# HIKMICRO

# Thermal Image Scope

User Manual

# Legal Information

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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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.

FCC compliance: This equipment 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 equipment 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 equipment 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

This equipment should be installed and operated with a minimum distance 20cm between the radiator and your body.

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 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), Directive 2014/35/EU(LVD), Directive 2011/65/EU(RoHS).

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

## Industry Canada ICES-003 Compliance

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

1. This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:    this device may not cause interference, and

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

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

# Symbol Conventions

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. |

# Safety Instruction

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

● Please purchase the charger by yourself. Input voltage should meet the Limited Power Source (5 VDC, 2A) according to the IEC62368 standard. Please refer to technical specifications for detailed information.
● Use the power adapter provided by qualified manufacturer. Refer to the product specification for detailed power requirements.
● 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.

## Battery

● Improper use or replacement of the battery may result in explosion hazard. Replace with the same or equivalent type only.
● The device supports 3.0 V or 3.7 V rechargeable lithium battery or 3.0 V non-rechargeable dry battery.
● The battery size shall meet the requirements on CR17345 battery according to the IEC60086-2 standard.
● Batteries of improper size cannot be installed, and may cause abnormal shutdown.
● Confirm there is no flammable material within 2 m of the charger during charging.
● DO NOT place the battery near heating or fire source. Avoid direct sunlight.
● DO NOT place the battery in the reach of children.

## 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.
- It is recommended to reboot the device every 2 hours when using it to ensure the device performance.

## Using Environment

- Make sure the running environment meets the requirement of the device. The operating temperature shall be -20°C to 55°C (-4°F to 131°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.
- Place the device in a dry and well-ventilated environment.
- 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.

## 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.

# Table of Contents

# Chapter 1 Overview

## 1.1 Device Description

The thermal image scope is equipped with high-sensitivity IR detector, and adopts advanced thermal imaging technology, to get clear view in poor visibility or dark environment.
It helps to view the target and measure the distance. It can view the moving target and meet the outdoor condition. The device can be widely used for searching and rescuing, hunting, etc.

## 1.2 Main Function

● Distance Measurement: The device can detect the distance between the target and the device.
● Highest Temperature Tracking: The device can detect the highest temperature in the scene and mark the spot.
● Reticle Correction: The reticle helps you to aim at the target fast and accurately.
● Trajectory Correction: The cursor helps you to shot the target with high accuracy.
● Client Software Connection: The device can capture snapshots, record videos, and set parameters by HIKMICRO Sight App after being connected to your phone via hotspot.
● Image Correction: The device supports DPC (Defective Pixel Correction) and FFC (Flat Field Correction) which can optimize the image quality.

## 1.3 Appearance

There are two types of thermal image scopes. Please take the actual product for reference.

## 1.3.1 Button
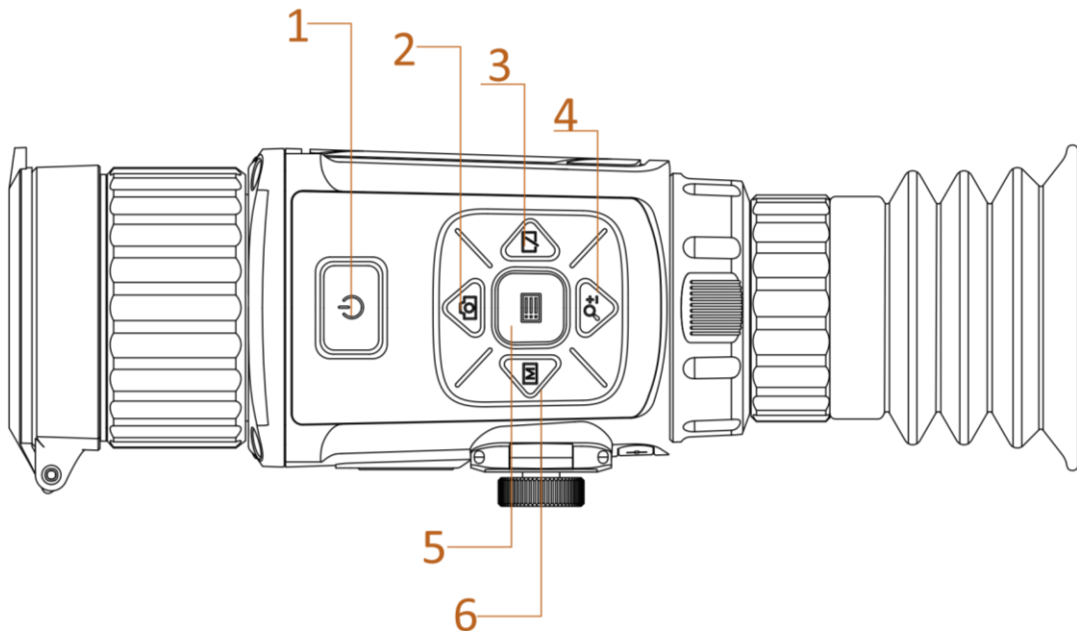


**Figure 1-1 Buttons on Device**

**Table 1-1 Function of Buttons**

| No. | Icon | Button | Description |
|-----|------|--------|-------------|
| 1 | ⏻ | Power | ● Press: Standby mode/wake up device<br>● Hold: Power on/off |
| 2 | 📷 | Capture | ● Press: Capture<br>● Hold: Start/stop record video |
| 3 | ▱ | Shutter | ● Press: Correct non-uniformity of display |
| 4 | 🔍+ | Zoom | ● Press: Switch digital zoom<br>● Hold: Enable/disable reticle |
| 5 | ☰ | Menu | ● Press: Enable/disable OSD<br>● Hold: Menu operation |
| 6 | M | Mode | ● Press: Switch palettes |

## 1.3.2 Interface
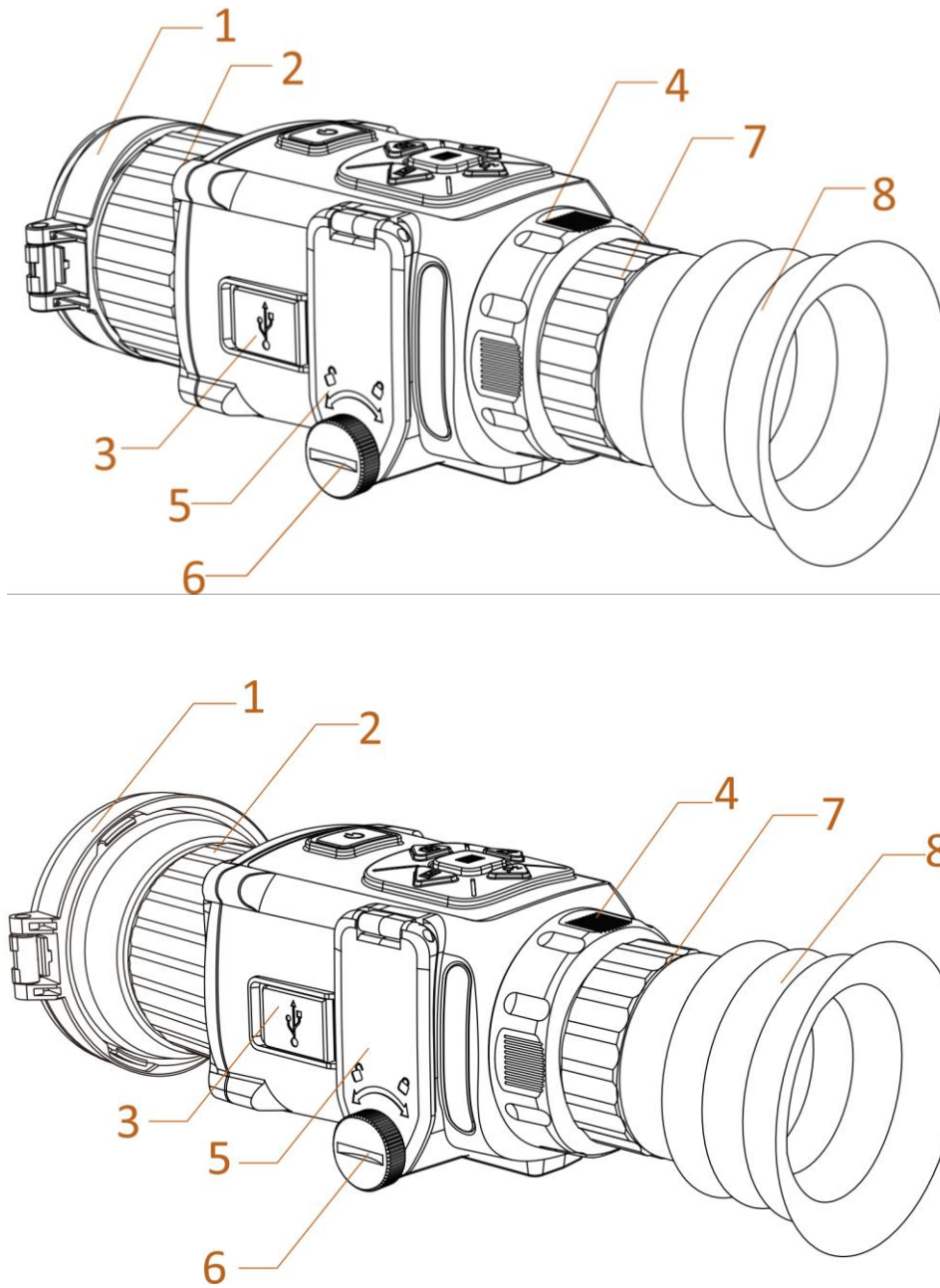


**Figure 1-2 Interfaces of Two Handheld Camera Types**

9
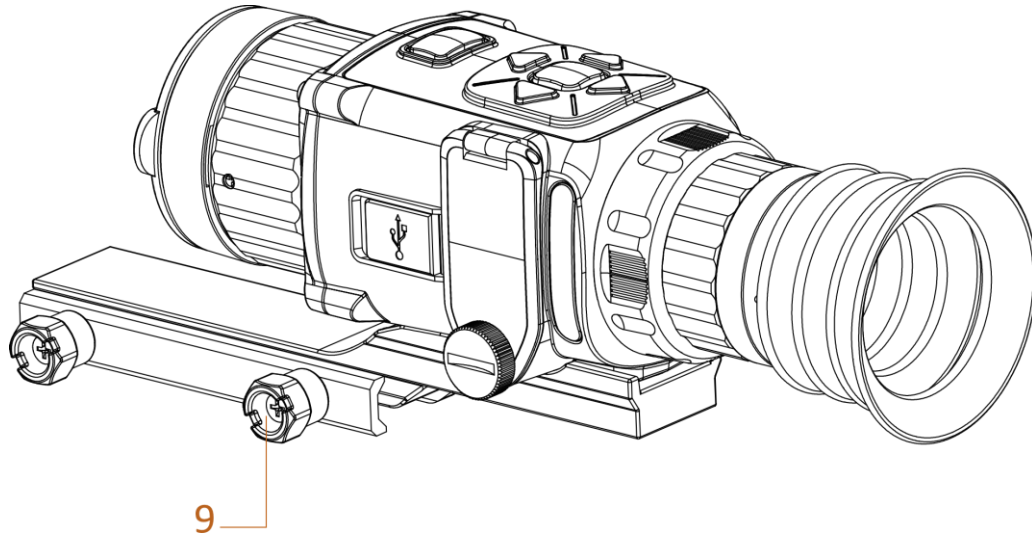
**Figure 1-3 Interfaces of Thermal Telescope**

**Table 1-2 Interface Description**

| No. | Component | Function |
|---|---|---|
| 1 | Lens Cover | Protect the lens. |
| 2 | Focus Ring | Adjust the focal length. |
| 3 | Data Exchange Interface | Connect with the output cable. |
| 4 | Fixing Ring | Fix the eyepiece. |
| 5 | Battery Compartment | Install the battery in it. |
| 6 | Bolt | Loosen the bolt to install the batteries. |
| 7 | Diopter Adjustment Ring | Adjust the dioptric correction. |
| 8 | Eyepiece | View the target. |
| 9 | Knob | Secure the device to the rail. |

# Chapter 2 Preparation

## 2.1 Cable Connection

Connect the device and power adaptor with a type-C cable to power on the device. Alternatively, connect the device and PC to export files.
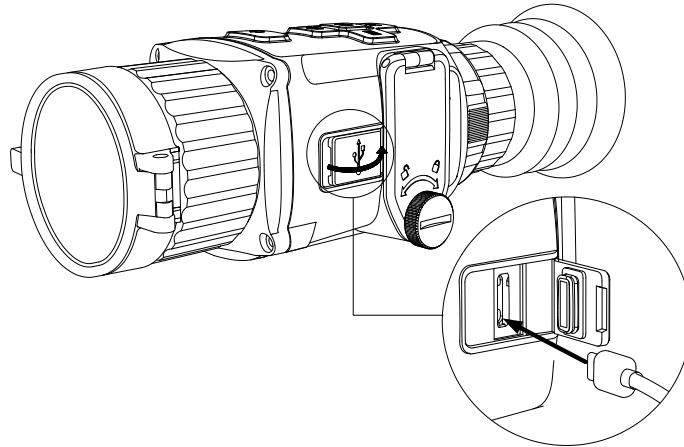
**Figure 2-1 Cable Interface**

## 2.2 Install Battery

Insert the batteries into the battery compartment.

**Before You Start**

- The device supports 3.0 V or 3.7 V rechargeable lithium battery or 3.0 V non-rechargeable dry battery.
- Select the correct battery voltage in the device menu after you install the battery, or it may cause abnormal shutdown.

**Steps**

1. Rotate the knob anticlockwise to loosen it.
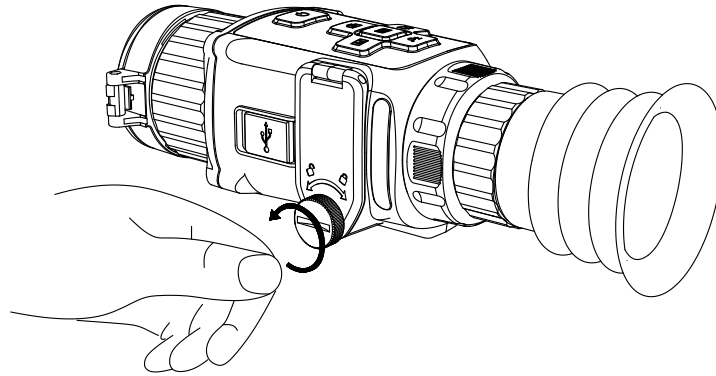
**Figure 2-2 Loosen Knob**

2. Make sure the battery's positive terminal and negative terminal are installed correctly.
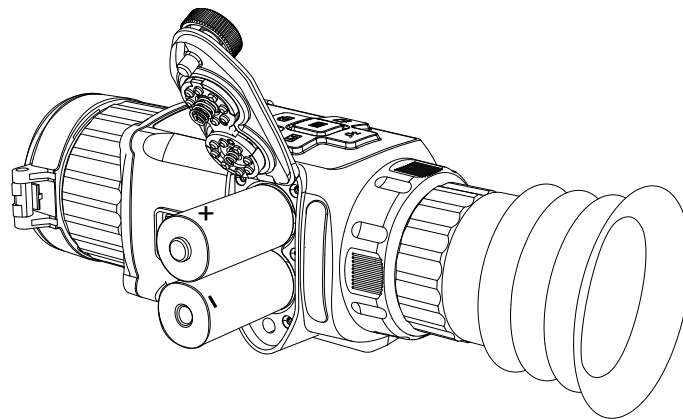


**Figure 2-3 Install Batteries**

3. Rotate the knob clockwise to tighten it.

Take the battery away if the device is not used for a long time.

## 2.2.1 Select Battery Type

You can change the battery type according to your need. Select the correct battery voltage in the device menu.

**Steps**

1. In the view mode, hold 🔲 to show the menu.
2. Select 🔲, and press 🔲 to switch the voltage.

## 2.3 Install Rail

**Before You Start**

● Turn off the device first.
● Use the Non-dust cloth to clean the device base and the rail.

**Steps**

1. Install the device to the rail as the arrow shows.
2. Insert the screws, and tighten them.
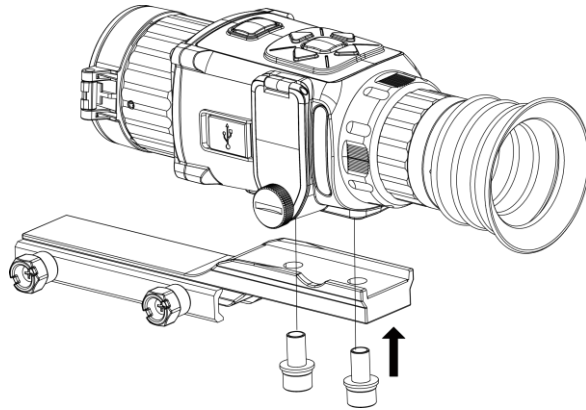
**Figure 2-4 Tighten Screws**

3. Tighten the knobs to secure the device.
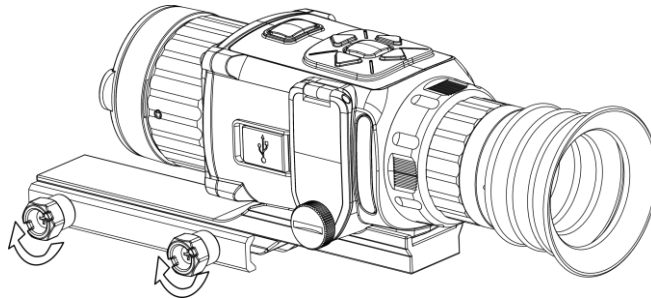
**Figure 2-5 Secure the Device**

# 2.4 Change Eyepiece

The device can be used as a handheld observational camera or a clip-on scope. You can change the eyepiece to realize different use of the device.

**Steps**

1. Rotate the fixing ring of eyepiece anticlockwise to remove it.
2. Align the eyepiece with the grooves of device, and rotate the eyepiece clockwise to tighten it.
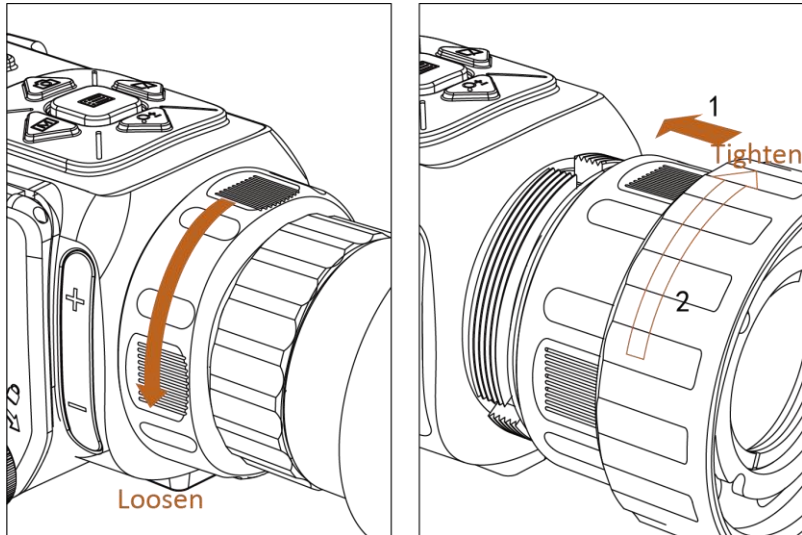
**Figure 2-6 Change Eyepiece**

# 2.5 Power On/Off

**Power On**

When the battery is sufficiently charged, hold ⏻ for about 2 seconds to power on the device.

**Power Off**

When the device is turned on, hold ⏻ for about 2 seconds to power off the device.

**Auto Power Off**

Set the auto power off time for your device, and then the device will automatically shut down as the set time.

**Steps**

1. Hold ▤ to go to the menu.
2. Rotate the wheel to select ⏻, and press ▤ to select the auto power off time as required.
3. Hold ▤ to save and exit.

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**ⓘNote**

- See the battery icon for the battery status. 🔳 means the battery is fully charged, and 🔳 means that the battery is low.
- When the low power note shows, charge the battery.
- The auto power off countdown will start again when the device exits standby mode, or the device is restarted.

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# 2.6 Menu Description

When the device is turned on, press ⊞ to display the OSD menu.
- Press 📷 to move the cursor up.
- Press 🔍± to move the cursor down.
- Press Ⓜ to move the cursor left.
- Press ◰ to move the cursor right.
- Press ⊞ to confirm.



**Figure 2-7 Menu Interface**

# Chapter 3 Image Settings

## 3.1 Adjust Diopter

**Steps**

1. Power on the device.
2. Hold the device and make sure the eyepiece covers your eye.
3. Adjust the diopter adjustment ring until the OSD text or image is clear.
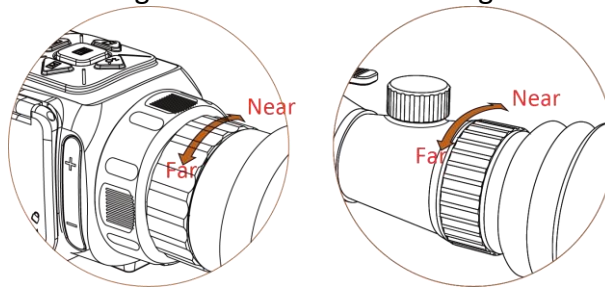


**Figure 3-1 Adjust Diopter**

ℹ️**Note**

When adjusting diopter, DO NOT touch the surface of lens to avoid smearing the lens.

## 3.2 Adjust Focus

**Steps**

1. Power on the device.
2. Open the lens cover.
3. Hold the device and make sure the eyepiece covers your eye.
4. Adjust the focus ring until the image is clear.

## 3.3 Adjust Brightness

In the menu mode, select 🔆 and press 📋 to adjust brightness. In white hot mode, the higher the value of brightness is, the brighter the image is. The image effect in white hot mode is showed as picture below and effect in black hot mode is opposite.

**Figure 3-2 Adjust Brightness in White Hot Mode**

# 3.4 Adjust Contrast

In the menu mode, select 🌓 and press ☰ to adjust image contrast.

# 3.5 Select Scene

You can select proper scene according to actual using scene to improve the display effect.

**Steps**

1. Hold ☰ to go to the menu.
2. Select 👁 and press ☰ to switch scene.
   – 👁 refers to recognition mode and is recommended in normal scene.
   – 🌲 refers to jungle mode and is recommended in hunting environment.
3. Hold ☰ to save settings and exit.

# 3.6 Set Palettes

You can select different palettes to display the same scene in different effects. Press Ⓜ to switch palettes.

**White Hot**

The hot part is light-colored in view. The higher the temperature is, the lighter the color is.
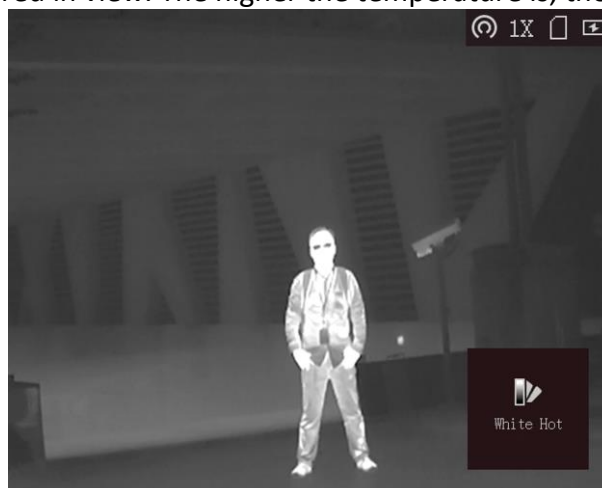


**Black Hot**

The hot part is black-colored in view. The higher the temperature is, the darker the color is.
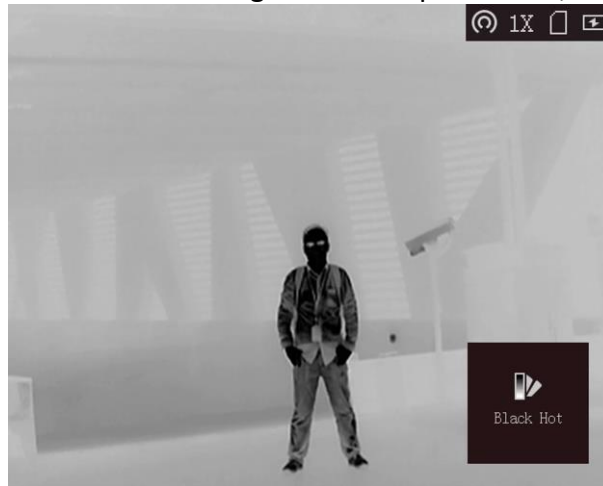


**Red Hot**

The hot part is red-colored in view. The higher the temperature is, the redder the color is.



**Fusion**

From high temperature to low temperature, the image is colored in from white, yellow, red, pink to purple.

## 3.7 Correct Defective Pixel

The device can correct the defective pixels on the screen which are not performed as expected.

**Steps**

1. Hold 📧 to show the menu.
2. Select 🔲.
3. Press 📷, 🔍±, Ⓜ, and 🔲 to move the cursor to the position of dead pixel.
4. Press 📧 to correct the dead pixel.

📖**Note**

The selected defective pixel can be magnified and displayed at the bottom right of the interface.



**Figure 3-3 Correct Defective Pixel**

# 3.8 Flat Field Correction

This function can correct non-uniformity of display.

**Steps**

1. Hold ▦ to go to the menu.
2. Select ⊕ and press ▦ to switch FFC mode.
   – Manual: Hold ▱ in live view to correct the non-uniformity of display.
   – Auto: The device performs FFC automatically according to the set schedule when switching on the camera.
   – External: Cover the lens cover, then hold ▱ in live view to correct the non-uniformity of display.
3. Hold ▦ to save the settings and exit.

# 3.9 Set Picture in Picture Mode

**Steps**

1. In the view mode, hold ▦ to show the menu.
2. Select ▣ and enter PIP mode. The details show in the upper left corner.
   ● When reticle is enabled, the PIP view is the detail of reticle.
   ● When reticle is not enabled, the PIP view is the detail of central part.
3. Press ▦ to switch the PIP type. **Up-Left**, **Center**, **Up-Right**, and **Close** are selectable.



**Figure 3-4 Set Picture in Picture Mode**

⌯**Note**

When you select **Up-Right** as PIP type, the OSD will be blocked.

4. Hold ▦ to exit.

If digital zoom is enabled, the PIP view also zooms. If the digital zoom ratio exceeds 4, the PIP

does not zoom.

# 3.10 Adjust Digital Zoom

You can zoom the image by using this function.
Press ⌕± in the view mode, the live view switches between 1 ×, 2 ×, 4 ×, and 8 ×.

**ⓘNote**

This function varies according to different camera models.

# 3.11 Set OSD

In the live view interface, press ▤ to display or hide the OSD information.

## 3.11.1 Synchronize Time

**Steps**

1. Hold ▤ to show the menu.
2. Select 🕐, and press ▤ to enter the time setting interface.
3. Press ▤ to switch the time system, and press 📷 and ⌕± to select the time and date to be synchronized.
4. Press ▤ to select the hour, minute, second, year, month, or day to be synchronized, and press 📷 and ⌕± again to change the number.
5. Hold Ⓜ to save settings and exit.

# 3.12 Set Brand Logo

You can add brand logo on the live view interface.

**Steps**

1. Hold ▤ to show the menu.
2. Rotate the wheel to select 👤.
3. Press ▤ to enable **Brand Logo**.
4. Hold ▤ to save the settings and exit.

**Result**

The brand logo is displayed at the bottom right of the image.
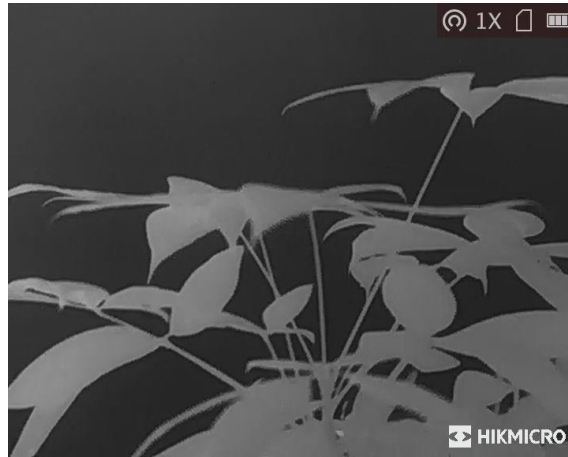
**Figure 3-2 Brand Logo Display**

**Note**

After enabling this function, the brand logo only displays on the live view interface, captures and videos.

# Chapter 4 Burning Prevention

This function can prevent the detector of the thermal channel from being burned. When you enable this function, the shield will close if the grey scale of the detector reaches a certain value.

**Steps**

1. Hold ▦ to show the menu.
2. Select 🔥 and press ▦ to enable or disable the burn-prevention function.
3. Hold ▦ to save settings and exit.

**ⓘNote**

When the burn-prevention function is disabled, the shield should be opened if it closes.

# Chapter 5 Hot Tracking

The device can detect the highest temperature spot in the scene and mark it on display.

**Steps**

1. Hold ▦ to show the menu.
2. Select ⊕ and press ▦ to mark the spot of highest temperature.
3. Hold ▦ to save settings and exit.

**Result**

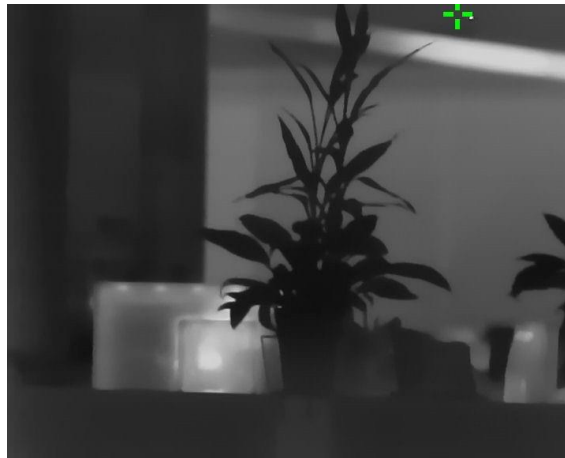When the function is enabled, ✛ displays in the spot of highest temperature. When the scene changes, the ✛ moves.



**Figure 5-1 Hot Tracking Effect**

# Chapter 6 Aiming Point Settings

## 6.1 Correct Reticle

Enable the reticle to view the position of the target. The functions such as freeze and zoom help to adjust the reticle more accurately.

**Steps**

1. In the view mode, hold ⊞ to show the menu.
2. Select ⊕. A reticle shows in the center of the view.
3. Press Ⓜ, or ▱ to select the reticle type. Then press ⊞ to confirm. 5 types of reticles can be selected.
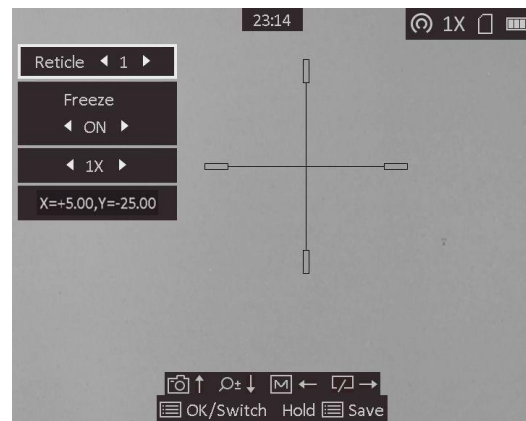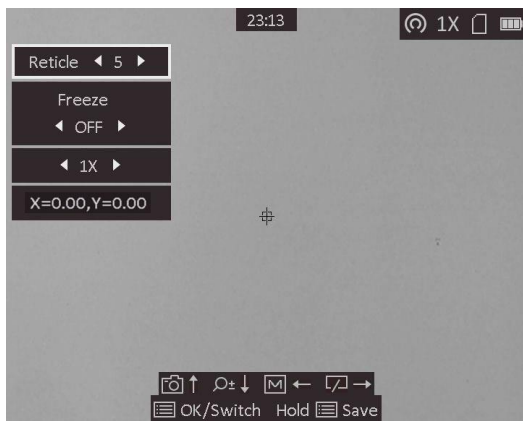


4. (Optional) Press ⊞ to select Freeze. Press Ⓜ or ▱ to switch the enable or disable the function.

**⃞ⁱNote**

When you switch the reticle No., a prompt will appear on the interface. Select **OK** to save the parameters for the current reticle.

5. (Optional) Press ⊞ to select Zoom. Press Ⓜ or ▱ to switch the zoom ratio.
6. Press Ⓜ, ▱, 📷, and 🔍± to move the reticle position. The coordinate shows the current position of the reticle.
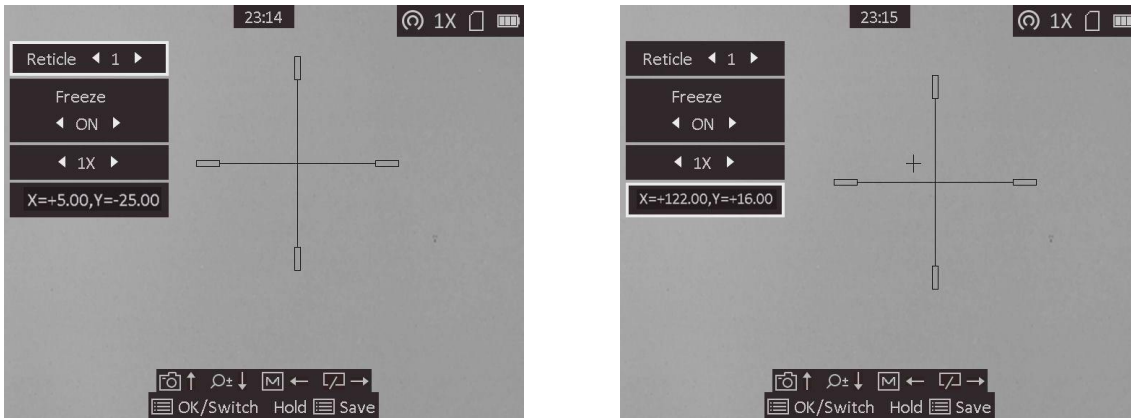
7. Hold the wheel to exit the interface according to the prompt.
   – **OK:** Save the parameter and exit.
   – **Cancel:** Exit but not save the parameters.

i **Note**

If the PIP function is enabled, the aimed target can be magnified on the interface.



**Figure 6-1 PIP Effect in Correcting Reticle**

# 6.2 Correct Trajectory

Enable the trajectory correction to shot the target with high accuracy by marking the offset between the big reticle and small reticle.

**Before You Start**

Select the desired reticle type.

**Steps**

1. In the view mode, hold ▦ to show the menu.
2. Select ◪. Two reticles show in the view. The big one is reticle correction reticle, and the small one is trajectory correction reticle.

3. Set the distance.
   1) Press ▤, and then press ⎙ or ⌕± to adjust the distance between the target and the device.
   2) Press ▤ to save the distance settings.
4. Set the reticle position of trajectory correction.
   1) Aim the big reticle at the target.
   2) Activate a recoil and mark the actual drop point of the bullet.
   3) Press ⎙, ⌕±, Ⓜ, or ▱ to move the small cursor to the position of the actual drop point. You can view the coordinate of the cursor in the view.
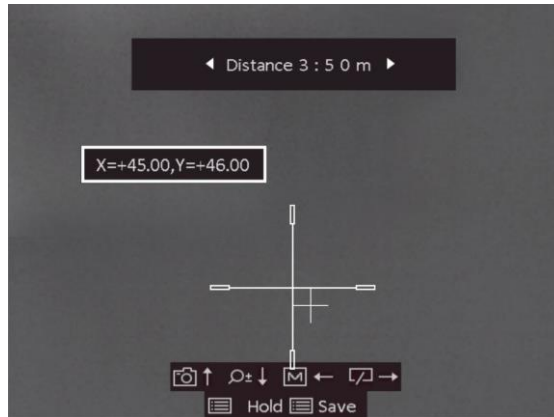


5. Press ▱ to switch to the next distance.
6. Repeat step 3 to 4 to set another trajectory correction position.
7. Hold ▤ to exit.
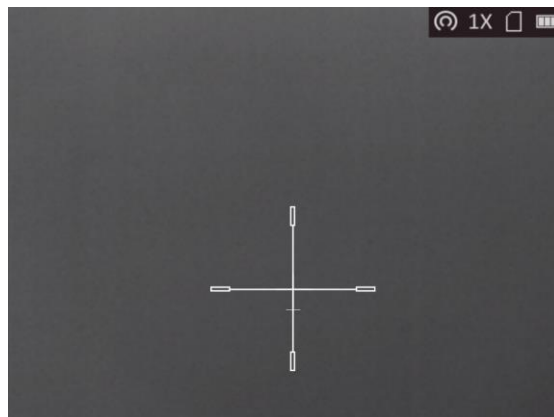


# 6.3 Set Reticle Color

The function can change the color of the reticle in reticle correction display, trajectory correction display, and distance measurement display.

**Before You Start**

Enable reticle correction first.

**Steps**

1. In the view mode, hold ⊞ to show the menu.
2. Select ⌖ and press ⊞ to switch the color of the reticle. **Black**, **White**, **Green**, and **Red** are selectable.
3. Hold ⊞ to save and exit.

ⓘ**Note**

In black hot mode, if you set the reticle color as white, the reticle will display black automatically.



**Figure 6-2 White Reticle in Black Hot Mode**

# Chapter 7 Measure Distance

The device can detect the distance between the target and the observation position.

**Before You Start**

When measuring the distance, keep the hand and the position steady. Otherwise, the accuracy may be affected.

**Steps**

1. Hold ▦ to show the menu.
2. Select ▯ and press ▦ to go to the setting interface.
   1) Press 📷 or 🔍± to select the target from **Deer**, **Grey Wolf**, **Brown Bear**, and **Custom**.
   2) Set the target height.

   ☐**Note**

   The available height ranges from 0.1 m to 9.9 m.
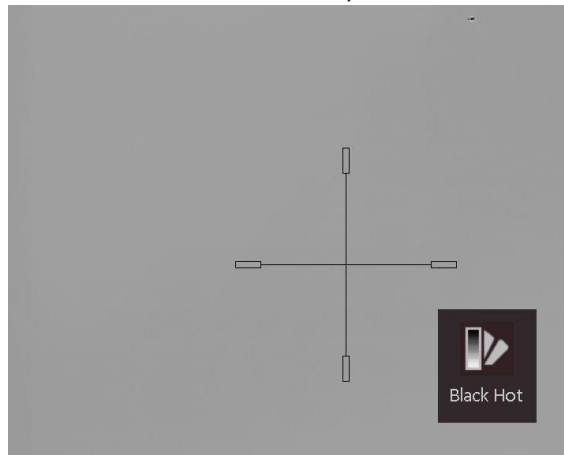
   3) Press ▦ to confirm.
3. Align the center of top mark with the edge of target top. Press ▦.
   The cursor blinks on the top edge of the target.
4. Align the center of bottom mark with the edge of target bottom. Press ▦.

**Result**

The left top of the image displays the distance measurement result and the height of the target.



**Figure 7-1 Measurement Result**

☐**Note**

Go to distance measurement interface, and press ▦ to view the result of the previous measuring target.

# Chapter 8 Picture and Video

You can manually record video or capture picture when displaying live view.

## 8.1 Capture Picture

On the main live view page, press ⬚ to capture picture.

⬚**Note**

When capturing succeeds, the image freezes for 1 second and a prompt shows on the display. For exporting captured pictures, refer to *Export Files*.

## 8.2 Record Video

**Steps**

1. In the main live view, hold ⬚ and start recording.



**Figure 8-1 Start Recording**

The left top of image displays the information of recording time.

2. Hold ⬚ again to stop recording.

**What to do next**

For exporting recording files, refer to *Export Files*.

# 8.3 Export Files

This function is used to export recorded videos and captured pictures.

**Before You Start**

● Turn off hotspot function.
● Turn on the device after connecting it to your PC, and keep the device on for 10 to 15 seconds before other operations.
● Remove batteries from the device before connecting to your PC, or it may cause device damage.

**Steps**

1. Connect the device and PC with cable.

---

Note

Make sure the device is turned on when connecting the cable.

---

2. Open computer disk and select the disk of device. Go to the **DCIM** folder and find the folder named after the capture year and month. For example, if you capture a picture or record a video on June 2021, go to **DCIM → 202106** to find the picture or video.
3. Select and copy the files to PC.
4. Disconnect the device from your PC.

---

Note

● The device displays images when you connect it to PC. But functions such as recording, capturing and hotspot are disabled.
● When you connect the device to PC for the first time, it installs the drive program automatically.

---

# Chapter 9 Client Software Connection

Connect the device to the HIKMICRO Sight App via hotspot, then you can capture picture, record video, or configure parameters on your phone.

**Steps**

1. Hold  ▤  to show the menu of device.
2. Press  ◉  to enable hotspot function.
3. Turn on the WLAN of your phone and connect to the hotspot.
   - Hotspot Name: HIK-IPTS Serial No.
   - Hotspot Password: the last 9 digits of serial No.
4. Search the HIKMICRO Sight App on App Store (iOS System) or Google Play™ (Android System) to download it, or scan the QR code to download and install the app.



| Android System | iOS System |

5. Open the App and connect your phone with the device. You can view the interface of device on your phone.

📖**Note**

- The device cannot connect to the app if entering wrong password several times. Refer to *Restore Device* to reset the device, and connect the app again.
- The device should be activated for the first use. The default password must be changed after the activation.

# Chapter 10 CVBS Output

The CVBS output is used to debug the device. You can also view the device image on the display unit for details.

**Before You Start**

Connect the device to the display unit via CVBS interface of the aviation plug.

**Steps**

1. Hold ▤ to show the menu.
2. Select ▦, and press ▤ to switch on CVBS.

---

**ⁱNote**

The CVBS cable is not included in the package, please purchase it by yourself.

---

# Chapter 11 Language Settings

You can select the device language in this function.

**Steps**

1. Hold ⊞ to show the menu.
2. Select ▣, and press ⊞ to enter the language configuration interface.
3. Press 📷 or 🔍± to select the language as required, and press ⊞ to confirm.

# Chapter 12 Maintenance

This part introduces the operation of checking device information, upgrading device, and restoring to defaults, etc.

## 12.1 View Device Information

**Steps**

1. Hold ▤ to show the menu of device.
2. Select ⓘ, and press ▤. You can view the device information such as version, and serial No.

## 12.2 Upgrade Device

**Before You Start**

● Please get the upgrade package (including Main Firmware and FPGA Firmware) first.
● Make sure the hotspot function is disabled.
● Remove batteries from the device before connecting to your PC.
● Turn on the device after connecting it to your PC, and keep the device on for 10 to 15 seconds before other operations.

**Steps**

1. Connect the device to your PC with cable, and then turn on the device.
2. Open the detected disk, copy the upgrade file and paste it to the root directory of the device.
3. Hold ⏻ to reboot the device, and the device upgrades automatically. The upgrading process will be displayed in the main interface.

> **Note**
>
> During the upgrade, make sure the device is connected to your PC. Otherwise, it may cause unnecessary upgrade failure, firmware damage, etc.

4. Repeat the above steps to upgrade all firmwares one by one.

## 12.3 Restore Device

**Steps**

1. Hold ▤ to show the menu of device.
2. Select ▣, and press ▤ to restore the device to defaults according to the prompt.

# Chapter 13 Frequently Asked Questions

## 13.1 Why is the monitor off?

Check whether the device is off-battery. Check the monitor after charging the device for 5 minutes.

## 13.2 The image is not clear, how to adjust it?

Adjust the diopter adjustment knob until the image is clear. Refer to section Adjust Diopter.

## 13.3 Capturing or recording fails. What's the problem?

Check the following items.
● Whether the device is connected to your PC. Capturing or recording is disabled in this status.
● Whether the storage space is full.
● Whether the device is low-battery.

## 13.4 Why the PC cannot identify the device?

Check the following items.
● Whether the device is connected to your PC with supplied USB cable.
● If you use other USB cables, make sure the cable length is no longer than 1 m.
● Whether the hotspot function is turned on. If so, go to device menu and turn off hotspot.

# Chapter 14 Appendix

## 14.1 Device Command

Scan the following QR code to get device common serial port commands.
Note that the command list contains the commonly used serial port commands for HIKMICRO thermal cameras.

## 14.2 Device Communication Matrix

Scan the following QR code to get device communication matrix.
Note that the matrix contains all communication ports of HIKMICRO thermal cameras.

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