macro lens for detailed operation.
- The macro lens is not included in the package. Please purchase it separately. The recommended model is HM-B201-MACRO.

Steps:

1 In the live view interface, press [⏻] to show the menu.
2 Press [▲]/[▼] to select **Macro Mode**.
3 Press [⏻] to enable the function.

Note

- After enabling the macro mode, only the emissivity can be modified. Parameters such as distance, image mode, parallax correction, and measurement range cannot be modified.
- After disabling this function, the parameters will be restored to the previous set values, and the meas. range will be set to auto switch.

9 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 alarm client.

Before You Start

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

Steps:

1 In the live view interface, press to show the menu.
2 Press ▲/▼ to select **Cast Screen**.
3 Press to enable the function.
4 Open the UVC Alarm Client on your PC, and you can view the live view and operation of the device.

10 Set Brand Logo

The brand logo is a manufacturer logo displayed on the upper left corner of the screen.

Steps:

1 In the live view interface, press to show the menu.
2 Press ▲/▼ to select **Brand Logo**.
3 Press to enable the function.
4 Press ⮌ to save and exit.

Result

The brand logo is added on the live view interface, captures, and videos.

11 Set LED Light

In the live view interface, press , and go to **Flashlight** to enable or disable the LED light.

Note

Flashlight function is only supported by certain models. Please refer to the actual device or datasheet.

12 Maintenance

12.1 View Device Information

In the live view interface, press and select **About** to view the device information.

12.2 Set Date and Time

In the live view interface, press and select **Time & Date** to set the information.

12.3 Format Memory Card

Steps:

1. In the live view interface, press to show the menu.
2. Press / button to select **Format Memory**.
3. Press and select **OK** to start formatting memory card.

Note

Format memory card before first use of it.

12.4 Upgrade

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 **Menu > About**.

12.5 Restore Device

In the live view interface, press and select **Restore** to initialize the device and restore default settings.

13 Appendix

13.1 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

13.2 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.

HIKMICRO

See the World in a New Way

Facebook: HIKMICRO Thermography LinkedIn: HIKMICRO
Instagram: hikmicro_thermography YouTube: HIKMICRO Thermography
E-mail: info@hikmicrotech.com
Website: https://www.hikmicrotech.com/

UD28793B