



# Handheld Thermography Camera HIKMICRO SP Series

User Manual

## Legal 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

(<http://www.hikmicrotech.com>).

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. 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.

Note: Due to the device size limit, the above statement may not be disclaimed on the device. This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator & your body.

Note: 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.

### 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 2014/30/EU (EMCD), Directive 2014/35/EU (LVD), Directive 2011/65/EU (RoHS).



This product and - if applicable - the supplied accessories too are marked with "UKCA" and comply therefore with the following directives: Radio Equipment Regulations 2017, 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.

#### Restrictions in the 5 GHz band:

According to Article 10 (10) of Directive 2014/53/EU, when operating in the 5150 to 5350 MHz frequency range, this device is restricted to indoor use in: Austria (AT), Belgium (BE), Bulgaria (BG), Croatia (HR), Cyprus (CY), the Czech Republic (CZ), Denmark (DK), Estonia (EE), Finland (FI), France (FR), Germany (DE), Greece (EL), Hungary (HU), Iceland (IS), Ireland (IE), Italy (IT), Latvia (LV), Liechtenstein (LI), Lithuania (LT), Luxembourg (LU), Malta (MT), Netherlands (NL), Northern Ireland (UK(NI)), Norway (NO), Poland (PL), Portugal (PT), Romania (RO), Slovakia (SK),

Slovenia (SI), Spain (ES), Sweden (SE), Switzerland (CH), and Turkey (TR).

In accordance with the Radio Equipment Regulations 2017 in the UK, the device working in the 5150 to 5350 MHz frequency range is restricted to indoor use in the United Kingdom.

### Frequency Bands and Power (for CE/UKCA)

The frequency bands and modes and transmitting power (radiated and/or conducted) nominal limits applicable to the following radio equipment are as follows:

**Wi-Fi:** 2.4 GHz (2.4 GHz to 2.4835 GHz): 20 dBm; 5 GHz (5.15 GHz to 5.25 GHz): 23 dBm; 5 GHz (5.25 GHz to 5.35 GHz): 23 dBm; 5 GHz (5.47 GHz to 5.725GHz): 23 dBm; 5 GHz (5.725 GHz to 5.85 GHz): 14 dBm

**Bluetooth:** 2.4 GHz (2.4 GHz to 2.4835 GHz): 20 dBm

Use the power adapter provided by a qualified manufacturer. Refer to the product specification for detailed power requirements.

Use the battery provided by a qualified manufacturer. Refer to the product specification for detailed battery 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](http://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](http://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](http://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](http://www.recyclethis.info).

Warning: Operation of this equipment in a residential environment could cause radio interference.

### Industry Canada ICES-003 Compliance

This device meets the CAN ICES-003 (A)/NMB-003(A) 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.

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator & your body.

ce matériel est conforme aux limites de dose d'exposition aux rayonnements, CNR-102 énoncée dans un autre environnement. cette équipement devrait être installé et exploité avec distance minimale de 20 entre le radiateur et votre corps.

- (i) The device for operation in the band 5150-5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems;
- (ii) The maximum antenna gain permitted for devices in the bands 5250-5350 MHz and 5470-5725 MHz shall comply with the e.i.r.p. limit; and
- (iii) The maximum antenna gain permitted for devices in the band 5725-5825 MHz shall comply with the e.i.r.p. limits specified for point-to-point and non point-to-point operation as appropriate.

(i) Les dispositifs fonctionnant dans la bande 5150-5250 MHz sont réservés uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux.

(ii) Le gain d'antenne maximal autorisé pour les appareils dans les bandes 5250-5350 MHz et 5470-5725 MHz doivent respecter le pire limiter; et

(iii) Le gain d'antenne maximal autorisé pour les appareils dans la bande 5725-5825 MHz doivent respecter le pire limites spécifiées pour le point-à-point et l'exploitation non point à point, le cas échéant.




### KC

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### Symbol Conventions

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

Symbol	Description
 <b>Danger</b>	Indicates a hazardous situation which, if not avoided, will or could result in death or serious injury.
 <b>Caution</b>	Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results.
 <b>Note</b>	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 (7.2 VDC, 890 mA) 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.

### Battery

- 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 the manufacture for repair if necessary.
- 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.
- DO NOT charge other battery types with the supplied charger. 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 swallow the battery to avoid chemical burns.
- DO NOT place the battery in the reach of children.
- When the device is powered off and the RTC battery is full, the time settings can be kept for 3 months.
- The lithium battery voltage is 7.2 V, and the battery capacity is 4800 mAh.
- 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.
- 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.
- 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.
- We recommend you send the device back for calibration once a year, and please contact the local dealer for the information on maintenance points.
- Please notice that the current limit of USB 3.0 PowerShare port may vary with the PC brand, which is likely to result in incompatibility issue. Therefore it's advised to use regular USB 3.0 or USB 2.0 port if the USB device fails to be recognized by PC via USB 3.0 PowerShare port.
- 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'll hear a "click" as a shutter moves in front of the detector. The self-calibration will be more frequent during start up or in very cold or hot environments. This is a normal part of operation to ensure optimum performance for your camera.

### Using Environment

- Make sure the running environment meets the requirement of the device. The operating temperature shall be -20°C to 50°C (-4°F to 122°F), and the operating humidity shall be 95% or less.
- This device can only be safely used in the region below 2000 meters above the sea level.
- 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.

### 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.

### 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

Room 313, Unit B, Building 2, 399 Danfeng Road, Xixing Subdistrict, Binjiang District, Hangzhou, Zhejiang 310052, China  
Hangzhou Microimage Software Co., Ltd.

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# Chapter 1 Overview

## 1.1 Device Description

The handheld thermography camera is a device with both optical images and thermal images. It can do thermography, distance measurement, video recording, snapshot capturing, alarm, and it can connect to Wi-Fi, hotspot and Bluetooth. The built-in high-sensitivity IR detector and high-performance sensor detects the variation of temperature and measure the real-time temperature. Refer to the production specification on HIKMICRO website for detailed information. The built-in laser module detects the target distance.

The device is easy to use, and adopts ergonomic design. It is widely applied to substations, electricity prevention detection of companies, and reconnaissance survey of construction field.

## 1.2 Main Function

### Temperature Measurement

Device detects the real-time temperature, and display it on the screen.

### Route Inspection

Device can check the temperature of the check points in a predefined inspection route, and upload the results to center client for analysis.

### Distance Measurement

Device can detect the target distance with the laser light.

### Fusion

Device can display fusion of thermal view and optical view.

### Palette and Alarm

Device supports multiple palettes, and you can set the palette mode according to the alarm function.

### Client Software Connection

- Mobile Phone: Use HIKMICRO Viewer to see live image, capture, and recording, etc. on your phone.



HIKMICRO Viewer Android



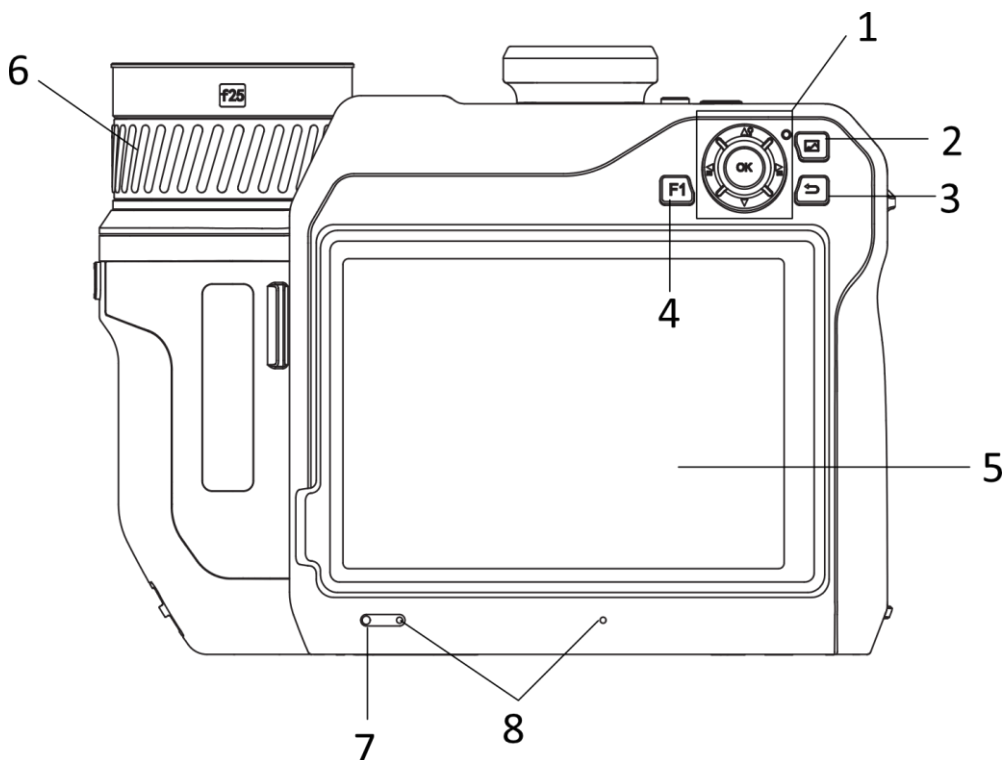
HIKMICRO Viewer iOS

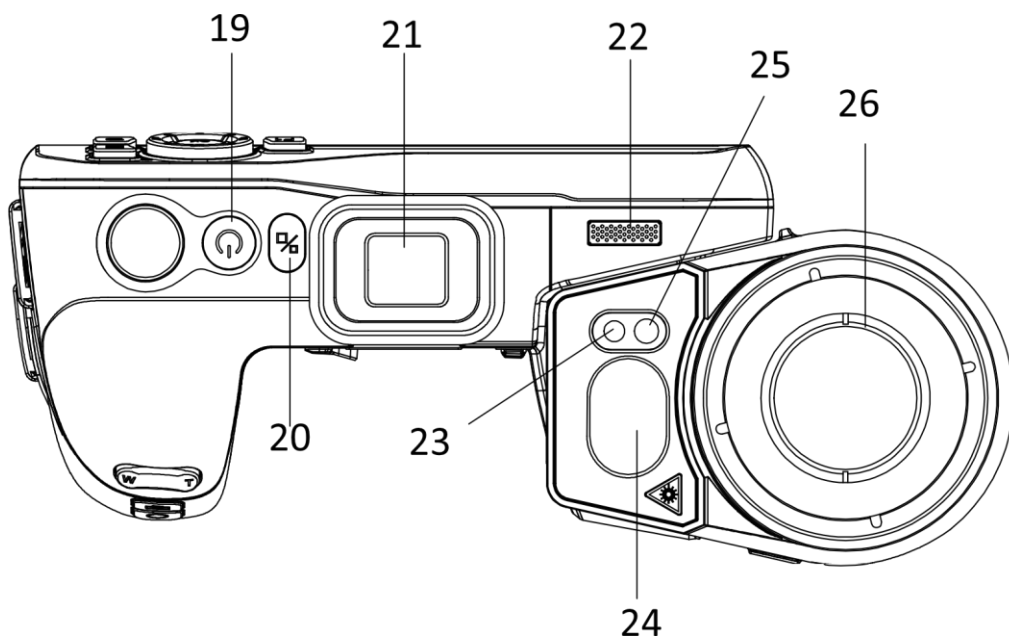
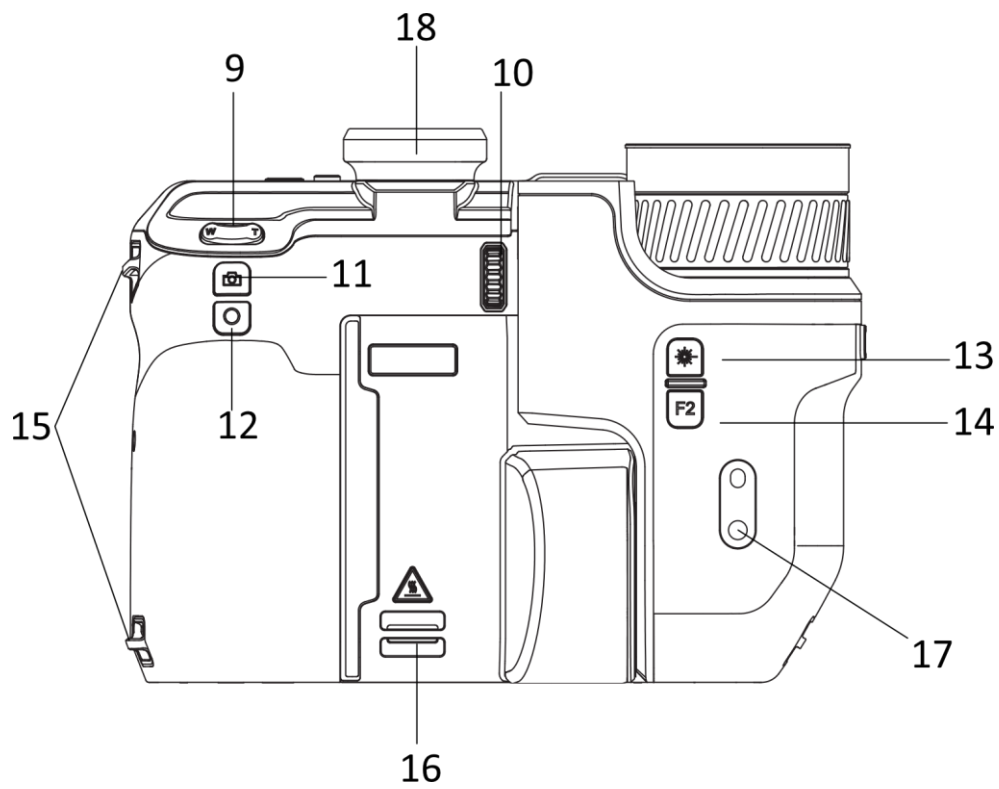
- PC: Use HIKMICRO Analyzer (<https://www.hikmicrotech.com>) to see live image, capture, recording, and receive alarm message, etc. on your PC.

## Bluetooth

Device can be connected to headset via Bluetooth, and you can hear the voice in the recording or capture.

## 1.3 Appearance





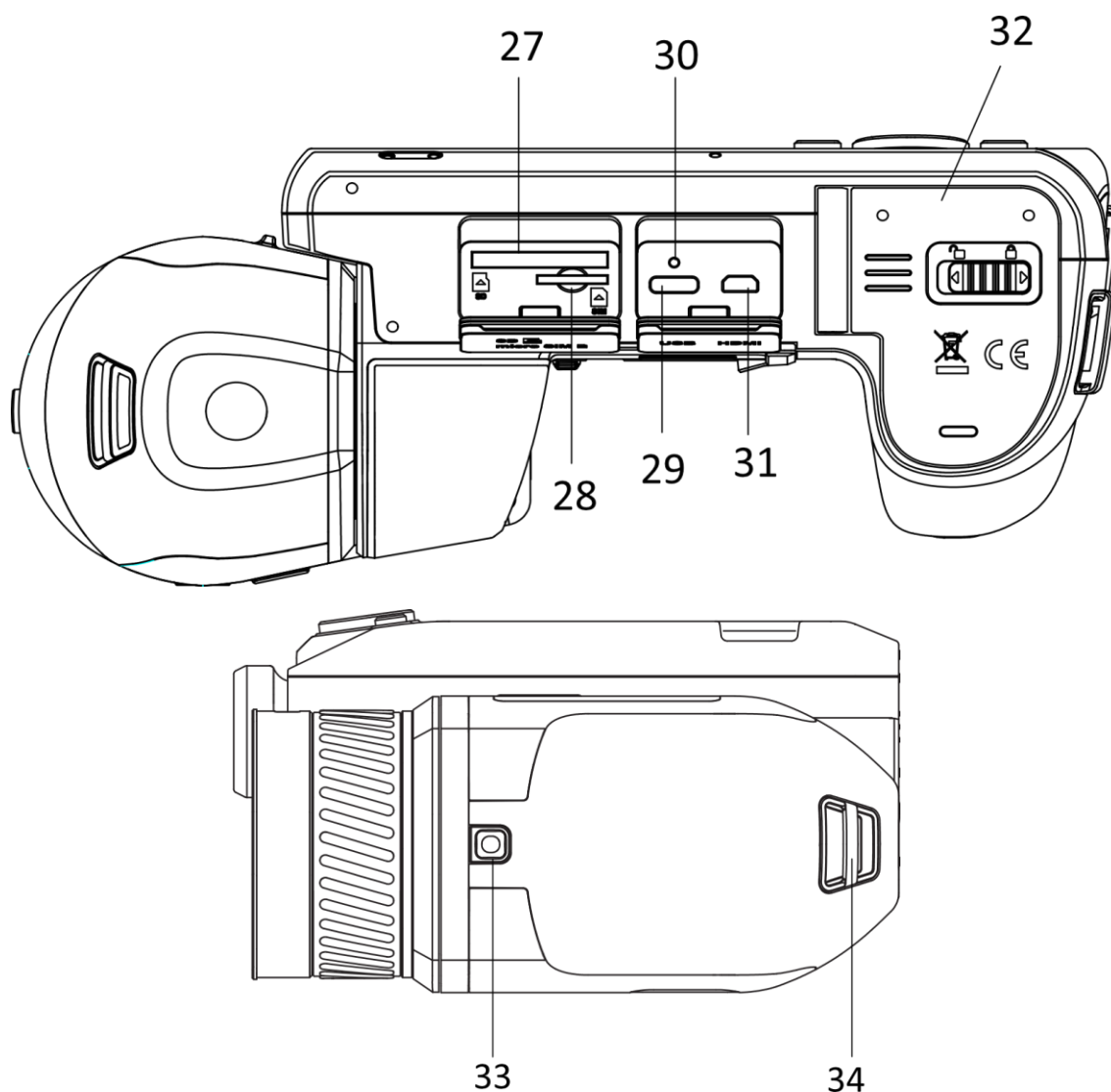


Figure 1-1 Appearance

Table 1-1 Button and Interface Description

No.	Description	Function
1	Navigation Button	Menu Mode: <ul style="list-style-type: none"> <li>● Press  ,  ,  , and  to select parameters.</li> <li>● Press OK to confirm.</li> </ul>
		Non-Menu Mode: <ul style="list-style-type: none"> <li>● Press  to turn on/off the LED light supplement.</li> <li>● Press  and  to adjust focus.</li> </ul>
2	File Button	Press to enter albums.
3	Back Button	Exit the menu or return to previous menu.

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No.	Description	Function
4 & 14	Function Button	Press to use the custom function.
5	Touch Screen	<ul style="list-style-type: none"> <li>● Show the live view interface.</li> <li>● Touch-screen operation.</li> </ul>
6	Focus Ring	Adjust focus to find clear targets.
7	Light Sensor	Sense the ambient brightness.
8	Microphone	Used to add voice note.
9	Zoom Button	Press <b>T</b> to zoom in, and press <b>W</b> to zoom out.
10	Diopter Adjustment Wheel	Adjust the dioptic correction for the viewfinder.
11	Capture Button	<ul style="list-style-type: none"> <li>● Press: capture snapshots/stop recording</li> <li>● Hold: start recording</li> </ul>
12	Focus Button	Press to start focus.
13	Laser Button	<ul style="list-style-type: none"> <li>● Press: measure the distance with laser once</li> <li>● Hold: measure the distance with laser continuously</li> </ul>
15	Hand Strap Attachment Point	Mount the hand strap.
16 & 34	Neck Strap Attachment Point	Mount the neck strap.
17	Tripod Mount	Mount the tripod.
18	Viewfinder	View live view through the viewfinder. See Display Switch Button.
19	Power Button	<ul style="list-style-type: none"> <li>● Press: standby mode/wake up device</li> <li>● Hold: power on/off</li> </ul>
20	Display Switch Button	Switch the LCD and the Viewfinder.
21	Eyepiece Plug	Protect the eyepiece.
22	Loudspeaker	Play voice note and voice alarm.
23	Optical Lens	View the optical image.
24	Laser Distance Meter	Measure the distance with laser.
25	Supplement Light	Increase ambient brightness in dark environment.
26	Thermal Lens	View the thermal image.

No.	Description	Function
27	Memory Card Slot	Insert the memory card in it.
28	<i>SIM Card Slot</i>	<i>Not Available.</i>
29	Data Exchange Interface	Charge the device or export files with supplied cable.
30	Indicator	Indicate the charging status of the device. <ul style="list-style-type: none"><li>● Solid red: charging normally</li><li>● Flashing red: charging exception</li><li>● Solid green: fully charged</li></ul>
31	Micro HDMI Interface	Connect the device with HDMI cable. A cable converter (HDMI Type D to HDMI Type A) is included in the carrying case.
32	Battery Compartment	Install the battery in it.
33	Lens Release Button	Unlock the interchangeable lens.

### **Caution**

The laser radiation emitted from the device can cause eye injuries, burning of skin or inflammable substances. Before enabling the light supplement function, make sure no human or inflammable substances are in front of the laser lens.

## Chapter 2 Preparation

### 2.1 Charge Device

#### 2.1.1 Charge Device via Cable Interface

##### Before You Start

Please make sure the battery is installed before charging.

##### Steps

1. Lift the cover of cable interface.
2. Plug in the cable, and connect the power supply to charge the battery.

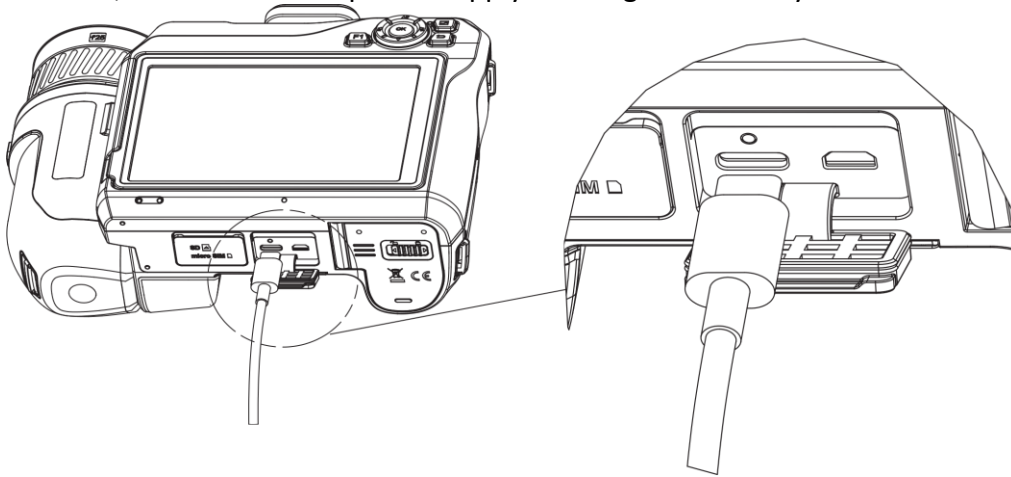


Figure 2-1 Charge the Battery via Type-C Cable

#### 2.1.2 Charge Device via Charging Base

##### Steps



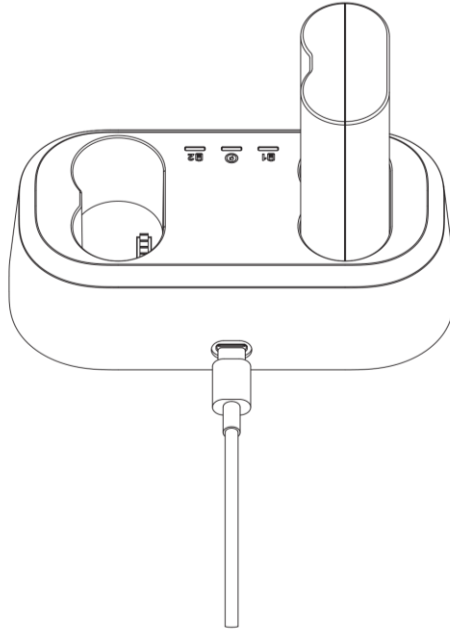
##### Note

Please charge the device with the cable and power adapter supplied by the manufacturer (or according to the input voltage from the specifications).

---

1. Put one or two batteries in the charging base.
2. Connect the supplied charging base to the power supply. The indicator in the middle is green if it works properly.

3. The left and right indicators show the charging status of the batteries.
  - Solid red: charging normally.
  - Solid green: fully charged.
4. Draw the battery from the charging base, and disconnect charging base from the power supply.



**Figure 2-2 Charge the Battery via Charging Base**

## 2.2 Mount Hand Strap

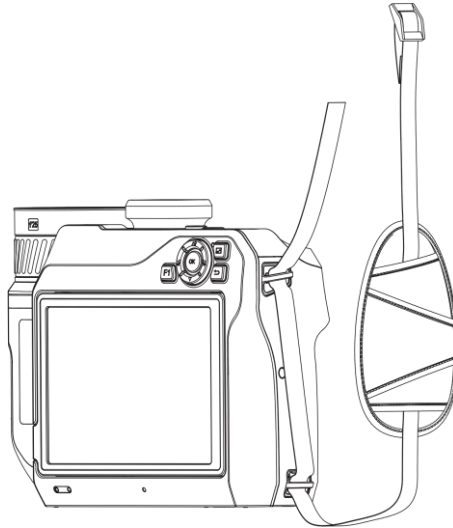
### Steps

1. Thread the hand strap through the hand strap clutch.



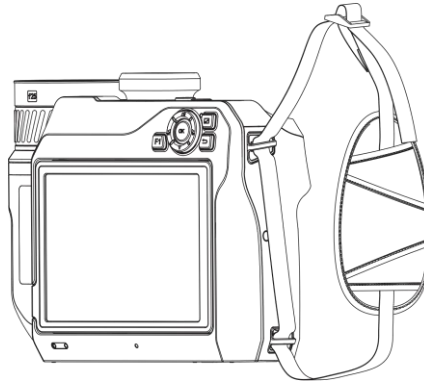
**Figure 2-3 Thread the Hand Strap**

2. Insert one end of the hand strap through the two hand strap attachment points



**Figure 2-4 Thread the Hand Strap Through Attachment Points**

3. Thread hand strap through the hand strap buckle, and fasten the hand strap.



**Figure 2-5 Fasten the Hand Strap**

4. Adjust the tightness of the hand strap as needed.

## 2.3 Change Interchangeable Lens

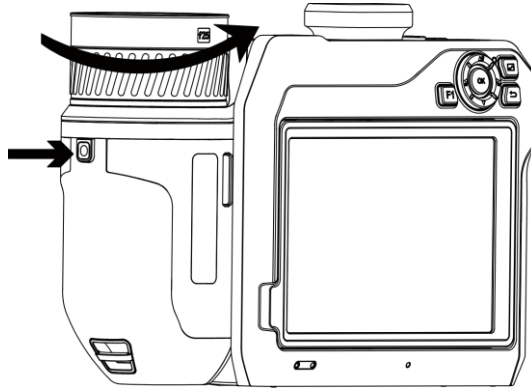
An interchangeable lens is a thermal lens that can be mounted to the device for obtaining different FOVs, scene scopes, and temperature measurement ranges.

### Before You Start

- Purchase a suitable interchange lens recommended by the device manufacturer.
- The device pops up a window to show the lens information or the calibration program when detecting a mounted lens.

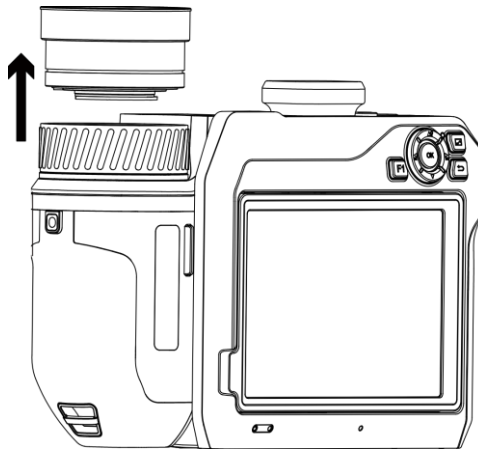
### Steps

1. Press the lens release button and turn the interchangeable lens anticlockwise until it stops.



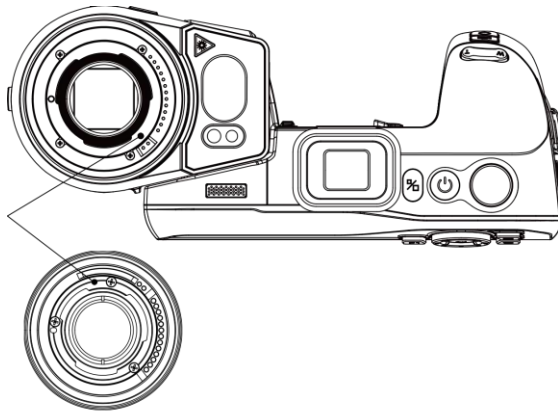
**Figure 2-6 Release the Lens**

2. Remove the interchangeable lens carefully.



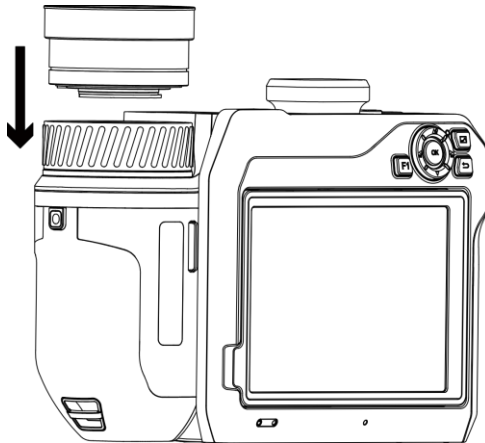
**Figure 2-7 Remove the Lens**

3. Align the two white index marks on the device and the lens.



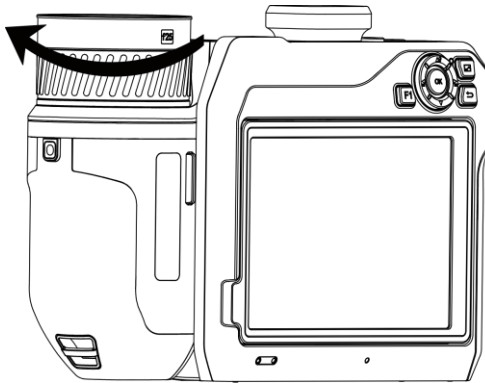
**Figure 2-8 Align the White Index Marks**

4. Push the lens into position.



**Figure 2-9 Mount the Lens**

5. Rotate the lens clockwise to fix it. The lens makes a click when it locks in place.



**Figure 2-10 Fix the Lens**

---

**Note**

- Dust on the detector may cause blemishes in the image. If you can find the dust on the detector, use pressurized air from a compressed air canister to blow it off; but if you cannot find the dust, we recommend you contact your dealer or the nearest service center for cleaning.
  - A prompt pops up on the interface if the lens is not calibrated to the camera. Please contact the dealer or the nearest service center for lens calibration, or the temperature measurement accuracy is affected.
- 

## 2.4 Tilt Lens and Screen

You can tilt the lens and screen for different observation angles, as shown in Figure 2-11.

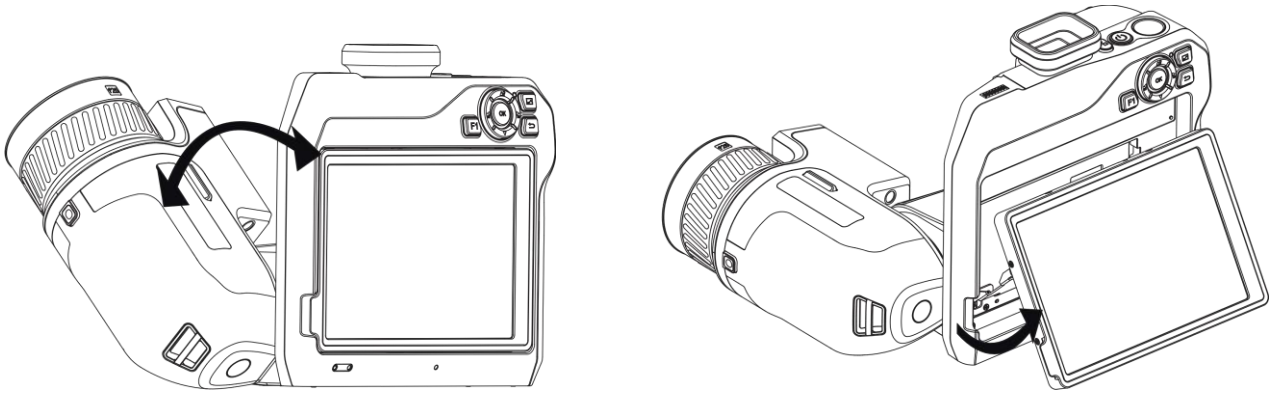



Figure 2-11 Tilt Lens and Screen

## 2.5 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.


---

#### Note

It may take at least 30 s until the device is ready for using when you power on it.

---

### Power Off

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

### 2.5.1 Set Auto Power-off Duration

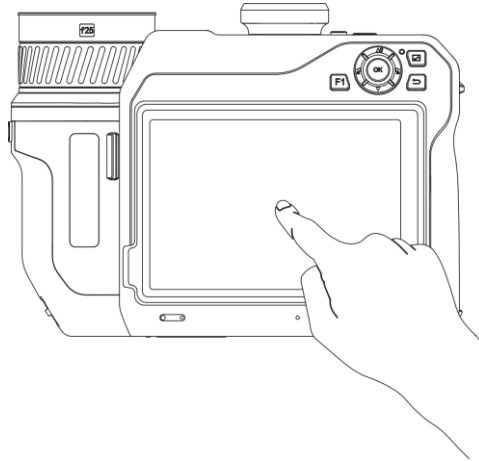
Go to **Local Settings** → **Device Settings** → **Auto Off** to set the automatic shutdown time for device as required.

## 2.6 Operation Method

The device supports both touch-screen control and button control.

### Touch-Screen Control

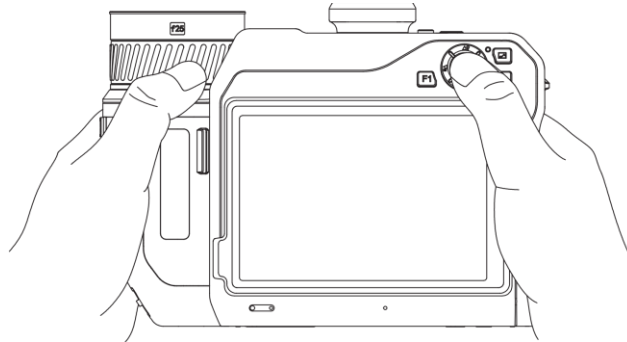
Tap the screen to set parameters and configurations.



**Figure 2-12 Touch-screen Control**

### Button Control

Press the navigation buttons to set parameters and configurations.

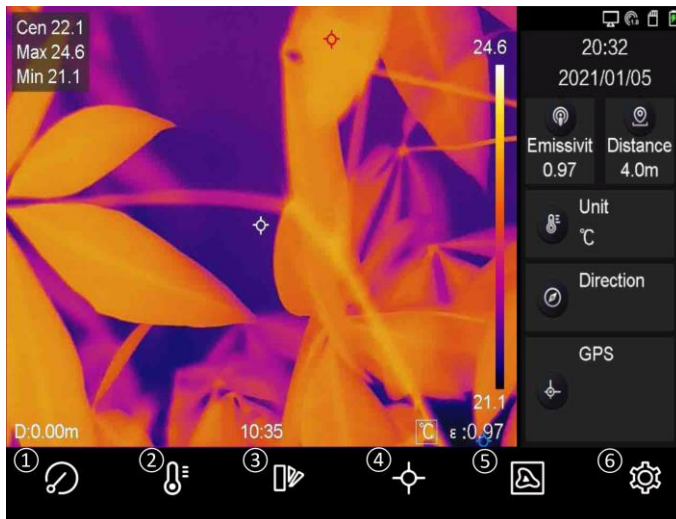


**Figure 2-13 Button Control**

- In menu mode, press  $\Delta$ ,  $\nabla$ ,  $\triangleleft$ , and  $\triangleright$  to select parameters.
- Press **OK** to confirm.

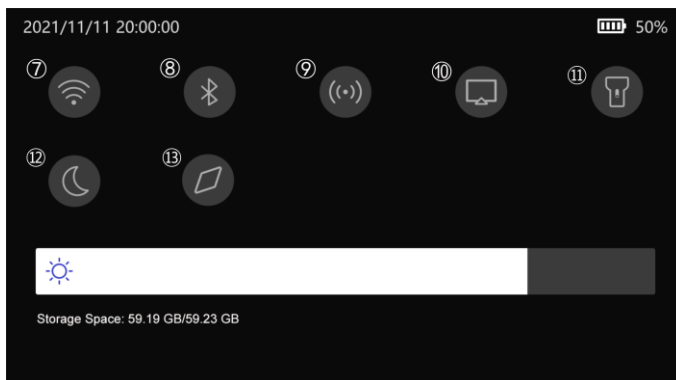
## 2.7 Menu Description

In the observation interface, tap the screen to show the menu bar, and swipe down to call the swipe-down menu.



**Figure 2-14 Main Menu**

- ① Shutter
- ② Temperature Range
- ③ Palettes
- ④ Thermography
- ⑤ Image Mode
- ⑥ Settings



**Figure 2-15 Swipe-Down Menu**

- ⑦ Wi-Fi
- ⑧ Bluetooth
- ⑨ Hotspot
- ⑩ Screen Cast
- ⑪ Flashlight
- ⑫ Dark/Bright Mode
- ⑬ Compass

## Chapter 3 Display Settings

### 3.1 Focus

Adjust the lens focal length properly before you set any other configurations, or it may affect the image display and temperature accuracy.

#### 3.1.1 Focus Lens Manually

##### Steps

1. Power on the device.
2. Aim the device lens to the appropriate scene.
3. Adjust the focus ring clockwise or anticlockwise until the target is clear. See Figure 3-1.

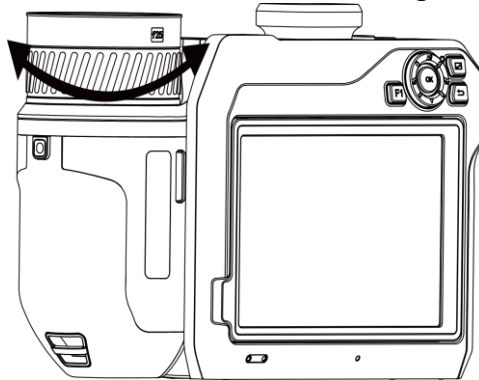


Figure 3-1 Focus Lens

---

##### Note

DO NOT touch the lens, or the imaging effect may be affected.

---



#### 3.1.2 Laser Assisted Focus

Point the laser to the target and the device focuses automatically.

##### Before You Start

- It is recommended to use this function in a non-glare environment, such as indoor environment.
- The target should have good light reflection, such as white paper, cable.

##### Steps

1. Select , and go to **Capture Settings** → **Focus** → **Focus Mode** to enable **Laser Assisted Focus**.
2. In the live view interface, aim the cursor at the target and press  to finish focus.

---

### Note


DO NOT adjust the focus ring in this mode, or it will interrupt the focus process.

---

### 3.1.3 Auto Focus

The device focuses automatically by comparing the brightness, contrast, etc. in current scene.

#### Steps

1. Go to **Local Settings** → **Capture Settings** → **Focus** → **Focus Mode** to enable **Auto Focus**.
2. In the live view interface, aim the cursor at the target and press  to finish focusing.

---

### Note

DO NOT adjust the focus ring in this mode, or it will interrupt the focus process.

---

### 3.1.4 Continuous Autofocus

In continuous autofocus mode, the device focuses on the target automatically to make the scene clear. Use this mode when the device is stationary.

---

### Caution

Disable continuous autofocus mode when the device is moving, or it may affect the device function.

---

Go to **Local Settings** → **Capture Settings** → **Focus** → **Focus Mode** to enable **Continuous Autofocus**.

Then aim the device at the target, and the device focuses automatically.

---

### Note

Focus ring adjustment does not take effect in this mode.

---

### 3.1.5 High Temperature Priority

Enable the high temperature priority function if you want to focus on the high temperature object in the observation scene.

Go to **Local Settings** → **Capture Settings** → **Focus** to enable **High Temperature Priority**.

---

### Note

The high temperature priority function is only supported in auto focus mode and continuous autofocus mode.

---

## 3.2 Set Screen Brightness

There are two ways to adjust the screen brightness.

Go to **Local Settings** → **Device Settings** → **Display Brightness** to adjust the screen brightness. Or you can drag the brightness adjustment bar in the swipe-down menu.




Figure 3-2 Adjust Brightness via Swipe-Down Menu

## 3.3 Set Display Mode

You can set the thermal/optical view of the device. **Thermal**, **Fusion**, **PIP**, **Optical**, and **Blending** are selectable.

### Steps

1. Select  from the main menu.
2. Tap the icons to select a view mode.



In thermal mode, the device displays the thermal view.



In fusion mode, the device displays the overlay effect of optical image and thermal image.



In PIP (Picture in Picture) mode, the device displays thermal view inside the optical view.

---

### Note

You can drag the corners of the PIP frame to move, enlarge, or contract it.

---



In optical mode, the device displays the optical view.




In blending mode, the device displays the mixture view of thermal channel and optical channel. You can adjust the **Optical Ratio** to change the optical-thermal ratio. The lower the value is, the denser the optical effect is.

3. Press  to exit.

## 3.4 Set Palettes

The palettes allow you to select the desired colors.

### Steps

1. Select  from the main menu.
2. Tap the icons to select a palette type.

#### White Hot

The hot part is light-colored in view.

#### Black Hot

The hot part is black-colored in view.

#### Rainbow

The target displays multiple colors. It is suitable for scene without obvious temperature difference.

#### Ironbow

The target is colored as heated iron.

#### Red Hot


The hot part is red-colored in view.

#### Fusion

The hot part is yellow-colored and the cold part is purple-colored in view.



#### Rain

The hot part in the image are colored, and the else is blue.

3. Press  to exit the setting interface.



### Note


You can also press , and  to switch the palettes.

---





### 3.4.1 Set Alarm Mode Palettes

Alarm mode palettes allows to mark the targets of certain temperature range with a different color from the rest.



#### Steps

1. Select  from the main menu.
2. Tap the icons to select an alarm rule type.

**Table 3-1 Icon Description**

Icon	Alarm Mode	Description
	Above Alarm	Set the alarm temperature, and the targets with the temperature higher than the set value are displayed in red.
	Below Alarm	Set the alarm temperature, and targets with the temperature lower than the set value are displayed in blue.
	Interval Alarm	Set the alarm temperature section (e.g., 90 °C to 150 °C), and targets with the temperature in the range are displayed in yellow.
	Insulation Alarm	Set the alarm temperature section (e.g., 90 °C to 120 °C), targets with the temperature out of the section (e.g., 70 °C or 125 °C) are displayed in purple or blue.

3. Optional: Press  and  to select between upper limit and lower limit.

4. Press  and  to adjust the rule temperature.

5. Press  to exit.

### 3.4.2 Set Focus Mode Palettes




Focus mode palettes allows to mark the targets of certain temperature range with fusion palettes and the others with white hot palettes.






#### Steps

1. Select  from the main menu.



2. Tap the icons to select an alarm rule type.

**Table 3-2 Icon Description**

Icon	Palettes Mode	Description
	Above Focus	Set the temperature threshold, and the targets with the temperature higher than the set value are displayed with fusion palettes.
	Below Focus	Set the temperature threshold, and targets with the temperature lower than the set value are displayed with fusion palettes.
	Interval Focus	Set the temperature range (e.g., 90 °C to 150 °C), and targets in the range are displayed with fusion palettes.

3. Optional: Press  and  to select between upper limit and lower limit.
4. Press  and  to adjust the rule temperature.
5. Press  to exit.

### 3.5 Adjust Digital Zoom

In the live view interface, press  and  to adjust the digital zoom. Then you can view the target or scene in larger size.

### 3.6 Display OSD Info

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

#### Status Icon

The device status icons, for example, battery status, memory card, hotspot, etc.

#### Time

Device time and date.

#### Parameters

Thermography parameters, for example, target emissivity, temperature unit, etc.

#### Distance Value

Laser-measured target distance.

#### Brand Logo

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

## Chapter 4 Temperature Measurement

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

### 4.1 Set Thermography Parameters

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

#### Steps

1. Go to **Local Settings** → **Thermography Settings**.
2. Set the **Thermography Range**, **Emissivity**, etc.

#### Thermography Range

Select the temperature measurement range. In **Auto Switch** mode, the device can detect the temperature and switch temperature measurement range automatically. If you do not select auto switch mode, you need to switch the temperature measurement range manually after changing lens.

#### Emissivity

Refer to **Common Material Emissivity Reference** to set the emissivity of your target.

#### Reflection Temperature

If any object (not the target) of high temperature is in the scene, and the target emissivity is low, set the reflection temperature as the high temperature to correct the temperature measurement effect.

#### Distance

The distance between the target and the device. You can customize the target distance or select the target distance as **Near**, **Middle**, or **Far**.

#### Environment Temperature

The average temperature of the environment.

#### Humidity

Set the relative humidity of current environment.

#### Optical Transmissivity

Set the optical transmissivity of external optical material (e.g.: germanium window) to ensure the temperature measuring accuracy.

#### External Optics Correction

Set temperature of the external optical material (e.g.: germanium window).

## Temperature Display

Display the min. temperature, max. temperature, or average temperature on the screen.

---

### Note

When you install a macro lens, the device switches to macro mode automatically. In macro mode, settings such as display mode, distance, and optical transmissivity cannot be modified.

---

3. Return to previous menu to save the settings.
- 

### Note

You can go to **Local Settings** → **Device Settings** → **Device Initialization** → **Measurement Tool Initialization** to initialize the temperature measurement parameters.

---

## 4.1.1 Set Unit

Go to **Local Settings** → **Device Settings** → **Unit** to set the temperature unit and distance unit.

---

### Note

You can go to **Local Settings** → **Thermography Settings** → **Temperature Display** to enable/disable the temperature display.

---


## 4.2 Set Temperature Range

Set a temperature section and the palette only works for targets within the temperature section. You can adjust the temperature range.

### Steps

1. Select  from the main menu.
2. Select auto adjustment  or manual adjustment .

#### Auto Adjustment

Select . The device adjusts temperature range parameters automatically.


#### Manual Adjustment

Select .

There are 2 ways to manually adjust the range:

- Adjust the temperature range based on selected area.  
Tap an interest area of the screen. A circle is displayed around the area, and the palette readjusts to the temperature range of the area.
- Adjust the maximum and minimum temperature of the range.


- Tap to select the max. temperature, min. temperature, or both. You can also tap the max. temperature or min. temperature at the ends of the palette bar to select them.
- Tap the arrows on the right side of the screen to adjust the temperature value.

3. Press  to exit.

## 4.3 Set Thermography Rule

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





### Steps

1. Select  from the main menu.
2. Set the point, line, or area rules.

### 4.3.1 Set Point Rule


You can set four types of point temperature measurement rules.

**Table 4-1 Icon Description**

Icon	Description
	Center Point Temperature Measurement
	Max. Temperature Point Temperature Measurement
	Min. Temperature Point Temperature Measurement
	Custom Point Temperature Measurement

The setting method of center point, high-temperature, and low-temperature point temperature measurement are all the same. Here is the example of setting high-temperature point temperature measurement.

### Example

Tap  on the interface, the device locates the point of the highest temperature, and displays Max: XX.

### Custom Point Temperature Measurement

The device can detect the temperature of a custom point.

### Steps

1. Select .

2. Move the point with the navigation buttons or tap the touch-screen to select a point.  
The temperature of custom point (e.g. P1) displays P1: XX.
3. Repeat above steps to set other custom points.

---






### Note

At most ten custom points are supported.

---

## 4.3.2 Set Line Rule

### Steps

1. Select . A line appears on the interface.
2. Press , , , and , or drag to move the line to the required position.
3. Drag points of the line on the touch-screen to extend or shorten the line.
4. (Optional) Tap the points of the line to set the emissivity and distance for the points

---

### Note

Only one line is supported.

---










The maximum temperature, minimum temperature, and average temperature of the line display in the top left corner of the screen. The real-time temperature trend chart will display near the line.

### What to do next

Displayed temperature types for the rule are configurable at **Local Settings → Thermography Settings → Temperature Display**.

## 4.3.3 Set Area Rule

### Steps

1. Select . An area appears on the interface.
2. Move the area to the required position.
  - Press , , , and  to move the area up/down/left/right.
  - Tap and select the area on touch-screen to move the area.
3. Adjust the size of the area.
  - Tap one corner of the area, and press , , , and  to enlarge or contract the area.
  - Drag the corner of the area on touch-screen to enlarge or contract the area.
4. Press **OK**.  
The maximum temperature, minimum temperature, and average temperature of the selected area are displayed on the left of the screen.
5. Repeat steps to set other areas.



### Note

At most three areas are supported.

---

### What to do next

Displayed temperature types for the rule are configurable at **Local Settings → Thermography Settings → Temperature Display**.

### Calculate Area Size

The device can calculate the target size in the area, and display the result over the frame.

#### Steps

1. Go to **Local Settings → Device Settings → Area Size Calculation**.
  2. Enable **Area Size Calculation**.
  3. In the live view interface, aim the frame at the target and press the laser button.
- 



### Note

Make sure the lens is parallel to the target.

---

## 4.3.4 Set Temperature Difference Rule

You can set temperature difference rules based on the point, line, and area rules configured. The device will trigger an alarm when the temperature difference between the comparison objects exceeds the set alarm temperature difference threshold.

#### Before You Start

- Make sure you have configured at least one point, line, or area rule.
- Go to **Local Settings → Thermography Settings → Alarm Settings → Temperature Difference ( $\Delta T$ ) Alarm**, and enable this function.
- Go to **Local Settings → Thermography Settings → Alarm Settings → Alarm Linkage** to enable the alarm linkage method as needed.

#### Steps

1. In the live view interface, tap
2. Select
3. Configure the parameters.

#### Rule Name

Set the name for the rule.

#### Rule Item

Select the point, line, or area rule you have configured, and set the corresponding temperature for the selected rule. **Min.**, **Max.**, and **Avg.** are selectable. You can also set a

custom **Value** for comparison.




### Alarming $\Delta T$

Set alarming temperature difference threshold for the rule. When the temperature difference between the comparison objects exceeds the set alarm temperature difference, the device will trigger and alarm.

3. Tap **OK** to finish the settings.
4. Repeat step 1 to step 3 to add more temperature difference rules.

---

### Note


- The compared objects must be different. For example, you cannot compare the max. value of L1 with the max. value of L1.
  - At most 4  $\Delta T$  rules can be added.
  - Tap  to edit the existed  $\Delta T$  rule, tap  to hide the  $\Delta T$  information on the live view interface, and tap  to delete the selected  $\Delta T$  rule.
- 

### Result

The device will alarm (audible warning/flashing alarm) when the temperature difference between the comparison objects exceeds the set alarm temperature difference threshold. The area flashes red if the area rule is configured.

## 4.3.5 Delete Rules

### Delete All Rules

Tap  and press **OK** to clear all temperature rules.

### Delete One Rule

In the observation interface, tap a rule (point, line or area) and enter the editing mode. Tap **Delete** to delete the rule.

## 4.4 Set Temperature Alarm

When the temperature of targets triggers the set alarm rule, the device will perform configured actions, such as, marking the alarming area with certain color, flashing the rule area, making an audible warning, or sending notification to the client software.

### Steps

1. Go to **Local Settings** → **Thermography Settings** → **Alarm Settings** → **Temperature Alarm**.
2. Enable the function and set the alarm threshold and alert threshold.

### Alarm Threshold

When the tested temperature exceeds the threshold, the device sends alarm notification to

the client software. If the audible warning is enabled, and the flashlight will flash if the flashing alarm is enabled. The area flashes red if the area rule is configured.

### Alert Threshold

When the tested temperature exceeds the threshold, the device sends alert notification to the client software.

3. Go to **Local Settings** → **Thermography Settings** → **Alarm Settings** → **Alarm Linkage**.
4. Enable **Audible Warning**, **Flash Alarm**, or both.

### Audible Warning

The device triggers voice alarm when target temperature exceeds the alarm threshold.

### Flash Alarm

The flashlight will flash when target temperature exceeds the alarm threshold.

---

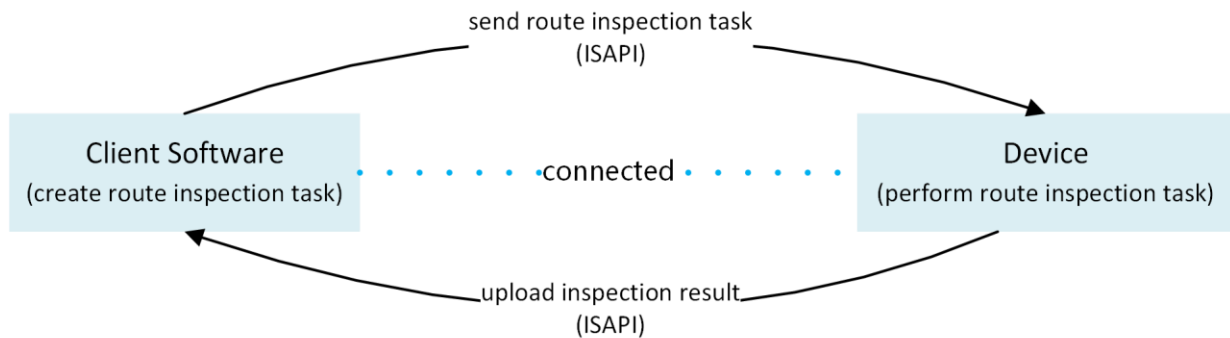
### Note

If the area rules are set to measure temperature, the alarm threshold, alert threshold and alarm linkage settings only work in the selected areas. Otherwise, the parameters are valid for pixel-to-pixel thermometry (whole-screen thermometry).

---

## Chapter 5 Route Inspection

In certain situations that require temperature check for many inspect points, you can use the client software to create inspection routes that cover all the points and send a route inspection task to the device. After the device examines the temperatures of the inspect points, it uploads the results to the client software.



**Figure 5-1 Route Inspection Work Flow**

The device receives the tasks from and uploads the inspection results to the PC client software by its WLAN or Hotspot function.

### 5.1 Create Inspection Route and Send Task to Device

Create the inspection routes on the HIKMICRO Inspector. The client should be connected to the device before sending the route inspection task.

#### Before You Start

- Download the HIKMICRO Inspector from <http://www.hikmicrotech.com> and install the program to your PC.
- The PC should support WLAN function.

#### Steps

1. Open HIKMICRO Inspector.
2. Create inspect points and routes. See the user manual of HIKMICRO Inspector for instructions.
3. Connect your device and PC to the same LAN. Available methods as below:
  - Connect your PC and your device to the same Wi-Fi network. For device Wi-Fi connection, go to **Settings** → **Device Settings** → **WLAN** to select and connect desired Wi-Fi network. See [Connect Device to Wi-Fi](#) for more instructions.
  - Connect your PC to the device hotspot. Turn on and set up device hotspot by **Settings** → **Device Settings** → **Hotspot**. See [Set Device Hotspot](#) for more instructions.
4. Click **Device Management** to add your device into the client. See the user manual of HIKMICRO Inspector for instructions.
5. Go to **Task Management** → **Route Management** to select a route and click **Apply to Device**.

## What to do next

Check your device to see if the task is successfully received.

## 5.2 Perform Route Inspection

After receiving inspection tasks from the PC client, you can hold the device and check the inspect points on the route. Upload the results when the inspection is finished.


### Before You Start

- Make sure your device has a memory card installed. See **Appearance** for instructions.
- Connect the device to the PC client, and make sure that your device has received inspection tasks from the PC client. See the user manual of HIKMICRO Inspector for instructions.

### Steps

1. Enter inspection mode to start.





Enter the mode by one of the following ways:

- Tap  in the swipe-down menu to enter the inspection route mode.
- Go to **Settings** → **Device Settings** → **Inspection Route Mode** to enable the function.

---

### Note



- When in the inspection route mode, the device file are not accessible.
  - When in the inspection route mode, settings of the following function are temporarily not changeable: **Photo Settings**, **QR Code**.
- 

2. Select an inspection route task.
  - 1) Press  to call the menu of inspection route mode.
  - 2) Select  to show currently received inspection route tasks.
  - 3) Select a task to start.
3. Press  and  to see the inspect points that need to be checked in this task and go to the inspect points one by one.
4. Check the temperature of an inspect point and mark the result. Operations are different according to the check-in type and diagnosis type settings of each inspect point.

### Check-In Type and Diagnosis Type



### Operation

#### Check-in Required and Manual Diagnosis



1. In the live view interface, press  to switch to the optical channel.
2. Aim the scanning frame to the QR code. The device will scan the QR code, and prompt the scanning result.
3. Press  again to capture and mark the inspect point image. You can select **Normal**, **Emergency Defect**, **Severe Defect**, **General**

**Defect, or Pending** from .


### **Check-in Required and Auto Diagnosis**

1. In the live view interface, press  to switch to the optical channel.
2. Aim the scanning frame to the QR code. The device will scan the QR code, and prompt the scanning result.
3. Press  again, then the device captures and automatically marks the inspect point image.

### **Check-in Not Required and Manual Diagnosis**

1. Aim the device to the inspect point.
2. Press  to capture and mark the inspect point image. You can select **Normal**, **Emergency Defect**, **Severe Defect**, **General Defect**, or **Pending** from .

### **Check-in Not Required and Auto Diagnosis**

Aim the device to the target and press , then the device captures and automatically marks the inspect point image.

### **5. Save the capture.**

After completing the current inspect point check, the device moves on to the next point automatically. Repeat the step to check other points.

### **6. Press to see the captured image of every inspect point. Change the status if necessary.**

### **What to do next**

Upload the results to the PC client after finishing the route inspection. See the user manual of HIKMICRO Inspector for instructions.


## **5.3 Upload Inspection Result and View Report**

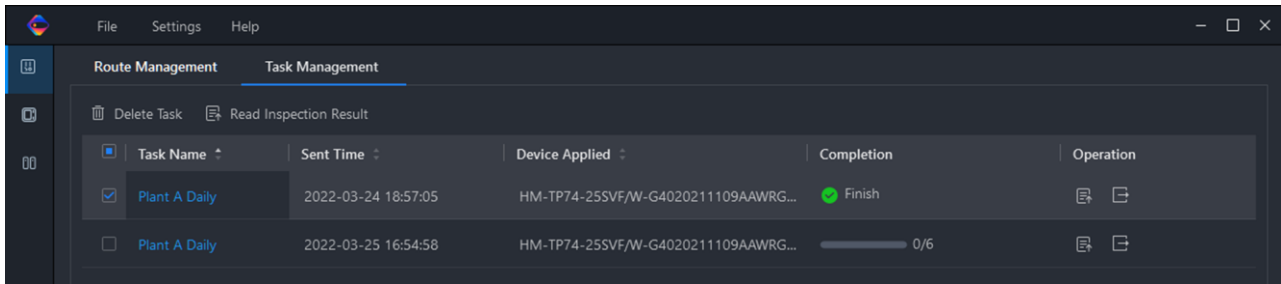
Upload the inspection results to the client software for central management and report generation.

### **Before You Start**

Connect your device with the PC that has the client software installed. See the step of device connection in **Create Inspection Route and Send Task to Device** for instructions.

### **Steps**

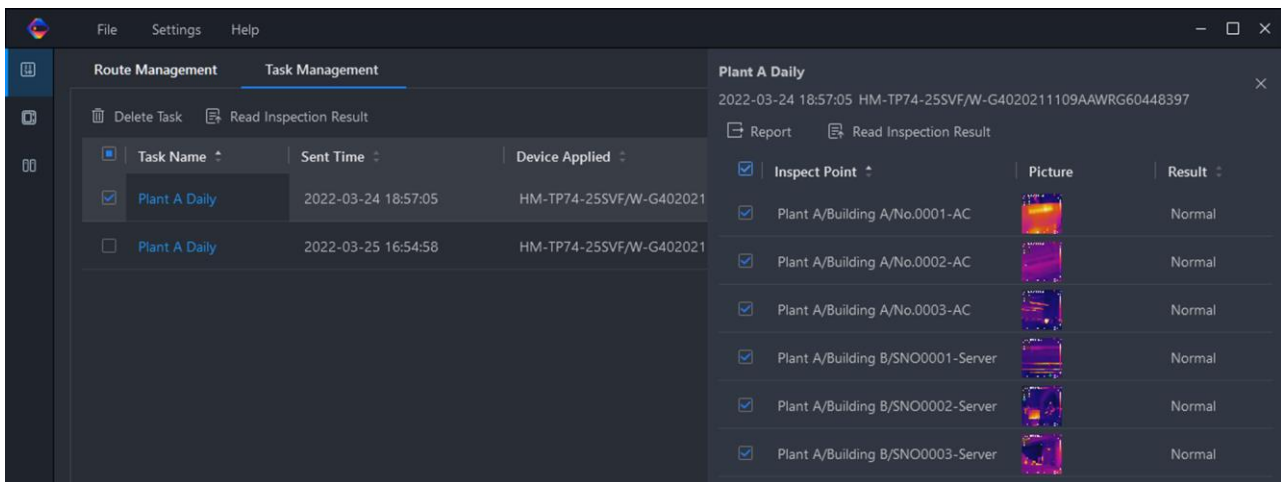
1. Open HIKMICRO Inspector.
2. Click  and **Task Management** and check desired tasks.
3. Click **Read Inspection Result** to download the results from the device.



**Figure 5-2 Task Management**

The task status is shown in **Completion**.

4. Click on a finished task name to show result details.



**Figure 5-3 Inspection Results**

5. Optional: Check a task or the desired inspect points and click **Report** for further analysis and report generation in HIKMICRO Analyzer.

## Note

- HIKMICRO Analyzer should be installed in your PC. Download the program from <https://www.hikmicrotech.com/>.
- For the operations instructions in HIKMICRO Analyzer, read the user manual from **Help** → **User Manual**.
- Please keep HIKMICRO Analyzer up-to-date for the best compatibility and user experience.

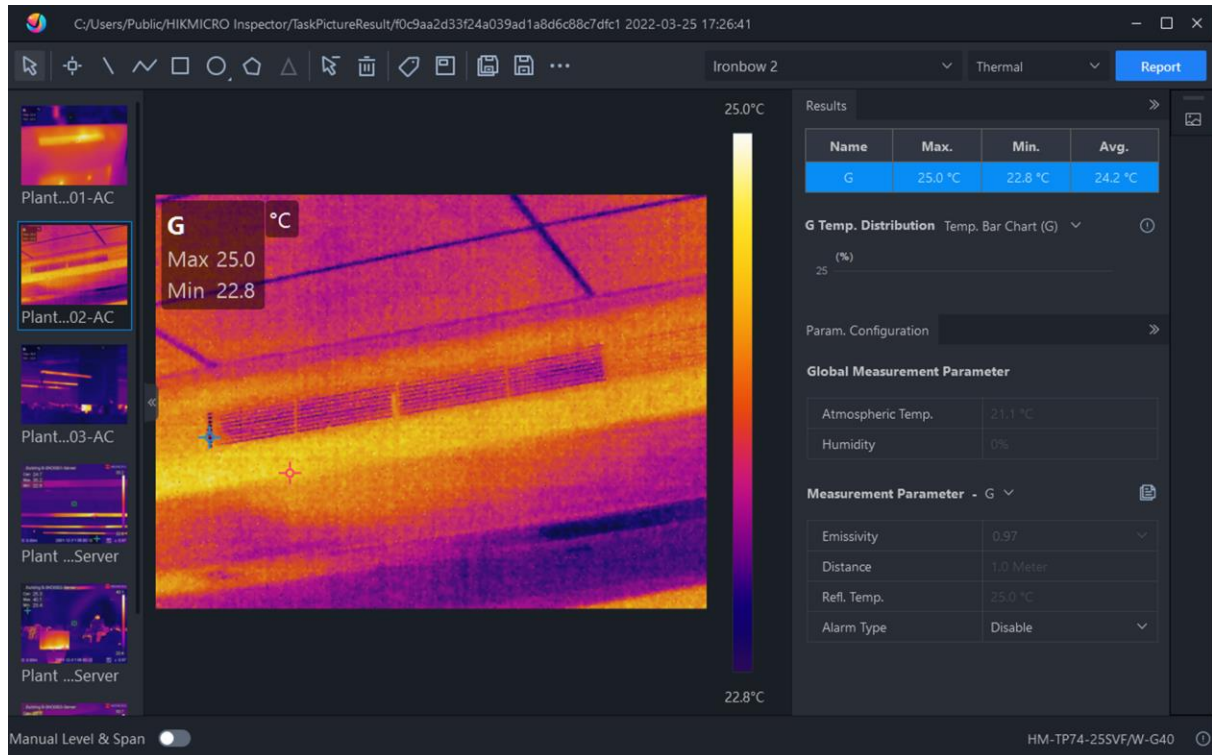


Figure 5-5 Analysis in HIKMICRO Analyzer

## Chapter 6 Picture and Video

Insert memory card into the device, then you can record videos, capture snapshots, and mark and save important data.


---

### Note

- Device does not support capturing or recording when the menu is shown.
  - When the device is connected to your PC, it does not support capturing or recording.
  - Go to **Local Settings** → **Capture Settings** → **Filename Header**, you can set the filename header for capturing or recording to distinguish the files recorded in a specify scene.
  - Go to **Local Settings** → **Device Settings** → **SD Card Initialization** to initialize the memory card as needed.
- 

### 6.1 Capture Picture

#### Before You Start

- Install a memory card for image storage.
- Press  in live view interface to enable flashlight in dark environment.

#### Steps

1. Go to **Local Settings** → **Capture Settings**.
2. Select **Photo Settings** to set the capture mode.

<b>Single Capture</b>	Capture one picture for one time.
<b>Continuous Capture</b>	Capture multiple pictures for one time. You can set the amount of pictures.
<b>Timed Capture</b>	Device captures one picture after the specified time interval. You can set the time interval as needed.



3. (Optional) Enable **AI Super Resolution** if you need to capture thermal images with better effect and view them on a screen whose resolution is higher than the device.






---

### Note

AI super resolution images can be viewed in albums, but cannot be edited.

---

4. (Optional) Set **Visible Image Resolution** for the captured optical image as needed.
5. Press  to exit.
6. In the live view interface, press  to capture snapshot.  
The live view freezes and the captured image is display on the right of the interface.
7. Tap the image to enter the image editing interface.


- 1) Tap  to add text remarks. Tap the screen to show the keypad interface, enter the comment and confirm.
  - 2) Tap  to add voice remarks. Press **OK** to start recording and release the button to stop recording.
  - 3) Tap  to view detailed information of the image.
  - 4) Tap  to analyze the radiometric image and generate report. Refer to **6.5 Local Analysis and Report Generation** for reference.
  - 4) Tap  to delete the image.
- 

### **Note**

The format of thermal picture is radiometric image which has raw thermal data attached for further analysis on HIKMICRO Analyzer.

---




### **What to do next**

Press  to check saved pictures in albums. See **View Local Files** for more information.

## **6.2 Scan QR Code**

Device can scan and capture QR codes.

### **Steps**

1. Go to **Local Settings** → **Capture Settings**, and enable **QR Code**.
  2. Press  to exit.
  3. In the live view interface, aim the optical lens at the QR code, and press . Then a rectangle shows on the screen and the device scans the QR code automatically.
  4. After scanning the QR code successfully, press  again to capture and save the QR code.
- 


### **Note**

Only supports scanning the QR code with up to 100 characters of text content.

---

## **6.3 Record Video**

### **Before You Start**

- Install a memory card for video storage.
- Press  in live view interface to enable the flashlight in dark environment.

### **Steps**

1. Go to **Local Settings** → **Capture Settings** to set the video format.

#### **Radiometric Video**

Raw thermal data is attached in videos of this format. They can only be played and further


analyzed with HIKMICRO Analyzer.



### Note


- The frame rate of this format is 5 fps.
- A video clip should be no longer than 10 minutes, and its size should be no larger than 4 GB.
- When the storage space is smaller than 500 MB, radiometric video recording is not allowed. Accidentally stopped recordings are not saved.

### MP4


Recorded videos are saved in .mp4 format. These video clips can be played on local device, and any players that support this format (HIKMICRO Analyzer does not support playing this video format.).

2. In the live view interface, hold  to start recording. The recording icon and count down number display in the interface.

The recording signs for radiometric video and MP4 videos are different. When you see  00:00:28, it is recording a MP4 video. When you see  Offline 00:00:28, it is recording a radiometric video.

3. When you finish, hold  again to stop recording. The recording video will be saved automatically and exit.


### Note

You can also press **OK** or  to stop recording.

4. Refer to **Export Files** to export the snapshots.

## 6.4 View Local Files

### Steps






1. Press  to enter **Albums**.
2. Tap to select the album storing the files.
3. Tap to select the video or snapshot to view.
4. View the selected file and relevant information.

**Table 6-1 File Type and Description**

File Type	Description
MP4 videos, format .mp4	Videos of this format can be played on local device, or exported to play by any other supported player.  But, this format cannot be played by HIKMICRO Analyzer
Radiometric images,	Images can be viewed on local device, or exported and analyzed in

File Type	Description
format .jpeg	HIKMICRO Analyzer.

## Note








- Files are arranged in chronological order, with the most recent at the top. If you fails to find the most recently taken snapshots or videos, please check the time and date settings of your device. See **Set Date and Time** for instructions. When you are viewing files, you can switch to other files by pressing , and  or tapping  and  on the interface..
- When you are viewing snapshots with voice notes, You can tap  to play the sound. If you want to listen to the recorded sound in MP4 videos or with snapshots by bluetooth earphones or speakers, see **Connect Bluetooth** for instructions.
- For file exporting, see **Export Files** for instructions.
- For file analysis, download HIKMICRO Analyzer from our website **<https://www.hikmicrotech.com/>**.








## What to do next

For file management, see **Manage Files** for instructions; for album management, see **Manage Albums** for instructions.

## 6.4.1 Manage Albums





The recorded image/video files are saved in the albums. You can create new albums, rename an album, change the default album, and delete albums.














Task	Operations
Create a New Album	<ol style="list-style-type: none"> <li>Press  to enter <b>Albums</b>.</li> <li>Tap  to add a new album.</li> <li>A soft keyboard is displayed, where you can enter the name of the album by touching the screen.</li> <li>Tap  to finish.</li> </ol> <hr/> <p> <b>Note</b></p> <p>The newly created album becomes the default saving album and appears at the top of the album list.</p> <hr/>
Rename an Album	<ol style="list-style-type: none"> <li>Press  to enter <b>Albums</b>.</li> <li>Select the album to rename.</li> <li>Tap , and select <b>Rename</b>. A soft keyboard is displayed.</li> <li>Tap  to delete the old name, and enter the new name for</li> </ol>



Task	Operations
	<p>the album by touching the screen.</p> <p>5. Tap  to finish.</p>
Change the Default Saving Album	<p>1. Press  to enter <b>Albums</b>.</p> <p>2. Select the album you want to use as the default saving album.</p> <p>3. Tap , and select <b>Set as Default Saving Album</b>.</p> <hr/> <p> <b>Note</b></p> <p>The default saving album appears at the top of the album list.</p> <hr/>
Delete an Album	<p>1. Press  to enter <b>Albums</b>.</p> <p>2. Select the album you want to delete.</p> <p>3. Tap , and select <b>Delete</b>. A prompt box appears on the interface.</p> <p>4. Tap <b>OK</b> to delete the album.</p> <hr/> <p> <b>Note</b></p> <p>The files in an album are deleted as well when deleting the album. Move the files to other albums if they are still needed. See <b><u>Manage Files</u></b> for instructions.</p> <hr/>

## 6.4.2 Manage Files



You can delete the recorded files and move the files to other albums on the device.

Task	Operations
Delete a File	<p>1. Press  to enter <b>Albums</b>.</p> <p>2. Tap to select the album storing the file to be deleted.</p> <p>3. In the album, tap to select the file to be deleted.</p> <p>4. Tap , and select <b>Delete</b>. A prompt box appears on the interface.</p> <p>5 Tap <b>OK</b> to delete the file.</p>
Delete Multiple Files	<p>1. Press  to enter <b>Albums</b>.</p> <p>2. Tap to select the album storing the files to be deleted.</p> <p>3. In the album, tap , and tap the files to be deleted.</p>

Task	Operations
	<p>4. Tap . A prompt box appears on the interface.</p> <p>5 Tap <b>OK</b> to delete the files.</p> <hr/> <p> <b>Note</b></p> <p>You can also delete a single file in this way.</p> <hr/>
Move a File	<p>1. Press  to enter <b>Albums</b>.</p> <p>2. Tap to select the album storing the file to be moved.</p> <p>3. In the album, tap to select the file to be moved.</p> <p>4. Tap , and select <b>Move</b>. The album list is displayed.</p> <p>5 Tap to select the album to move to.</p>
Move Multiple Files	<p>1. Press  to enter <b>Albums</b>.</p> <p>2. Tap to select the album storing the files to be moved.</p> <p>3. In the album, tap  to select the files to be moved.</p> <p>4. Tap . The album list is displayed.</p> <p>5. Tap to select the album to move to.</p> <hr/> <p> <b>Note</b></p> <p>You can also move a single file in this way.</p> <hr/>
Add Text Note on File	<p>1. Press  to enter <b>Albums</b>.</p> <p>2. Tap to select the album storing the file to be edited.</p> <p>3. In the album, tap to select the file to be edited.</p> <p>4. Tap , and select <b>Text Note</b>. A soft keyboard is displayed.</p> <p>5. Enter the text note by touching the screen.</p> <p>6. Tap  to finish.</p> <p><b>What to do next</b></p> <p>You can open the edited photo to view the text note.</p>
Add Voice Note on File	<p>1. Press  to enter <b>Albums</b>.</p> <p>2. Tap to select the album storing the file to be edited.</p> <p>3. In the album, tap to select the file to be edited.</p> <p>4. Tap , and select <b>Voice Note</b>. A microphone is displayed.</p> <p>5. Tap the microphone to start/stop recording.</p> <p><b>What to do next</b></p>

Task	Operations
	<p>You can open the edited photo, and tap the  to play the recording.</p> <hr/> <p> <b>Note</b></p> <p>Voice note can only be added on images.</p> <hr/>





### Note

Tap  to select all files, and tap  to cancel the selection.

## 6.5 Local Analysis and Report Generation

For captured local radiometric images, you can modify temperature measurement rules on the device. At the same time, the device supports temperature measurement result analysis, and you can generate a report.

### Steps

1. Select and open an image in the album.
2. Tap the image to show editing options, and tap  to enter the editing interface.
3. (Optional) Tap the rules of the image to modify the temperature measurement rule. See [4.3 Set Thermography Rule](#) for reference. Tap the screen again to finish.
4. (Optional) Tap , then a dialogue box pops up. You can save, cancel, or exit the current operation.
5. Tap  to enter the report generation interface.
6. Enter the **Title** and **Author** for the report. Tap  to generate the report.

### What to do next

Refer to [Export Files](#) to export the PDF report for local analysis.

### Note

You can analyze the radiometric image again on HIKMICRO Analyzer.

## 6.6 Export Files

Connect the device to your PC with supplied cable, you can export the recorded videos, captured

snapshots, and PDF reports.

---

### **Note**

Cast screen should be turned off before exporting files, or the PC cannot detect the disk. Go to **Local Settings** → **Device Settings** → **Cast Screen** to check the function status.

---

### **Steps**

1. Open the cover of cable interface.
  2. Connect the device to your PC with cable and open the detected disk.
  3. Select and copy the videos or snapshots to PC to view the files.
  4. Disconnect the device from your PC.
- 

### **Note**

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

---

### **What to do next**

You can import the captured snapshots to HIKMICRO Analyzer for further data analysis. See the *User Manual of HIKMICRO Analyzer* (embedded in the client software, **Help** → **User Manual**) for the operation guide.



## Chapter 7 Distance Detection

The laser range finder consists of a laser transmitter and a laser receiver. The device detects the distance to a target by measuring the time it takes for a laser pulse to reach the target and return to the laser receiver. This time is converted to a distance, which is displayed on the screen.

### Before You Start

- It is recommended to use this function in non-glare environment, such as indoor environment.
- It is recommended that the target has good light reflection, such as white paper and cable.

### Steps

1. Select  from main menu.
2. Go to **Device Settings** → **Display Settings**.
3. Enable **Distance Value**.
4. Press  to save and exit.
5. In the live view interface, aim the cursor at the target and hold the laser button.
6. Release the laser button to finish distance measurement.



### Result

The distance displays on the screen when distance measurement is finished.

## Chapter 8 Connect Bluetooth

You can record and hear the sound contained in the videos or images via bluetooth headsets after pairing the device with bluetooth headsets successfully.

### Steps

1. Select  from the main menu.
2. Go to **Local Settings** → **Connect** → **Bluetooth**.
3. Tap  to enable the bluetooth.

---

### Note

You can also press  or **OK** to quit pairing.


---

The device will search the nearby enabled bluetooth headsets and pair them automatically.

### Result

After pairing you can record and hear the sound via the headsets while recording and playing the video or image.

## Chapter 9 Set LED Light

In live view mode, press  to enable/disable the LED light. Or tap the flashlight button on the swipe-down menu.



## Chapter 10 Cast Screen

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. Then you can synchronously view the live view and parameters such as the maximum temperature, the distance, and the emissivity on your PC.

### Before You Start

Install the UVC Alarm Client on your PC.

### Steps

1. Select  from the main menu.
2. Go to **Local Settings** → **Connect** → **Cast Screen**.
3. Tap  to enable the function.
4. Open UVC Alarm Client on your PC.
4. Connect the device to your PC via a type-C cable.

### Result

The live view interface and parameters of the current image will be synchronously displayed on your PC.

## Chapter 11 Thermal View APP Connection



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

### 11.1 Connect via Wi-Fi

#### Before You Start

Download and install HIKMICRO Viewer on your phone.

#### Steps

1. Select  from the main menu.
2. Go to **Local Settings** → **Connect** → **WLAN**.
3. Tap  to enable Wi-Fi, and the searched Wi-Fi will be listed.

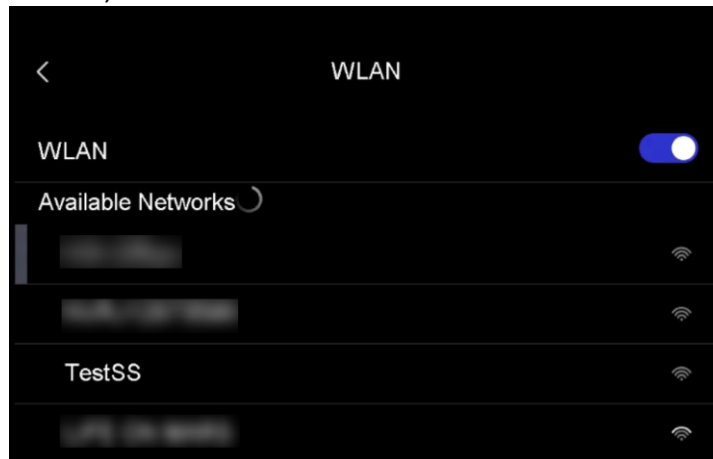


Figure 10-1 Wi-Fi List


4. Select the Wi-Fi to connect to. A soft keyboard is displayed.
5. Enter the password by touching the screen.

---

#### Note

DO NOT tap **enter** or **space**, or the password may be incorrect.

---

6. Tap  to save.
7. Launch the App and follow the startup wizard to create, and register an account.
8. Add the device to online devices.

#### Result

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

## 11.2 Connect via Hotspot

### Before You Start

Download and install HIKMICRO Viewer on your phone.

### Steps



1. Select  from the main menu.
2. Go to **Local Settings** → **Connect** → **Hotspot**.
2. Tap  to enable the hotspot function. The hotspot name is the last 9 digits of the device serial No.
3. Tap **Set Hot Spot**. A soft keyboard is displayed.




Figure 10-2 Set Hotspot

4. Set the password for the hotspot.

---

### Note

- DO NOT tap **enter** or **space**, or the password may be incorrect.
  - The password should contain at least 8 digits, consisting of numbers and characters.
- 

5. Tap  to save.
6. Connect your phone to the hotspot of the device.
7. Launch the App and follow the startup wizard to create, and register an account.
8. Select Wi-Fi configuration in the App, and enter the serial number of device to add the device.  
Refer to the manual of APP client for details.

### Result

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



## Chapter 12 Position Settings

The device supports GPS and compass functions. You can locate the device position and determine the observation direction with these functions. The position and direction information is displayed on the right of the live view interface.

### 12.1 Enable GPS

Equipped with satellite positioning modules, the device is able to display its longitude and latitude on the live image and in the captured images.

#### Steps

1. Select  from the main menu.
2. Go to **Local Settings** → **Device Settings** → **GPS**.
3. Tap  to enable the GPS function. The device will prompt the GPS positioning result.

#### Result

You can see the location displayed at lower right corner of the screen.





#### Note

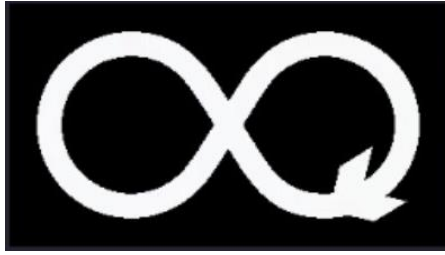
- The satellite module is not able to receive signals when the device is indoor. Place the device in an empty outdoor space to receive signals.
  - In an outdoor space, wait for a moment for the device to display its location.
  - The location information is also attached in captured radiometric images. You can read the location by HIKMICRO Analyzer.
  - Location display is only supported by models with satellite positioning modules.
- 

### 12.2 Set Compass

Enable the compass function to determine the observation direction. You need to calibrate the compass if there is magnetic field disturbance.

#### Steps

1. Select  from the main menu.
2. Go to **Local Settings** → **Device Settings** → **Compass**.
3. Tap  to enable the compass function. A prompt box appears on the interface.
4. Tap **OK** to start calibration, or tap **Cancel** to quit.
5. (Optional) Rotate the device according to the guidance below to calibrate the compass. The device will prompt the compass calibration result.



**Figure 11-1 Compass Calibration Guide**

6. (Optional) In the calibration interface, you can tap **Cancel** to quit the calibration.
- 

 **Note**

If you tap **Cancel** to quit the calibration, the direction information may be inaccurate.

---


## Chapter 13 Maintenance

### 13.1 View Device Information

Go to **Local Settings** → **Device Information** to view the device information.

### 13.2 Set Date and Time

#### Steps

1. Go to **Local Settings** → **Device Settings** → **Time and Date**.
2. Set the date and time.
3. Press  to save and exit.



#### Note

Go to **Local Settings** → **Device Settings** → **Display Settings** to enable or disable time and date display.

---

### 13.3 Upgrade Device

#### Steps

1. Connect the device to your PC with cable and open the detected disk.
2. Copy the upgrade file and paste 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 upgrading, the device reboots automatically. You can view the current version in **Local Settings** → **Device Settings** → **Device Information**.

---

### 13.4 Restore Device

Go to **Local Settings** → **Device Settings** → **Device Initialization** to initialize the device and restore default settings.

## 13.5 Initialize Memory Card

When a memory card is use on the handheld thermal camera for the first time, it needs to be initialized first.

Go to **Local Settings** → **Device Settings** → **SD Card Initialization** to initialize the memory card.

---

### **Caution**

If there are files in the memory card, make sure that the files has been backed up before memory card initialization. Once the card is initialized, data and files cannot be recovered.

---

## Chapter 14 Appendix

### 14.1 Common Material Emissivity Reference

Material	Emissivity
Human Skin	0.98
Printed Circuit Board	0.91
Concrete	0.95
Ceramic	0.92
Rubber	0.95
Paint	0.93
Wood	0.85
Pitch	0.96
Brick	0.95
Sand	0.90
Soil	0.92
Cloth	0.98
Hard Paperboard	0.90
White Paper	0.90
Water	0.96

### 14.2 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.



## 14.3 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.



## 14.4 FAQ

Scan the following QR code to get device common FAQ.





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