

ULIRVISION

FORESIGHT LRF SERIES

Thermal Monocular

User Manual

About this manual

Dear users,

Thank you for choosing the FL-Series Thermal Imaging Monocular!

Please take a few minutes to read this manual before first use;

Please strictly follow the operating rules in this manual!

Due to version upgrades or other reasons, this manual is subject to change without further notice!

Disclaimer

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others, or for any purpose that is illegal or detrimental to the public interest, nor may you use this product for weapons of mass destruction or any purpose that infringes on human rights.

- In the event of a conflict between the contents of this manual and applicable law, the provisions of the law shall prevail.

Precautions

- Precautions for safe use. During the installation and use of the equipment, the electrical safety regulations of the country and the area of use must be strictly observed.
- Please use the power adapter provided by the regular manufacturer, please refer to the product parameter table for the specific requirements of the power adapter. Do not connect multiple devices to the same power adapter (exceeding the adapter load may generate excessive heat or cause a fire).
- Do not swallow batteries to avoid chemical burns. Do not place the battery within the reach of children.
- Do not place the battery near heat or fire sources, avoid direct sunlight and use discharged batteries. Remember to charge the discharged battery with the matching charger in time
- The device has a built-in removable battery, please use the correct specification battery, improper use may result in explosion hazard. After the battery has been installed or removed, the battery

compartment is required to be closed safely.

- The battery must be charged in an environment of 0~50°C.
- You must use the battery provided by our company, or the model battery with protection specified by our company.
- When wiring, disassembling and other operations, please disconnect the power supply of the device, and do not operate with electricity.
- Do not directly touch the heat dissipation parts of the device to avoid burns.
- If the device smokes, produces peculiar smells, or emits noise, please disconnect the power of the device immediately and contact the dealer or service center in time.
- Do not shoot the laser of the laser device directly into the human eye to avoid possible damage to the human eye. The laser of the laser equipment irradiates flammable objects at close range, which may pose a fire hazard, so please keep a safe distance when using it.
- After the laser projector is turned on, it is strictly forbidden to aim the laser at glass, mirrors and other objects with strong reflection to avoid damage to the thermal imaging detector by laser reflection.
- If the device is not working properly, contact the store where the device was purchased or the nearest service center and do not

disassemble or modify the device in any way. (The company is not responsible for problems caused by unauthorized modifications or repairs).

- Check whether the products and accessories are complete, the host should be handled with care, the infrared lens is fragile, and do not directly contact other objects.
- It is forbidden to face high-temperature objects, and the equipment should be stored in a dry and non-corrosive gas environment, and avoid storing the equipment in direct sunlight, poor ventilation or near heat sources such as heaters, etc., ignoring this may lead to fire hazards.
- After opening the battery compartment cover, take out the battery. Put the battery in the matching charger, with the negative pole of the battery facing the compression spring and the positive pole facing the direction of the light. Plug the charger into a 220V AC power source to charge. The positive and negative poles of the battery should be placed according to the "+" and "-" marked on the battery compartment.

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1. Product Overview

Foresight-LRF (Abbreviated as FL series) is a kind of portable thermal imaging monocular, suitable for outdoor exploration, emergency search and rescue, environmental biological monitoring and other occasions. It has a variety of convenient operation functions such as hotspot tracking, digital zoom, laser ranging, picture-in-picture, etc., and can adjust the imaging effect according to different scenes. It supports the connection of the external high-definition screen components and has the characteristics of strong scalability, long battery life, and compact structure.

Key features:

- Optimize algorithms according to different scenarios, and maintain custom parameters
- With hotspot marking and automatic tracking functions
- Powerful image adjustment function and details enhancement, available for adjusting brightness, contrast, and sharpness
- Internal storage supports taking photos and recording videos
- Support Wi-Fi function, quick operating and sharing through APP
- Support PIP function, zoom in on the target area
- Support 1200m laser distance measurement
- Comfortable focus, the short entire focusing process can achieve quick and clear focus

1.1. Packing list



Foresight series thermal imaging monocular (x1)



18650 Battery(x2)



18650 Battery charging stand (x1)



Adapter plug (x1)



USB cable(x1)



Wristband (x1)

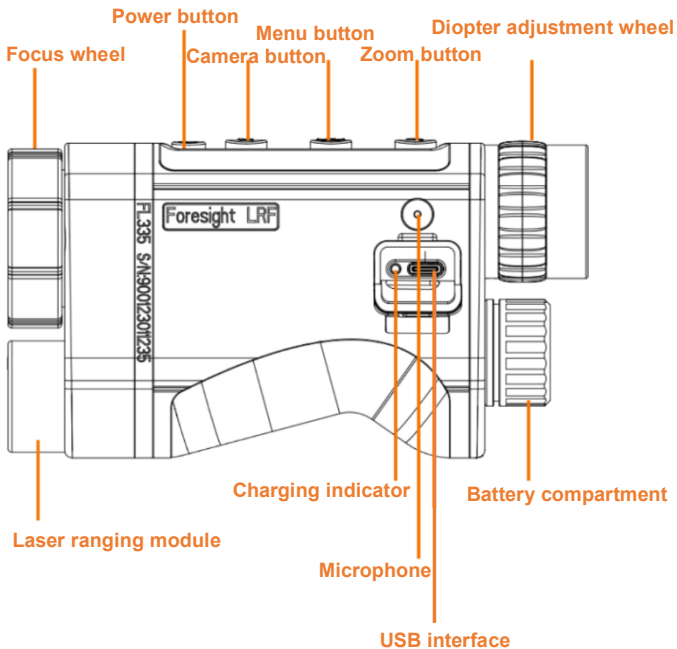


Flannel bag (x1)









User manual (x1)

1.2. Appearance introduction



1.3. Buttons and operating instructions

Buttons	Short press	Long press (2S)
 Power button	Sleep/Wake	Power on/off (Long press for 3s) Long press (6s) to force shutdown
 Zoom button	Digital zoom 1, 2, 4, 8 times cycle	Custom function
 Menu button	Switch color palettes /menu confirmation	Invoke menu/menu return to the previous level
 Camera button	Laser ranging	Picture/Video
 (Press together)	/	 Image correction (There will be a countdown reminder)

Note: Under different working conditions, the functions of the host buttons are different.

Please refer to the prompts in the table to operate the product.

2. Main Operation Interface Instruction

2.1. Image setting






Select the image setting “” to set brightness, contrast, sharpness, and tone.



Image setting

 Brightness	Adjustable from 0-8 levels
 Contrast	Adjustable from 0-8 levels
 Sharpness	Adjustable from 0-8 levels
 Tone	Cold/Warm for selection (Only effective in white hot and black hot modes)

2.2. Scene





Select the scene“ ”, to enter the secondary menu, there are three modes: search, jungle, and custom.




Scene

	Search	<p>This function increases contrast, accentuates high-heat subjects, and discards some low-heat details. Applicable to scenarios where hotspot targets need to be found at the first time.</p>
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 Jungle	Wide dynamic algorithm, dark part enhancement, simultaneous display of target and background details, suitable for use in the jungle
 Custom	Manually adjust and maintain brightness, contrast, and sharpness


2.3. Hotspot tracking

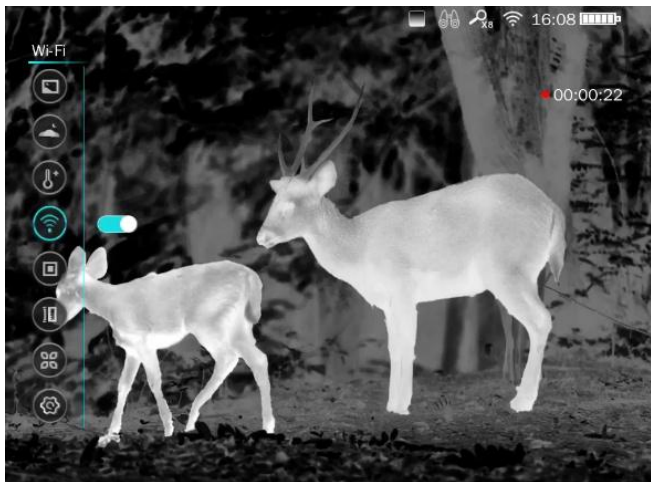
After turn on this function“”, a hotspot indicator green cross cursor appears on the screen, automatically pointing to the location with the highest temperature. The cursor is green by default and automatically switches to red when the color palette is green.



Hotspot tracking


2.4. Wi-Fi

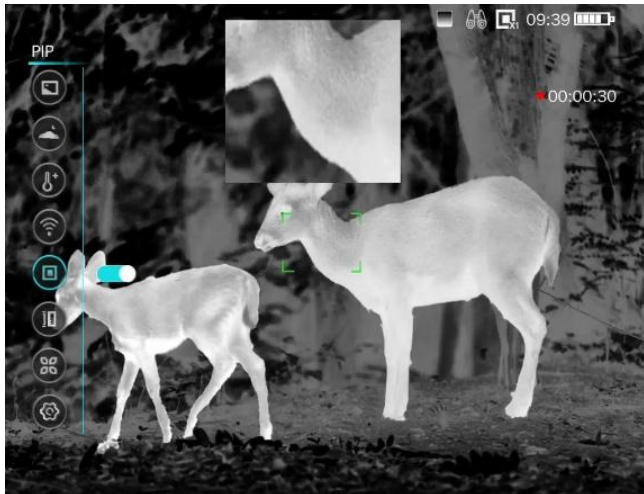
Select Wi-Fi“”to turn on or off, and the device will turn on the Wi-Fi after this function is turned on, meanwhile the Wi-Fi icon and the current number of connections will appear on the navigation bar. Up to 3 users can be connected at the same time.



Wi-Fi

2.5. PIP

Turn on the PIP function“”, the image in the center frame will be magnified 4 times. The framing area is shown in the picture.




PIP

By default, PIP magnifies the central 1/36 area of the full frame to a 1/9 screen display.

When the cursor is active, the PIP displays a 1/36 scale area centered on the cursor position, magnified to 1/9 scale.


2.6. Ranging mode

Select “” to switch the distance measurement way: including Off, Single, 15S, 30S, and Continuous






Ranging mode



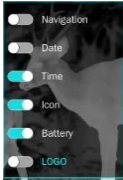



2.7. Function setting

Select the function setting “” to set shooting mode, cursor shape, cursor color, OLED brightness, OSD, custom button, auto power off, and bad pixel correction.



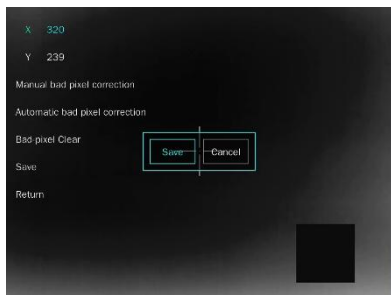
Function setting

 Record setting	Set the camera button to take photos or record videos
 Cursor shape	Press the up and down arrows to adjust. There are 7 groups of shapes from 0 to 6. 0 means no cursor.
 Cursor color	5 colors: green, white, black, red, and blue


 <p>OLED brightness</p>	<p>Press the up and down arrows to adjust the OLED brightness from 1 to 5 levels.</p>
 <p>Status display</p>	 <p>Set the navigation bar information display as needed</p>
 <p>Custom button</p>	<p>Press the up and down arrows to adjust, including scene, picture-in-picture, hotspot tracking and cursor shape functions. The default is picture-in-picture, after setting, press the menu button to save.</p>
 <p>Auto power off</p>	<p>Automatic shutdown time setting</p>
 <p>Bad-pixel correction</p>	<p>After entering the bad pixel correction operation interface, short press the menu key to confirm, and long press the menu key to return. Manually or automatically move the cursor center point to</p>

overlap with the defective pixel to be replaced, and observe whether the defective pixel is in the center of the nine-square grid in the auxiliary observation area, and then select bad pixel correction to replace.



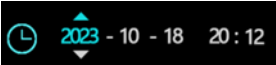



If an image abnormality occurs due to an incorrect operation, you can choose to clear the defective pixels. After the operation, you will be prompted for a second confirmation. After the above operation is completed, it needs to be saved to take effect. The auxiliary observation area is shown on the right side of the figure below






2.8. System setting

Select the system settings "  ", you can set the language, time,

standby indicator, anti-burn, restore factory settings, format, and system information.

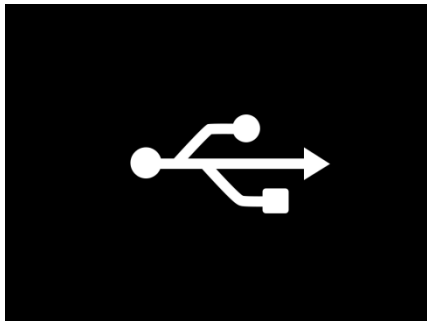
 <p>Language</p>	Five language options are available
 <p>Time</p>	 <p>Press the up and down arrows to adjust, short press the menu key to confirm, follow the same steps in sequence, long press the menu key to return</p>
 <p>Standby indicator</p>	After turning on, the standby indicator light will light up
 <p>Anti-burn</p>	<p>Tip:  The Anti-burn function has been triggered, long press the zoom button back to normal.</p> <p>When turned on this function, the lens will be automatically turned off to protect the detector when encountering ultra-high temperature scenes</p>

 <p>Restore factory setting</p>	Restore factory settings
 <p>Format</p>	Format the memory
 <p>System Info</p>	Display the factory information of the device, and long press the menu button to return.

2.9. Others

(1) USB file storage mode

When you enter file storage mode by connecting your PC via USB, the interface displays the USB connection status. When the USB is connected, all operations on the device are temporarily invalid.



USB connection status

(2) Technical parameters

Model	FL325	FL335	FL625	FL635
Resolution	384×288		640×512	
Pixel pitch	12μm			
Operating wavelength	8-14μm			
NETD	≤18mk @25°C F=1.0			
Frame rate	50Hz			
Lens				
Lens focal length (F-number)	25mm (F1.0)	35mm (F1.0)	25mm (F1.0)	35mm (F1.0)
FOV	10.5°×7.9°	7.5°×5.6°	17.5°×13.1°	12.5°×9.4°
Mini. imaging distance	>2.5m	>3.5m	>2.5m	>3.5m
Detection range	1280m	1800m	1280m	1800m
Diopter Adjustment	±5			
Distance of exit pupil	19mm			

Internal storage EMMC	32G (actual 27G, part of which is occupied by system operation)			
Power supply	5V DC 2A			
Battery	Battery 18650 with PCM, 3350mAh			
Battery operating hours	≥4 h (With WIFI and hotspot turned off)			
USB	USB Type-C supports charging, powering, transferring files, and transferring videos			
Operating temperature	-20~55°C			
Storage temperature	-30~65°C			
Humidity	≤90%			
IP rating	IP67			
Dimension	150*82*47 mm	150*82*47 mm	150*82*47 mm	150*82*47 mm
Weight (with battery)	≤430g	≤430g	≤430g	≤430g

3. Simple Fault Diagnosis and Elimination

If you encounter a problem while using the device, please refer to the following table to troubleshoot. If the problem cannot be solved, please cut off the power supply and contact our technical support department.

Failures	Causes and Solutions
The device can't start	<ul style="list-style-type: none">● The battery is uninstalled or improperly installed. →Insert the battery or re-install the battery.● The battery power runs out. →Replace or charge the battery.● Device shutdown for protection. → Wait 5 seconds and then restart.
Battery power runs out too fast	<ul style="list-style-type: none">● Ambient temperature is too low or too high.● The battery is not fully charged. →Recharge the battery.● The life of battery is almost over →Replace rechargeable battery.
No thermal image	The lens cap is not open→Open the lens.
Automatic shutdown	Battery exhausted → replace the battery.

4. Product Warranty Card

User Notice:

1. If this product is damaged under normal use, the company is responsible for free repair; the warranty period is from the date of purchase:

Main unit: 2 years

Other accessories: 1 year

Product warranty terms for special items shall be subject to the specific purchase and sales contract.

2. After the repair or replacement of the repair parts, the warranty period of the parts shall be extended by 3 months.

3. When the product fails, please contact call ULIRVISION 400-711-1599 to get solutions in time.

4. In any of the following circumstances, no warranty is provided, but paid repairs can be provided:

- ① Expiration of the warranty validity period;
- ② Damage caused by failure to use, maintain, and keep the product in accordance with the product manual;
- ③ Damage caused by repair by a repairer not authorized by ULIRVISION;
- ④ No valid warranty certificate and invoice (except for those that can prove that the product is within the warranty period);
- ⑤ Unauthorized alteration of the warranty certificate;
- ⑥ Product failure caused by the use of third-party accessories;
- ⑦ Damage caused by force majeure such as fire, flood, earthquake, etc.

Product Warranty Card

User Information	User Name	
	Address & Post Code	
	Contact Number	
Device Information	Instrument Model	
	Factory Number	
Sale Information	Seller Name	
	Address & Post Code	
	Contact Number	
	Sale Date	

Dear user, the above information is filled in by the dealers. Thank you for cooperation

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