DALI

AI Thermal Imaging Camera for Firefighting

HRYXBSZ-F8

User Manual

Zhejiang Dali Technology Co Ltd

⚠ Warning

In dark and smoky environments, firefighters can fully utilize the functions of the HRYXBSZ-F8 fire infrared thermal imaging camera (hereinafter referred to as F8) equipment, making it more reliable for judging harsh environments and more efficient in action. Users must carefully read the following information, otherwise it may lead to serious consequences such as serious injury or death!

Users must undergo professional training and fully understand the characteristics and correct usage of F8 before using it; Before officially applying it to emergency situations, it is recommended to conduct a live fire drill first, otherwise in critical situations, it may cause serious personal injury or even death.

F8 requires at least 5 minutes for preheating when turned on, in order to reduce measurement errors caused by changes in the ambient temperature of the detector when it is first turned on. The specific preheating time may vary depending on different models and application scenarios.

Due to the fact that F8 is a complex optoelectronic device, like other optical or electronic devices, there is a risk of operational failure or loss of direction in emergency situations. Therefore, in dark and smoky environments, it is required not to use a thermal imager as the only cruise guidance device, as this may result in serious consequences.

It is recommended to use F8's electronic compass and positioning system outdoors, as indoor environments may be affected by electronic interference, resulting in inaccurate orientation display or no positioning information.

In high-temperature environments, it is necessary to strictly follow the operating procedures, otherwise it may cause equipment damage, serious personal injury, or even death.

Almost all electronic devices will stop working at a certain high temperature point. For the testing of F8, it can provide a thermal image for 30 minutes at a surface ambient temperature of 80 ℃; At a surface ambient temperature of 120 ℃, it can provide a thermal image for 10 minutes; At a surface temperature of 260 ℃, it can provide a 5-minute thermal image. Exceeding this state will cause equipment damage and loss of thermal imaging.

F8 does not recommend using thermal images that have passed through glass, water, or smooth surfaces, as thermal images in these situations may cause users to experience hallucinations or confusion.

Before entering a hazardous environment, test the system as required to ensure that the equipment is working and functioning properly. After each use, check if the equipment needs maintenance to confirm if it is damaged or downgraded in usage level.

Long term exposure of equipment to high temperatures may result in reduced performance or loss of thermal imaging. Be sure to avoid excessive sensitivity of the equipment or temperatures exceeding the designed tolerance range of the equipment, otherwise it will cause thermal saturation. If the thermal image shows thermal saturation, please immediately remove the device from the high temperature environment to restore it to normal thermal imaging, otherwise it will damage the device.

The service life of the equipment is determined by the number of times it is used and the environmental conditions in which it is used. The service life may vary under different usage times and extreme environmental conditions.

When the device is used in a low-temperature environment, the battery life of the device may be slightly shortened.

In a dangerous environment, when the user observes a low voltage alarm on the device battery capacity indicator, please immediately evacuate to the exit, otherwise the device may stop working, resulting in serious consequences.

The battery of the device is made by our company through precise calculation, so replacing the battery must fully comply with the original battery configuration. Using unauthorized batteries will cause damage to the device system.

This device can only be maintained by authorized technicians. Please do not disassemble the casing or cover.

Do not directly connect the two poles of the battery or expose it in a damp and conductive area, as a short circuit may affect the battery's lifespan.

Failure to follow the above warning may result in serious personal injury or even death.

TABLE OF CONTENTS

1 Introduction

Thank you very much for choosing the HRYXBSZ-F8 AI intelligent fire infrared thermal imager.

The HRYXBSZ-F8 AI intelligent fire infrared thermal imager is designed specifically to assist firefighters in rescue or search work in low visibility environments with smoke or darkness. The product meets the requirements of the XF/T 635-2023 "Fire Infrared Thermal Imager" standard.

The HRYXBSZ-F8 AI intelligent fire protection infrared thermal imaging adopts advanced uncooled focal plane infrared detectors and our company's independently developed advanced real-time infrared thermal imaging processing circuit, with high-definition and high-sensitivity thermal imaging. At the same time, it adds AI+infrared recognition algorithm to increase search and rescue efficiency, and has multiple communication methods to remotely transmit on-site information.

The HRYXBSZ-F8 AI intelligent fire protection infrared thermal imaging has a handheld structure, which conforms to ergonomic design and can be operated with one hand.

Special Instructions:

According to the requirements of standard XF/T 635-2023 "Thermal imaging cameras for firefighting" , the official model of this infrared camera named HRYXBSZ-F8, referred to as F8. (The following F8 are all referred to as HRYXBSZ-F8 AI intelligent firefighting infrared camera)

1.1 Quick Start

Please start immediately by following these steps:

1.Before starting the thermal imager for the first time, charge the battery for 3 hours or until the green battery status indicator light continues to light up.

2. Press and hold the power button to turn on the thermal imager.

3. Aim the thermal imager at the target object.

Attention: When the image quality deteriorates or residual images appear, please long press the mode switch key to force zero.

4. Short press the mode switch button to select the appropriate detection mode.

5. Short press the power button to select the appropriate color palette (visible light mode cannot be switched).

6. Short press the capture button to save the image.

7. Use the matching USB cable to connect the thermal imager and computer for image and video transmission

8. Connect to the mobile app, click the thermal imager hotspot, connect to the thermal imager hotspot on your phone (default password 12345678), enter the dedicated app, and click connect. (Download the mobile app and scan the QR code below)

1.2 Standard Configuration

Thermal Infrared Imager F8

Safety Box

Data package

User Manual

Rechargeable Battery（3）

Charging Dock

USB Cable

Power Adapter（DC12V/2A)

Shoulder Strap & Hand Strap

Quality Certificate

Packing List

1.3 Optional Configuration

Rechargeable Battery

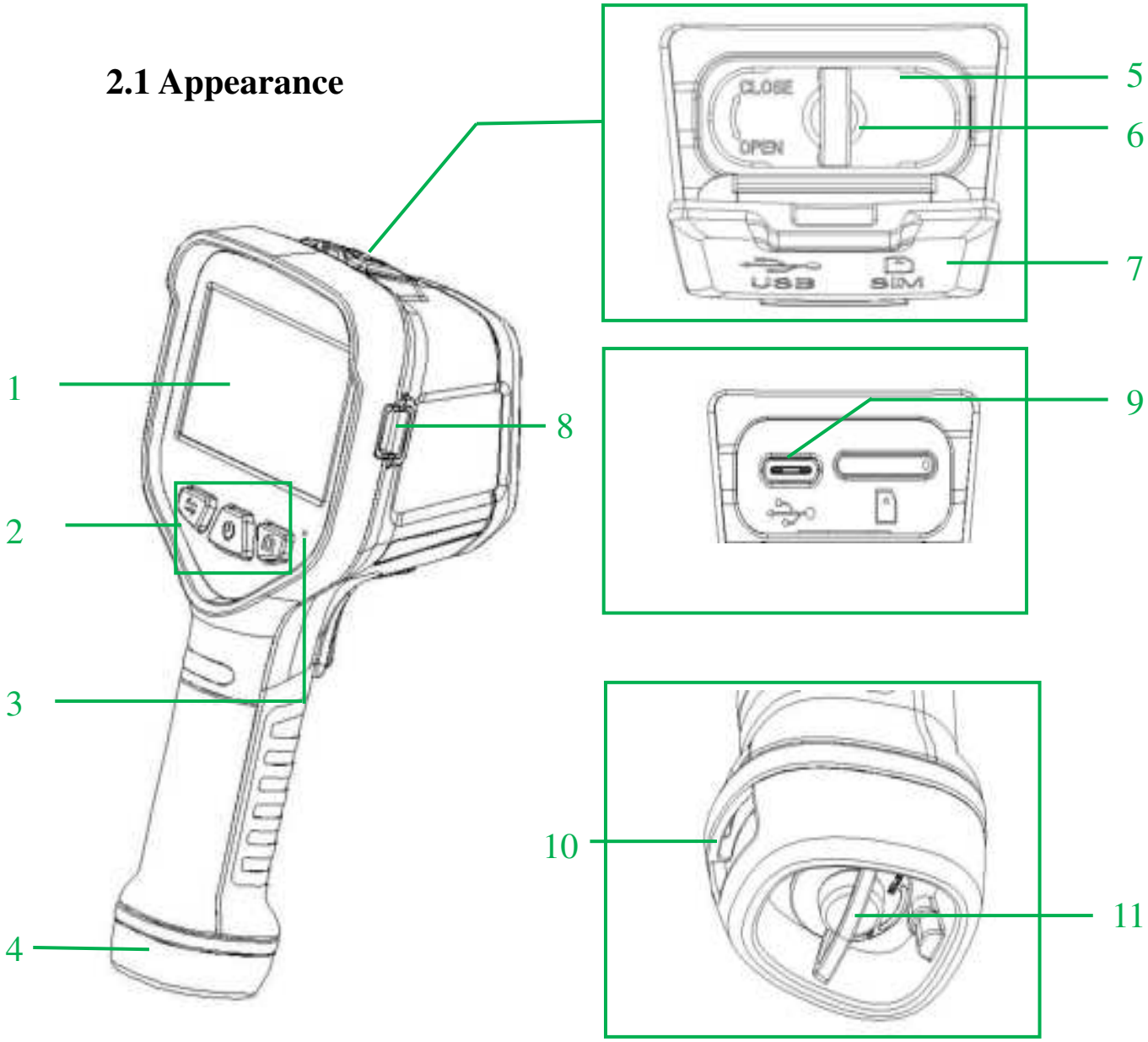
Retractable Cord

Wristbands

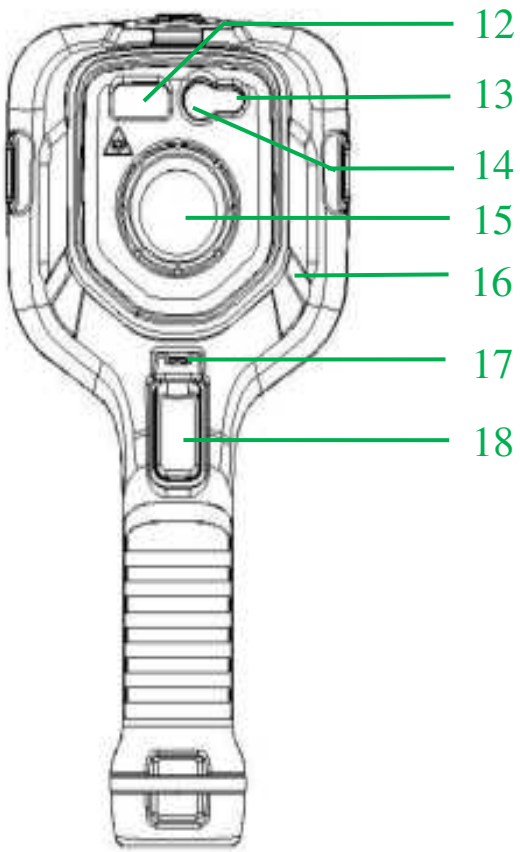
Intrinsically Safe Battery

2 Introduction

2.1 Appearance



Appearance 1-1 (front view)



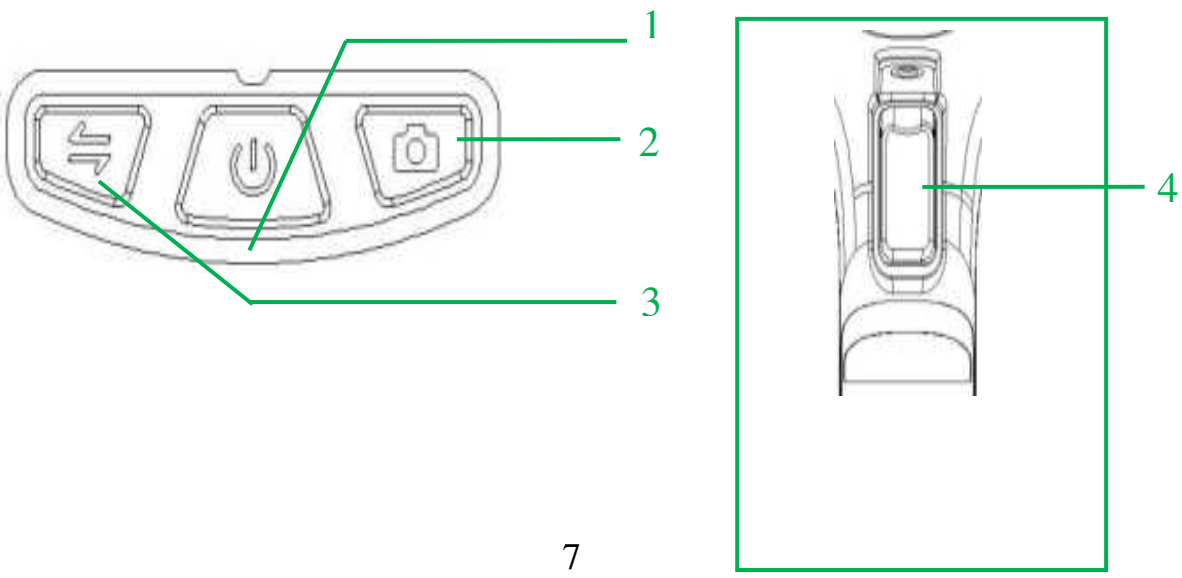
Appearance 1-2 (Rear View)

Appearance Instruction

No.	Items	Instruction
1	Screen	Display image information and operation menu
2	Button	Operate the thermal imager, see 2.2 button introduction for details
3	Indicator light	➢ Flashing red: Power off and charging status ➢ Flashing green: Charging completed ➢ Red to green: startup process ➢ Pure green: Power on status
4	Battery	Powering Thermal Imaging
5	Interface cover	Protecting the Interface
6	Interface pull-ring switch	Turn the interface pull ring to unlock the interface cover

7	Rubber cover	Cover Interface
8	Neck strap installation armrest	Mount neck strap for portability
9	USB interface	Charge the device and transfer data
10	Wristband installation armrest	Install wrist strap for easy carrying
11	Battery disassembly switch	Turn switch for battery lock or unlock
12	Laser ranging module	Laser indication and laser ranging
13	LED fill light	Active on /off for dark environment illumination
14	visible light	View and capture visible light images
15	Infrared lens	View and capture infrared thermal images
16	Fluorescent strip	For decoration and identification in dark conditions
17	Tripod Interface	For tripod mounting
18	Trigger key	Operate the camera as described in 2.2 Buttons.

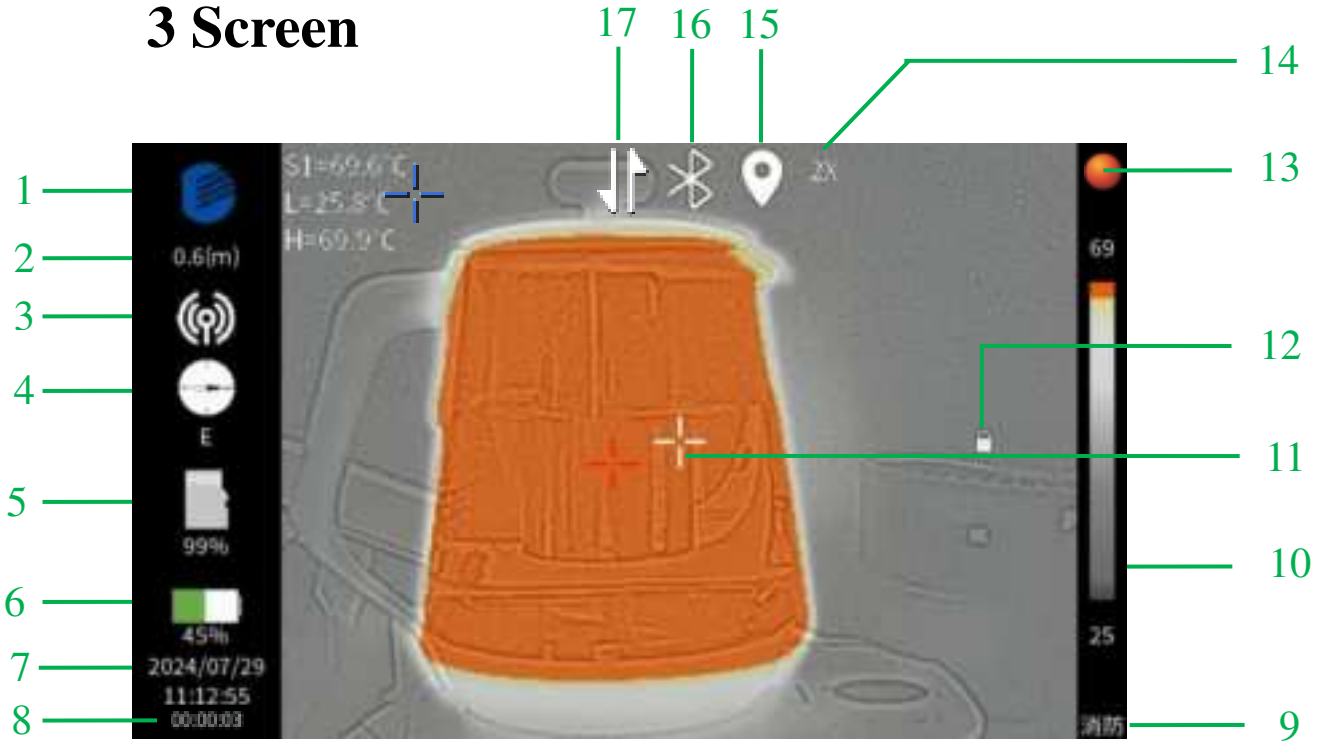
2.2 Buttons



Buttons Instruction

No.	Icons	Items	Short press	Long press
1		Power On	Switch color palette (unable to switch in visible light mode), confirm key in menu mode	Power on/off
2		Photo	Freeze the image, short press again to save the image, and to right in menu mode	Start recording, short press to save recording
3		Mode switching	Switch imaging mode, and to left in menu mode	Zeroing manually
4		Trigger	Laser indication+laser ranging (custom button function), and to return in menu mode	Enter menu

3 Screen

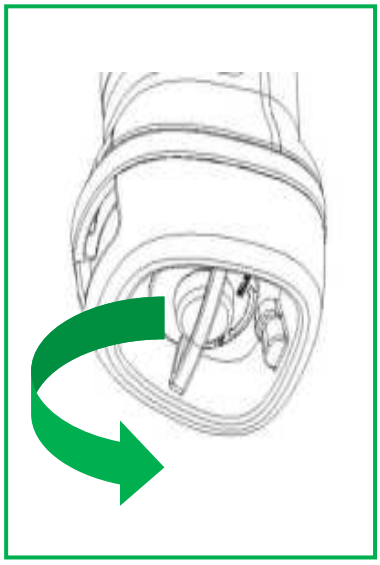


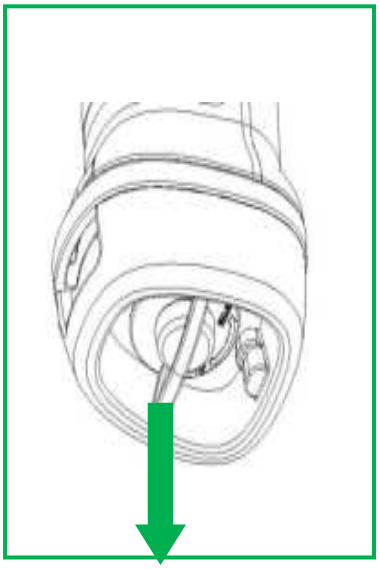
3.1 Screen Description

No,	Items	Description
1	LOGO	DALI LOGO
2	Laser ranging value	The results measured by laser ranging
3	Hotspot Mode	Switchable routing mode and off
4	Compass	Direction information
5	Storage capacity	Displays percentage of remaining storage capacity
6	Battery indicator	Displays percentage of remaining battery power
7	Time display	Displays year, month, day, hour, minute and second
8	Timing	Display video timing time, voice annotation time
9	Palette name	Eight color palettes can be selected, including fire protection, firefighting, search and rescue, building, thermal inspection, forest, water area, and night vision
10	Palette and temperature display	Display color palette and the upper / lower limits of the highest / lowest temperatures
11	Center point	White is the center point temperature measurement cursor, blue is the lowest temperature cursor, red is the highest temperature cursor.
12	Freeze	Picture freezing prompt, short press the photo button to save the picture, short press the trigger button to cancel the photo.
13	Video	Prompt when recording starts
14	Zoom	Prompt the current magnification factor
15	Positioning	Prompt to enable current positioning
16	Bluetooth	Prompt that Bluetooth is currently enabled
17	Data	Prompt that data has been enabled

4 Basic Operation

4.1 Battery Installation & Removal





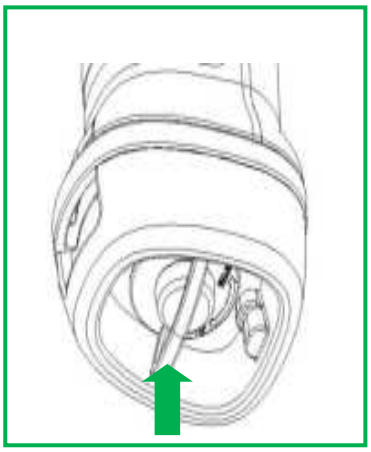
Battery Removal Steps: Pull out the switch ring on the battery and turn it counterclockwise about 45° to unlock the battery, then pull out the battery in the direction shown in the picture.

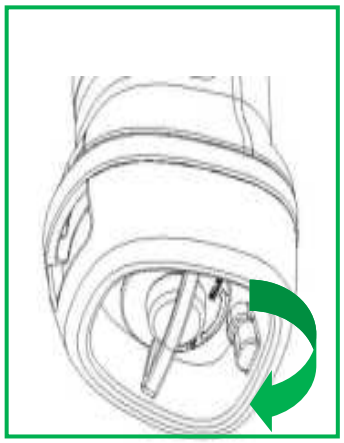
4.2 Battery Charging

Battery charging steps: put the battery into the charging seat, connect the charger to charge. (You can put one alone or two) Red light is normal charging status, green light is charging completed.

4.3 Battery Installation

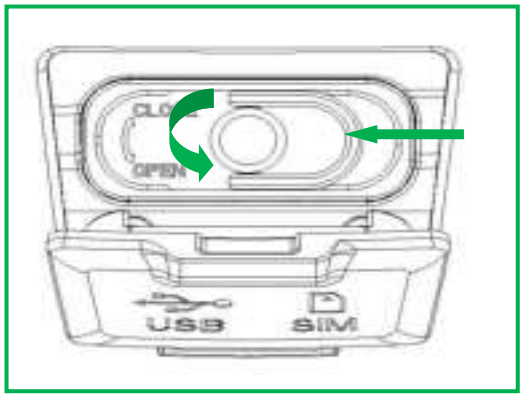
NOTE: The device should use standard configuration batteries, otherwise the mechanical or electrical performance of the device may be damaged due to incorrect battery size and voltage.





Battery Installation Steps: Insert the battery in the direction as shown, then turn it clockwise about 45° to lock the battery, and finally return the switch ring to its place.

4.4 USB charging



USB charging steps: pull out the switch ring in the direction as shown in the picture, unlock the interface cover by rotating counterclockwise about 45°, pull out the interface cover vertically to reveal the USB port, connect the USB charger or computer. If charging on, observe the screen power display, charge to 100%, stop charging. If the power off charging, observe the indicator light, flashing red light for charging status, flashing green light is fully charged. Disconnect the USB after

charging, lock the interface cover and close the rubber cover.

4.5 Device data transfer

Steps for data transfer: Connect the USB according to 4.4, connect the other end to the computer, the device should be in the power-on state, then data transfer can be carried out.

4.6 General knowledge of safe use of batteries

1. **The battery should be** stored at an ambient temperature of -20 ° C to 20 ° C as much as possible. Due to the small amount of self discharge during storage, in order to avoid possible over discharge that may affect the battery capacity, the battery should be fully charged and stored, and charged at regular intervals. The time interval is as follows:

The ambient temperature is -20 ℃∽ 20 ℃, once every 6 months;

The ambient temperature is between 20 ℃ and 45 ℃, once every 3 months;

The ambient temperature is between 45 ℃ and 60 ℃, once every month;

The amount of electricity charged each time must be greater than 50% of the battery capacity.

The ambient temperature during charging is between 0 ℃ and 40 ℃. Charging at an ambient temperature of 0 ℃ may result in battery capacity loss, while charging above 40 ℃ may cause excessive battery temperature and damage.

2. Precautions for battery use:

Do not disassemble, squeeze, or puncture the battery;

Do not short-circuit the external contacts of the battery;

Do not place the battery in fire or water;

Do not place it in a place that is easily accessible to children;

Please dispose of discarded batteries in accordance with local government regulations

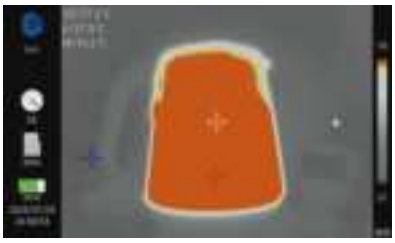
4.7 Turning the camera on and off

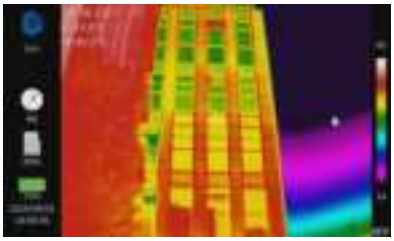
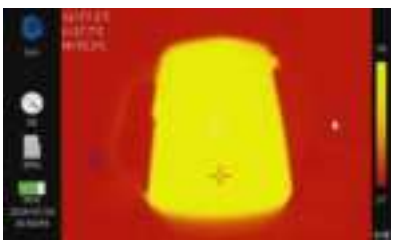
Press and hold the power button for more than 3 seconds to turn the camera on/off.

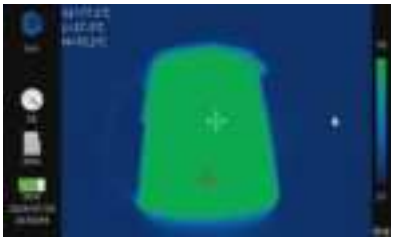
4.8 Selecting the color palette

The camera has eight different color palettes, which can be switched by shortly pressing the power button .

Color Palette Introduction

Palette Name	Description	Example Diagram
Firefighting	Designed to quickly locate the fire source, assess the spread of the fire, and identify high-temperature and high-risk areas in the early stages of a fire. Under this mode, firefighters can quickly understand the fire situation and develop effective firefighting or rescue strategies.	
Fire	Suitable for fire scenes with high temperature background, especially when there is a large number of open flames. This mode has high contrast and visibility in complex environment, providing clear images in the case of thick smoke or low visibility, and at the same time, it can differentiate the temperature distribution of each area of the fire scene, so as to avoid firefighters from mistakenly entering into the dangerous area of extreme high temperature, and then to protect their safety.	
Search and rescue	Designed specifically for personnel collection, using AI+infrared recognition technology to automatically search for objects between 30 ° C and 45 ° C. After being recognized as human models by AI, it automatically selects them. This mode improves the efficiency of search and	

	rescue from natural disaster in extreme weather.	
Building	Specially designed and optimized for building fire protection. This mode has high contrast, multiple color modes, which can effectively detect the distribution of building heat, query high temperature points. At the same time, this mode can also detect the detachment of building exterior walls, evaluate building insulation, monitor energy efficiency, etc..	
Hot inspection	Optimized for searching hotspots during the thorough inspection process after a fire is extinguished. This mode can effectively search for residual hotspots, prevent secondary reignition, and evaluate the fire extinguishing effect to ensure that all heat sources are eliminated. This mode renders the top 20% of the background temperature in red, allowing firefighters to quickly and accurately identify hotspot information and improve inspection efficiency.	
Forest	Designed specifically for forest search and rescue, using natural green and brown colors to adapt to the forest environment and avoid being mistaken as a target for search and rescue personnel. This mode has a clear contrast, making temperature changes clearly visible and helping to quickly detect trapped individuals or areas with abnormal temperatures. The color selection of this mode can blend with the forest background, avoiding confusion with surrounding vegetation.	
Waters	Designed specifically for water rescue, using orange, red, and yellow colors that are relatively easy to recognize in water environments and can form a clear contrast with the water surface. This mode uses bright colors and a dark background to ensure high contrast in water environments, helping to quickly detect drowning or trapped individuals. The	

	mode covers a range from lower to higher temperatures, so that users can clearly identify various temperature areas.	
Night vision	Designed specifically for nighttime search and rescue, as well as rainy and snowy weather. The mode uses green, blue, and purple colors, which are relatively easier to recognize at night. Bright colors and dark backgrounds ensure high contrast in low light environments at night, helping to quickly locate personnel's temperature signals.	

4.9 Mode switching

Short press the mode switch button ⇌ to switch imaging modes, including dual spectrum fusion mode, picture in picture mode, infrared mode, and thermal imaging mode.

Introduction to Imaging Modes

Items	Description	Example Diagram
Dual spectral dynamic imaging mode	The multi-mode technology of infrared and visible light fusion generates a comprehensive image containing thermal information and visible light details by overlaying or combining infrared thermal imaging images with visible light images. This can simultaneously display the temperature distribution and appearance details of the object.	
Picture in picture imaging mode	This mode stacks thermal imaging on the basis of visible light, and can display both thermal imaging and visible light modes in real time, enhancing visibility and reducing the need to switch modes.	

Infrared imaging mode	Infrared imaging mode is a technology that generates images by detecting the infrared radiation (heat) emitted by an object. This mode can visualize temperature and perform non-contact temperature measurement.	
Visible light imaging mode	Visible light mode refers to the use of visible light cameras to capture and display images of objects within the visible spectral range. This mode uses the spectrum that can be seen by the human eyes.	

4.10 Save Images

Short press the capture button  to freeze the image, then short press again to save the image. After successful saving, the message "Image saved successfully" will appear on the display screen. The image is stored in the thermal imager in. jpg format.

4.11 Record Video

Long press the capture button  to start recording. A circle  in the upper right corner of the screen indicates that the thermal imager is currently recording a video clip. There will be recording time in the lower left corner of the screen. Short press the capture button to stop recording. The video is MP4 format is stored in the thermal imager.

4.12 Laser ranging

Attention: After turning on the laser light, do not shine it on the eyes to avoid eye damage from the laser.

Short press the trigger button  to turn on the laser indicator and laser ranging, and the laser ranging result will be displayed in the upper left corner of the screen. Short press the trigger again to turn off the laser indicator and laser ranging.

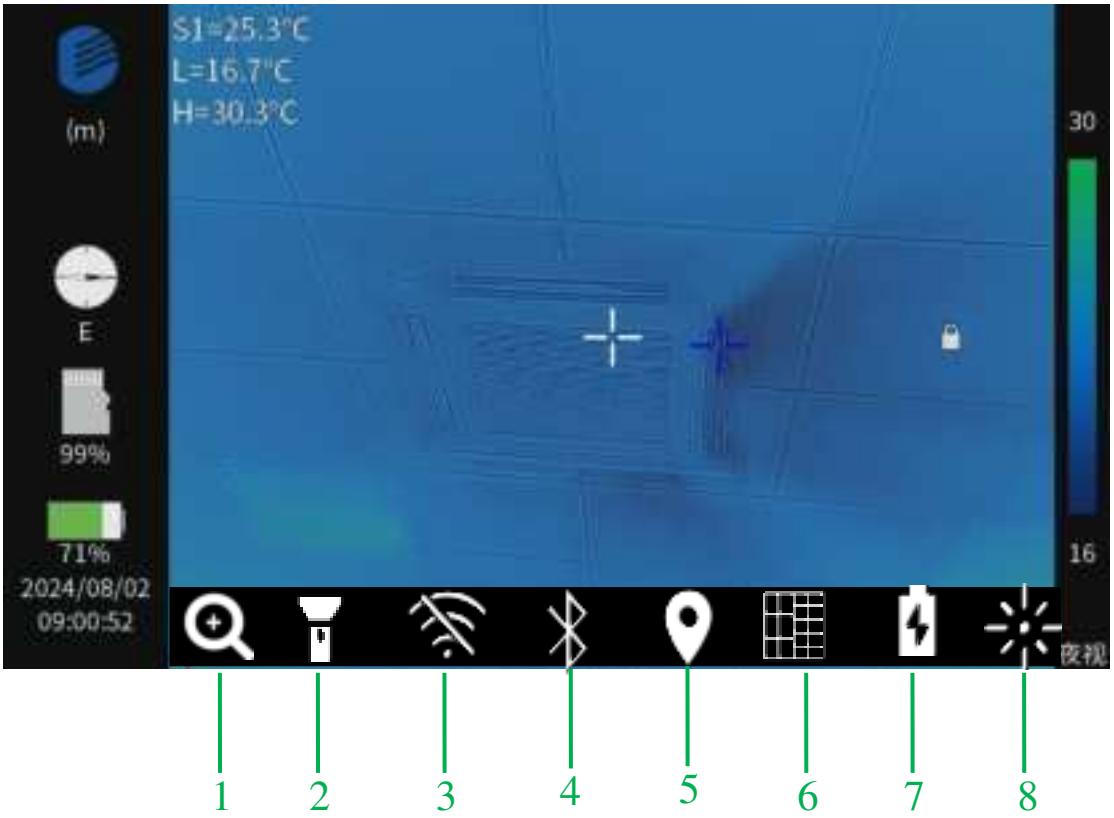
5 More Functions

5.1 Enter the menu

Press and hold the trigger key  for about 5 seconds to enter the menu, in the menu state the keys are defined as follows:

No.	Icons	Items	Short press
1		Power On	Confirmation in menu mode
2		Photo	Right in menu mode
3		Mode switching	Left in menu mode
4		Trigger	Back in menu mode

5.2 Main menu



Main Menu Interface Functions

No.	Icons	Items	Description
1		Zoom	Magnify images up to 2x, 4x, 8x
2		Flashlight	Use as emergency lighting and fill light
3		WIFI	With two modes, hotspot mode and routing mode. Can connect with cell phone APP to realize real-time picture remote transmission and control
4		Bluetooth	Can connect with Bluetooth headset to realize voice annotation function.
5		Positioning	Display real-time latitude and longitude on the screen after turning on
6		Ultra Pixel	Enhance the resolution of captured photos
7		Power Saving Mode	Reduce the power consumption of the device and improve the endurance time
8		Trigger key customization	Set the trigger key short press function, can set the laser distance measurement, take photos, flashlight, zoom function.

6 Software

6.1 Mobile Software

Scan the QR code below with your phone, select the mobile app, download the corresponding version of the app, and install it.

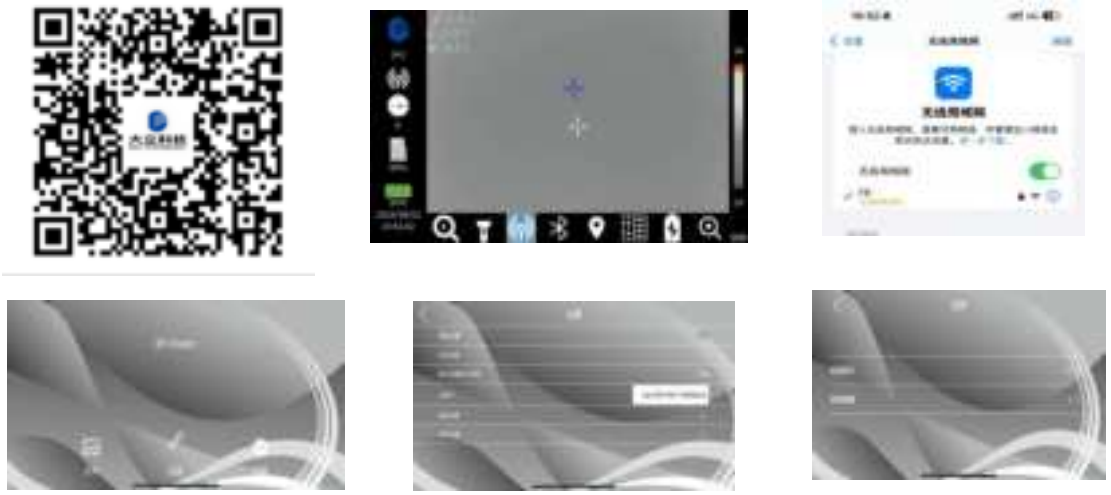
Turn on WIFI on the thermal imaging device and select hotspot mode.

Mobile wireless LAN, find F8 to connect, default password is 12345678

Enter the downloaded app (IR Vision) on your phone, click on the link to connect to the thermal imaging camera

View pictures and videos taken on the APP in the file

The APP settings interface can set language, view APP information, set recording time, view device IP, routing settings, WIFI settings



6.2 Computer software

Turn on the computer (address below)

https://yk3.gokuai.com/file/ffiekiipmml4etiivgsq8vaagoo2lrli#

and Download and install report analysis software

This software can analyze captured images, change color palettes, adjust temperature ranges, play voice annotations, and other functions.

7 Troubleshooting

If you encounter problems while using the thermal imaging camera, use the following table to troubleshoot. If the problem is not resolved, disconnect the power and contact our maintenance department.

Faults	Solutions
Thermal imaging camera does not start	➢ Batteries are not loaded or batteries are not installed accurately. →Load the battery or reinstall the battery. ➢ Battery power is exhausted. →Replace the battery. ➢ The camera is switched off for protection. →Wait for 5 seconds before restarting.
Thermal imaging camera shuts down automatically	➢ Battery power is exhausted. →Replace the battery.
Battery power consumption is too fast	➢ Ambient temperature is too low. ➢ The rechargeable battery has not been fully charged. →Recharge the rechargeable battery. ➢ The rechargeable battery is completely exhausted and cannot be recharged. →Replace the rechargeable battery with a new one.
The image has residual shadow	➢ Long press the mode switch button to manually zero.
Infrared and visible fusion position deviation	➢ Turn on laser ranging and aim at the target. Thermal imaging will re fuse based on the ranging results.
Other malfunctions	➢ Restart the thermal imager.

FCC Statement

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.
Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
Note: 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.

The device has been evaluated to meet general RF exposure requirement.
The SAR limit adopted by USA and Canada is 1.6 watts/kilogram (W/kg) averaged over one gram of tissue. The highest SAR value reported to the Federal Communications Commission (FCC) the Industry Canada (IC) for this device type when it is tested for the properly worn on the body is under 1g 1.6W/Kg.