Quick Start Guide

Handheld Thermal Imaging Monocular

– USER MANUAL –

Under no circumstances (on/off) do not look directly at high intensity radiation sources such as the sun

Do not touch the surface of the lens

Do not remove the battery cell

Do not touch the Type-C interface with wet hands

Do not bend or damage the connecting cables

Package Contents

Package Dimensions	Total Packaged Weight
258x117x125mm	≤ 1140g

Main Unit（x1）

Carry Bag（x1）

Lens Cleaning Cloth（x1）

Hand Strap（x1）

18650 Li-ion Batteries（x1）

Accessories（x1 Kit）

CATALOGUE

Thank you for choosing us! To ensure you have the best user experience, we recommend reading this user manual carefully before use. If you have any questions, please feel free to contact us.

1 Product Overview

This multifunctional thermal imager is an advanced infrared observation device featuring a sensitive uncooled VOx detector and a high-definition 1024x768 display. Utilizing no-shutter technology, it offers flexibility with various lens options, making it ideal for distance observation in a variety of scenarios.

2 Functional Features

1. Real-time image noise reduction function to reduce image background noise;

2. Contrast, brightness, sharpening adjustable;

3. Pseudo-color modes: white hot, black hot, red hot， fusion, green hot;

4. Image output resolution: OLED: 1024×768; CVBS(PAL): 768×576;

5. Blind pixel compensation;

6. Hot spot tracking function;

7. Wi-Fi image transmission photo/video capture;

8. Digital compass: horizontal angle, pitch angle, roll angle information can be displayed;

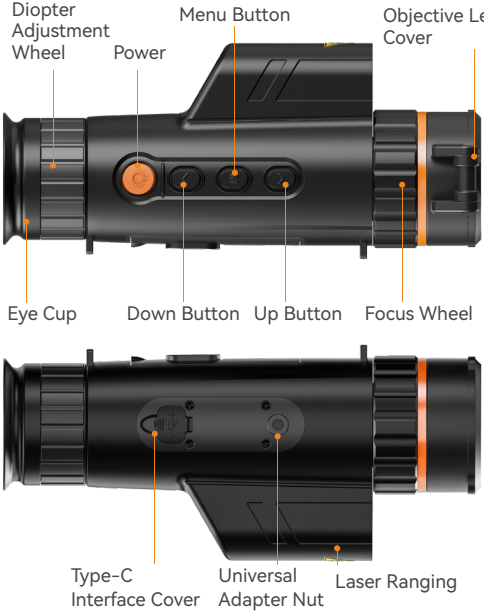
9. Picture-in-Picture function;

10. Multiple reticles display;

11. Supports 1x, 2x, 4x digital zoom;

12. Default Chinese and English language display (customizable language);

3 Product Appearance



1. Focus Wheel
After powering on the product, align it with the observation target. If the distance to the observation target changes and the image may becomes blurry, rotate the lens focus wheel to refocus until the target image is clear.

2. Universal Adapter Nut
For securing equipment, it features shock absorption to ensure stable mounting and includes a tripod mounting hole.

3. Type-C Interface
Used for picture and video data transmission and external analog display (PAL) output. Note: The external analog output display needs to be customized by the manufacturer.

4. Diopter Adjustment Wheel
Used to match the best viewing acuity of different users, with an adjustment range from -5 to +5.

4 Button Definition

Button	Long Press	Short Press	Double Click
Power Button	Power On/ Power Off	Standby/ Wake-up Mode	/
Menu Button	Enter/ Exit Menu	Pseudo-color Mode Switch	Enter/ Exit Laser Ranging
Up Button	Start/ Stop Recording and Save Video File	Swith Upward/ Capture and Save Photo	/
Down Button	/	Swith Downward/ Digital Zoom	/

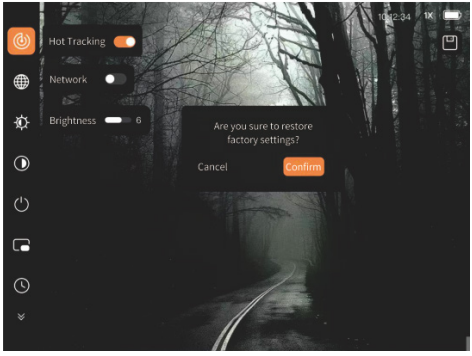
5 Product Paramete

Specification		
Model	384	640
Detector	Uncooled VOx Microbolometer	
Resolution, pixels	384×288/12μm	640×512/12μm
Objective Lens(F1.0)	19mm / 25mm / 35mm	25mm / 35mm
Field of View	13.9° ×10.4° / 10.6° ×7.9° 7.5° ×5.7°	17.6° ×14.1° 12.6° ×10.1°
Visual Magnification	2.09~8.37 / 2.75~11.01 3.85~15.41	1.61~6.45 2.26~9.03
Laser Ranging	1200m ±1m	
Spectral Band	8~14μm	
Eyepiece Diopter	-5~+5	
Eye Relief	20mm	
NETD	≤ 35mk@300K	
Display	0.39"OLED 1024x768	
Digital Zoom	1x、2x、4x	
Frame Rate, Hz	50Hz	
Protection Rating	IP67	
Power Supply	3400mAh Li-ion Battery	
Operating Time	≥ 5h	
Interface	External Power/ Type-C	
Weight (No Batt.)	≤ 515g	
Dimensions	196×70×58mm	
Operation Temperature	-20℃ ~+50℃	

Specifications			
Detection Range (Human)	19mm/1800m	25mm/2370m	35mm/3310m
Detection Range (Object)	19mm/1590m	25mm/2090m	35mm/2920m

Note: Due to continuous product improvements and upgrades, parameters in the table may be subject to modifications without further notification.

6 Main Interface



7 Menu Introduction

Icon	Name	Description
	Hotspot Tracking	Turn on/off Hotspot Tracking
	Wi-Fi	Turn on/off Wi-Fi
	Brightness	Brightness Adjustment
	Contrast	Contrast Adjustment
	Auto Power Off	Auto Power Off Settings
	Picture-in-Picture	Turn on/off Picture-in-Picture
	Date/Time	System Date and Time Settings
OSD	OSD	Open/Close time、date infomation
	Restore Factory Settings	Restore Parameters to Default
	Language	Select Menu Languag
	Version Information	View Device Information
	Reticle	Reticle Settings
	Defective Pixel Repair	Bad pixels appear during use, adjust the threshold, save, the system will automatically eliminate bad dots
	Video	Set OLED cool and warm tones
	Distance Measurement	Enable or disable the ranging function

8 Operation Introduction

8.1 Power On / Power Off / Standby

When powered on, long press the "power" button to start the device, and the startup screen will appear.
When powered on, long press the "power" button. The system will display a shutdown prompt, and then power off.
When powered on, short press the "power" button to enter standby mode. In standby mode, short press the power button again to wake up the device.

8.2 Focusing

Adjust the objective lens using the focusing wheel to observe distances from 0.5m（If lens different, the minimun imaging range is different, the larger the focal length, the farther the minimum imaging distance） to infinity. Rotate counter clockwise for distant focus and clockwise for near focus.

8.3 Digital Zoom

When powered on, short press the "down" button on the main screen to cycle through digital zoom, with options for 1x, 2x, and 4x.

1x Image 2x Image 4x Image

8.4 Menu

On the home screen, long press the "M" to enter the menu. Short

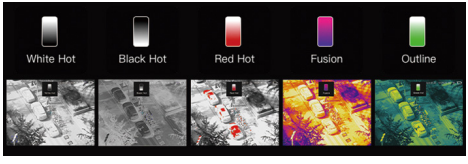
press the up/down buttons. Short press the "M" to enter the sub-menu options, and long press the "M" button to return to the previous menu or exit the main menu.

8.5 Picture and Video

When powered on, short press the "up" button, and the prompt 'Image saved' appears. Long-press the "up" button to start recording a video. The status bar shows the recording time. Long press the "up" button again, the prompt of "Video saved" appears, which means it is saved successfully.

8.6 Pseudo-color Mode

When powered on, short press the "M" button to switch to pseudo-color mode. Pseudo-color modes: white hot, black hot, red hot, fusion, green hot.



8.7 Brightness Adjustment

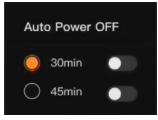
Long press the "M" button to enter the menu, go to brightness adjustment in the sub-menu, and use the "up" and "down" buttons to adjust brightness.
Brightness range: 0 to 10,recommendedsetting is 7.

8.8 Contrast Adjustment

Long press the "M" button to enter the menu, go to contrast adjustment in the sub-menu, and use the "up" and "down" buttons to adjust contrast.
Contrast range: 0 to 10. Recommended setting is 6.

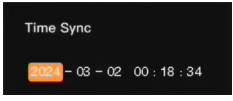
8.9 Auto Shutdown Settings

Long press the "M" button to enter the menu, go to auto shutdown settings in the sub-menu, and use the "up" and "down" buttons to select different auto shutdown durations.



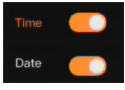
8.10 Time Settings

Long press the "M" button to enter the menu, and proceed to set the system's date and time.



8.11 OSD Settings

Long press the "M" button to enter the menu, go to OSD settingsin the sub-menu, and use the "up" and "down" buttons to select the information to be displayed on screen.

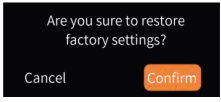


8.12 Picture-in-Picture Settings

Long press the "M" button to enter the menu, and turn on/off the Picture-in-Picture feature. In this mode, using digital zoom will only magnify the small window screen.

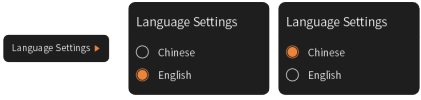
8.13 Restore Factory Settings

Long press the "M" button to enter the menu, select Restore Factory Settings to enter the submenu, and follow the prompts to choose between restoring or canceling the factory settings using the up and down buttons.



8.14 Language Settings

Long press the "M" button to enter the menu, select Language Settings to enter the submenu, and choose different languages using the up and down buttons.



8.15 Reticle Settings and Ranging

Long press the "M" button to enter the menu, go to reticle settings in the sub-menu, and use the "up" and "down" buttons to pick different reticle styles. Select the rangefinding reticle for probabilistic distance measurement of the target.

8.16 Defective Pixel Repair

Please make sure the lens cover is closed before using this function! After entering this function, several options are displayed, including Threshold, Recovery, Clear, Save, and Bad Point Count.

Threshold can be adjusted by up and down button, the threshold range is 20~32, the smaller the threshold, the more bad points can be cleared, it is recommended to set the threshold near 26.
When the option is on the Restore option, short press the Up or Down button to undo the last operation.

When the option is on the Clear option, short press the Up or Down button, all the blind elements of the screen will be eliminated.
And the bad point number will show the bad point number corresponding to the current threshold value. when the bad point number is greater than 1000, it is considered to be an over-calibration behavior, at this time, you should recover first, and after recovering, adjust the threshold value to a value greater than the

current value, and continue to clear, if the bad point number is still greater than 1000, repeat the above steps until the bad point number is less than 1000. Be careful to carry out the save operation when the bad point number is greater than 1000.

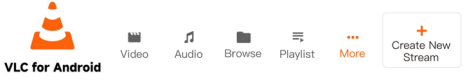
When the option is on the save option, short press the up or down button to save all previous operations.

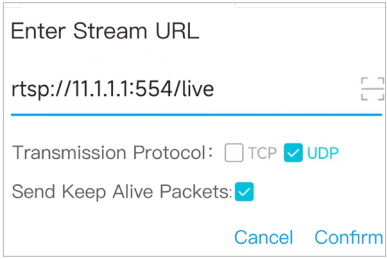
8.17 Read Data

Insert the Type-C data cable into the bottom Type-C interface, connect the other end to the computer. Double-click "My Computer" on the desktop to access and manage the photos and videos stored on the SD card in the device.
Note: All photos are stored in the 'Image' folder, and all videos are stored in the 'Video' folder.

8.18 Exploring through the app

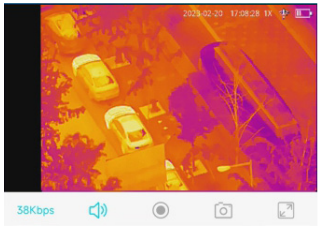
Enable the hotspot feature in the product's menu, with the hotspot name set to IR-Camera. Turn on the Wi-Fi function on your phone and connect to 'IR-Camera', with the password '87654321'. Download a streaming player from the app store capable of creating streams. Taking VLC player APP as an example, open the VLC player APP, click on more options, and create a new stream (the software download can be found in the app store or browser).





The address is: rtsp://11.1.1.1:554/live

By entering the address and clicking “Connect”, live stream the image feed on to your smartphone with the app of the device.



8.19 Charging

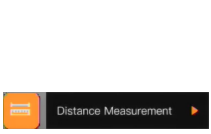
When the thermal imager indicates low battery, please charge it promptly, Open the Type-C interface cover, insert the charging cable, and connect to the power source for charging.

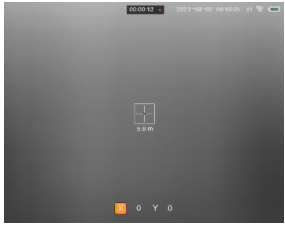
8.20 Video

When the thermal imager indicates low battery, please charge it promptly, Open the Type-C interface cover, insert the charging cable, and connect to the power source for charging.

8.21 Distance Measurement

Long press the "M" button to enter the menu, select Distance Measurement Settings to enter the submenu, and select Enable or disable the range function.





9 Precautions

1.The rated charging voltage for this product is 5V. Please avoid overcharging. Charge the device promptly when the battery islow to prevent over discharging, which may affect the lifespan ofthe thermal imager.

2.Avoid extended use in high-temperature environments, as the thermal imager will enter a high-temperature protection mode and shut down automatically.

3.It is recommended to use this product within a temperature range of -20° C to +50° C. Do not charge the device in an environment exceeding 40° C.

4.When using this product in a humid environment, ensure that the Type-C interface cover is tightly closed.

5.Avoid aiming the thermal imager directly at strong radiation sources such as sunlight or lasers to prevent irreversible damage.

6.Routine user maintenance involves cable inspection, periodic cleaning, and functional checks to keep the device in optimal condition.

7.During long periods of non-use, please recharge the device at least every two months and store it in a dry and well-ventilated environment.

8.If the device malfunctions, do not attempt to dismantle the module. Contact us for troubleshooting before taking any further action.

10 Troubleshooting

1. Device won't turn on Solution: Replace the battery.

2. Device can't take photos/record videos Solution: Internal storage is full. Transfer and format the memory.

3. Device displays incorrect time Solution: Reset the product's time and date in the menu.

4. Screen turns off during use Solution: Short press the forward button to wake up from sleep and light the screen.

5. Blurry imaging during use Solution: Manually adjust the lens for focus until the display is clear.

11 Storage and Transport

Here are methods for the product storage and transportation. To prevent potential dangers and property loss, please read carefully before use.

Storage:
1. Store the device in an environment of -45 ° C to 60 ° C, with relative humidity not exceeding 95%, free from corrosive gases, and with good indoor ventilation.

2. Charge the battery every two months at fixed intervals.

Transport:
During transportation, avoid rain, water immersion, upside down positioning, and prevent severe vibration and impact. Handle with care during transportation, and strictly avoid dropping.

FCC Warning

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 inte rference received, including interference that may cause undesired operation.

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 interferenceto 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.

Specific Absorption Rate (SAR) information

This device meets the government's requirements for FCC exposure limits set forth for an uncontrolled environment. This device was tested for typical body-worn operations with the back of the Uncooled Infrared Thermal Imager kept 0 mm from the body. To maintain compliance with FCC RF exposure requirements, use accessories that maintain an 0 mm separa tiondistance between the user's body and the back of the Uncooled Infrared Thermal Imager. The use of belt clips, holsters and similar accessories should not contain metallic components in its assembly.

The use of accessories that do not satisfy thes e requirements may not comply with FCC RF exposure requirements, and should be avoided.