

ULIRVISION

EAGLE - L SERIES

Thermal Imaging Camera

User Manual

About this manual

Dear users,

Thank you for choosing the EL-Series Thermal Imaging Device!

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

Precautions

- 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 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.
- 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 the lens for foreign matter or scratches. If there are any, wipe them carefully with a lens cloth.
- 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.

Table of Contents

1. Product Overview	1
1.1 Packing List	2
1.2 Appearance Introduction	3
1.3 Buttons and Operating Instructions	5
2. Description of the Main Operation Interface	7
2.1 Image Settings	7
2.2 Scene	8
2.3 Hot Spot Tracking	9
2.4 Wi-Fi	10
2.5 PIP	11
2.6 Smart Trajectory	12
2.7 Zeroing Profile	15
2.8 Function Setting	20
2.9 System Settings	23
2.10 Others	26
3. Simple Fault Diagnosis and Elimination	32
4. Product Warranty Card	33

1. Product Overview

Eagle-L (Abbreviated as EL series) is a kind of infrared thermal imaging scope, suitable for outdoor exploration, emergency search and rescue, mountain guarding, hunting and other occasions. The combination of infrared detector and high-performance chip and full-color gamut high-definition OLED display screen provides excellent imaging effect. The 1200-meter ultra-long-distance ranging and intelligent ballistic correction function make aiming easier, and it has a variety of convenient operation functions such as user cursor table, hot spot tracking, digital zoom, PIP, etc., which can be personalized according to different operating habits. The whole device has the characteristics of strong environmental adaptability, long battery life, and durability.

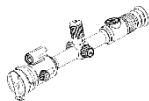
Key features:

- It has the function of laser ranging, and can automatically calculate the trajectory landing point according to the ranging value;
- Support internal storage, taking photos, video, and recoil automatic recording;
- Hot spot marking and tracking function;
- With WIFI function, support APP operation and can quickly transfer and share pictures; connect to the supporting client via Wi-Fi or hotspot, and realize functions such as multi-person synchronous thermal imager preview, recording and parameter configuration on mobile

terminals such as smart phone/tablets

- Support custom scene and custom function keys for fast operation.

1.1. Packing List



EL series thermal imaging device (x1)



18650 Battery (x2)



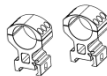
18650 battery charging stand (x1)



Adapter plug (x1)



USB cable (x1)



Scope ring (x2)



User manual (x1)

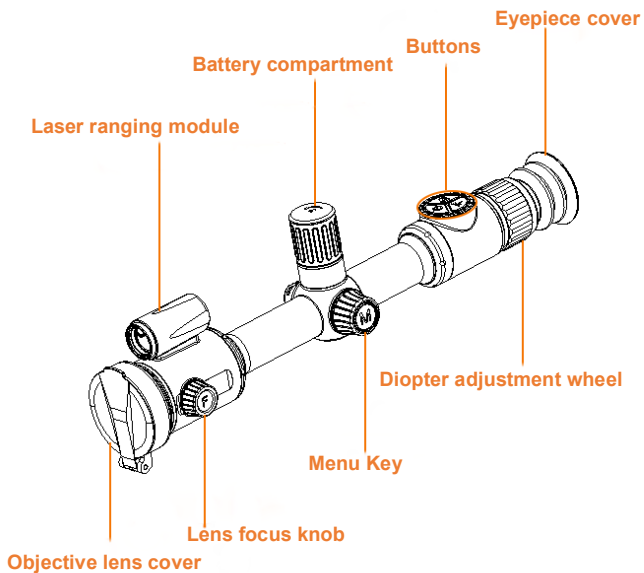


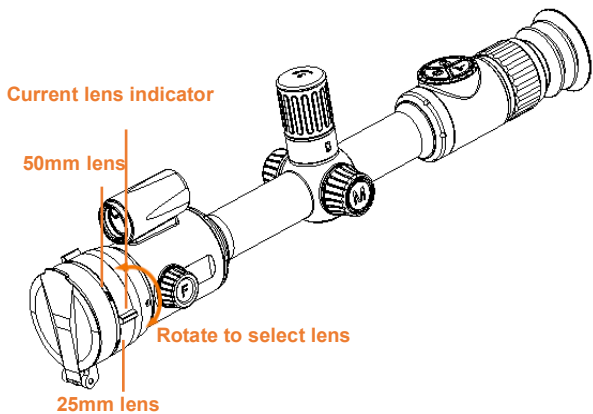
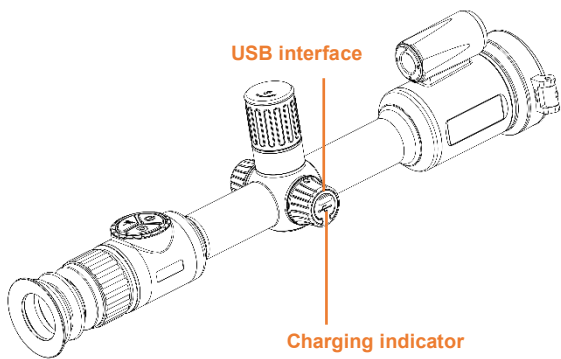
Thermal zeroing targets (x2)



Carry bag (x1)


1.2. Appearance Introduction











1.3. Buttons and Operating Instructions

Note: Short press on the laser key under the main preview interface triggers the laser distance measurement function. The distance value returned from the distance measurement and the laser drop point indication are displayed on the screen. The distance measurement supports multiple modes, which can be selected in the settings. Press and hold the power button for 6s to force power off.

Buttons	Short press (counterclockwise)	Long press (clockwise)
 Power button	Short-press to wake up from sleep mode; short-press does not respond in other states	<ol style="list-style-type: none">1. Power on (long press for 3s)2. Long press for 2-4s with the device powered on, then release to enter sleep mode3. Long press for over 4s without releasing, a power-off confirmation screen will pop up4. Force a long press for over 8s to auto shutdown

 Laser buttons	Distance measurement	 Image Correction (Long press for 2s)
Menu button 	Color palette switch/ Confirm in the menu	Invoke menu/return to the upper level in the menu (long press for 2s).
Menu button (Rotary switch) 	Digital zoom/up button in the menu	Switch scene/down button in the menu
Camera 	Take photos/videos	Custom key
Combinations (Menu button + Rotate encoder) 	Switch to the next cursor table	Switch to the previous cursor table

2. Description of the Main Operation Interface

2.1. Image Settings







Select the image setting "  "to set brightness, contrast, sharpness, and tone;



Image setting


 Brightness	adjustable from 0 to 8 levels
 Contrast	adjustable from 0 to 8 levels
 Sharpness	adjustable from 0 to 8 levels
 Tone	Cold/Warm for selection (only effective in white hot and black hot modes)



2.2. Scene

Select the scene "  " to access the secondary menu, there are three modes: search, jungle, and custom.




scene

	It increases contrast and accentuates high-heat details. Applicable to scenarios where hotspot targets need to be found at the first time.
Search	

 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. Hot Spot Tracking

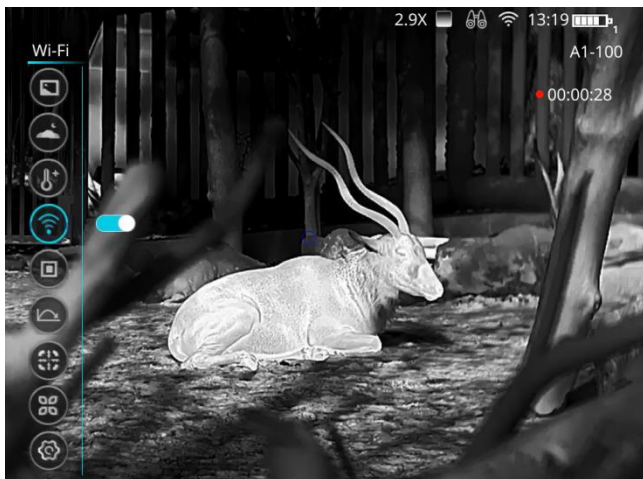
When the hotspot tracking  is turned on, a hotspot indicator green cross cursor appears on the screen, automatically pointing to the location with the highest temperature. The cursor is green by default, and automatically switches to red when the color palette is green.



Hot spot tracking


2.4. Wi-Fi

Select the Wi-Fi" ", turned it 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

Turning on the PIP function "  ", the image in the center frame will be magnified 2 times; by rotating the adjustment knob, the viewing area can be further magnified to 4x or 8x, as shown in the figure:




Picture-in-picture

By default, PIP magnifies a $1/36$ scale area from the center of the full image to a $1/9$ scale display.

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

When the trajectory calculation function is enabled, the PIP displays a $1/36$ scale area centered on the impact point, magnified to $1/9$ scale.

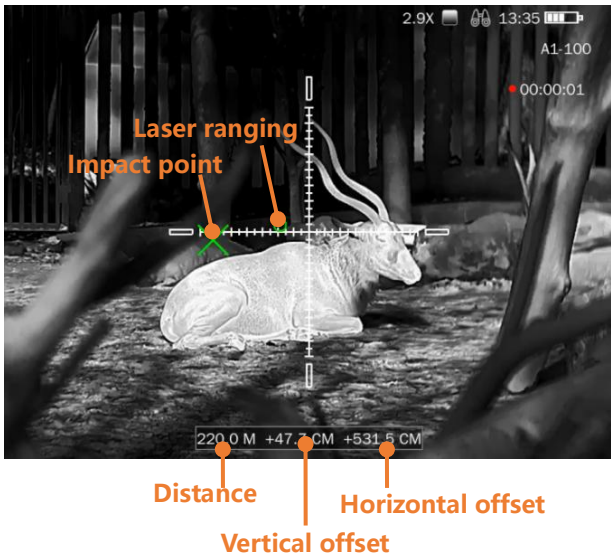
2.6. Smart Trajectory

Select the smart trajectory "  ", you can choose to turn it on or off, this function is related to ranging, user cursor table, and ballistic calculation. After it is turned on, the landing point will appear on the interface at the center of the cross division (it will not be displayed if there is no cross division). If the user changes the trajectory calculation parameters or triggers the ranging, a virtual impact point is calculated based on the distance return value, as shown by the green:



Smart trajectory

After the smart ballistics function is turned on, a single range measurement triggers the display of simulated impact point calculation. The display content includes the impact point, distance information, and information on the offset from the cursor center. The information will be displayed continuously until the next time the ranging is triggered or the shooting table or trajectory calculation parameters are set, and then it will be refreshed or disappear.










2.7. Zeroing Profile





Select the zeroing profile "  "to set the following options:










Zeroing profile

 Cursor User	From A to E, 5 levels, associated with the cursor table, distance, shape, color, calibration, and impact point compensation.
 Cursor Table	1-9 groups can be set, associated with subsequent distance, shape, color, and calibration

 <p>Cursor Distance</p>	<p>0-999, press the up and down arrows to adjust, and long press the menu to exit</p>
 <p>Cursor Shape</p>	<p>Press the up and down arrows to adjust, and there are 7 types of patterns, from 0 to 6, with 0 being no cursor.</p>
 <p>Cursor Thickness</p>	<p>1-5 levels to adjust cursor thickness, long press menu to return to exit</p>
 <p>Cursor Brightness</p>	<p>There are 5 cursor color options available: green, white, black, red, and blue.</p>
 <p>Cursor Color</p>	<p>The cursor supports 5 colors: green, white, black, red, and blue</p>

 <p>Cursor Reset</p>	<p>It will enter the operation interface, short press the menu button to confirm, long press the menu button to return, adjust the position of the X and Y axes of the cross cursor, make the cross cursor move to the specified position. (The current user group takes effect)</p> 	
 <p>Trajectory Calculation</p>	 <p>Configure</p>	<p>There are 8 firearm configuration settings available. Users can configure parameters for the currently selected firearm, including diameter, weight, drag function, ballistic coefficient, muzzle velocity and visual height.</p>

		<p>After the adjustment is completed, press and hold to save and exit for next use.</p> <p>Diameter: 0.01-99.99mm, default 5.7, press the up and down arrows to adjust</p> <p>Weight: 0.01-9999.99 g, default 25g, press the up and down arrows to adjust</p> <p>Drag function: drop-down selection (G1/G7/GS), default G1, press the up and down arrows to adjust</p> <p>Ballistic coefficient: 0.010-9.999, 0.13, press the up and down arrows to adjust</p> <p>Muzzle velocity: -9999 m/s, default 600m/s, press the up and down arrows to adjust</p> <p>Visual height: 0-999 mm, default 50mm</p>
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	 Range	0-9999 m. Default value is 100m, press up and down arrows to adjust
	 Slope angle	-89-+89°Default value 0°, press up and down arrows to adjust
	 Wind speed	0-99 m/s, default value 0 m/s, press up and down arrows to adjust
	 Wind direction	0-359°Default 0°
	 Temperature	-99-+99 °C, default value is 15°C, press up and down arrows to adjust
	 Altitude	-9999-+9999 m, default value 0m, press up and down arrows to adjust
	 Color	Color of impact point. 5 colors for selection: green, white, black, red, and blue











Model type	EL335	EL635	EL350	EL650	EL360D	EL660D
A (MOA)	5.7	9.5	4	6.7	8/3.4	13.3/5.6
Click Value, cm@100	1.3	2.1	0.9	1.5	1.8/0.75	3.0/1.25

2.8. Function Settings

Function settings include shooting mode, RAV, OLED brightness, OSD, microphone, ranging mode, custom, auto power off, and bad pixel correction.

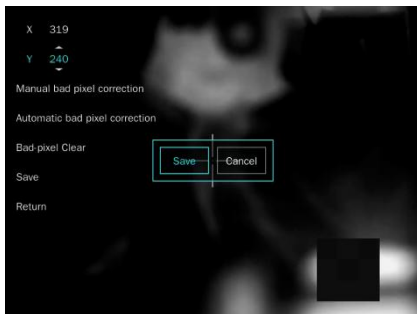


 <p>Record</p>	<p>Shooting mode, set the camera button to take photos or record videos</p>
 <p>RAV</p>	<p>After it is turned on, the instrument will record videos 10 seconds before and 10 seconds after the impact, and the RAV icon appears on the navigation bar</p>
 <p>OLED screen brightness</p>	<p>Spin code adjustment, 1-5 levels to adjust OLED brightness</p>


 OSD	Set navigation bar information display as needed
 Microphone	Turn the microphone on or off while recording
 Ranging mode	The ranging mode can be selected as off, single, 15S, 30S, continuous
 Auto power off	Automatic shutdown time setting
 Bad pixel correction	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 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



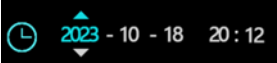





correction to replace.




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



2.9. System Settings

Select the system settings "", you can set the language, time, standby indicator, anti-burn, restore factory settings, formatting, and system information.

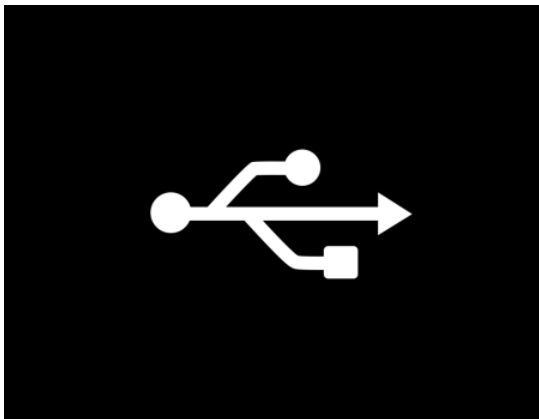
 <p>Language</p>	<p>5 language options are available</p>
 <p>Time</p>	 <p>Spin code for selection, short press the menu button to confirm, and long press the menu to return</p>
 <p>Image correction</p>	<p>Automatic and Manual modes are available</p>
 <p>Distance units</p>	<p>Yards and Meters are available</p>
 <p>Six-axis calibration</p>	<p>When the device is placed on a horizontal surface, but the pitch and tilt angle scales do not return to zero, you can select six-axis calibration. (When calibration, please keep the device on the horizontal surface).</p>
	<p>Tip : The Anti-burn function has been triggered, long press the laser</p>

<p>Anti-burn</p>	<p>button back to normal, and when turned on this function, the shutter will be automatically turned off to protect the detector when encountering high temperature scenes</p>
<p> Restore factory setting</p>	<p>Restore factory settings</p>
<p> Format</p>	<p>Format the memory</p>
<p> System information</p>	<p>Display the factory information of the device</p>

2.10. 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

384 Model	EL335	EL350	EL360D
Resolution	384×288		
Pixel pitch	12μm		
Operating wavelength	8-14μm		
Laser type	class1 laser		
NETD	≤15mk @25°C F=1.0		
Frame rate	50Hz		
Lens			
Lens focal length (F-number)	35mm (F1.0)	50mm (F1.0)	25mm (F1.0) /60mm (F1.2)
FOV	7.5°×5.6°	5.3°×4.0°	10.5°×7.9° /4.4°×3.3°
Min. imaging distance	>3.5m	>5m	>2.5m/>5m
Detection range	1800m	2600m	1280m/3100m
Diopter adjustment	±5		

Distance of exit pupil	48mm		
Internal storage EMMC	32G (actual 27G, system operation occupies a portion).		
Power supply	5V DC 2A		
Battery	18650 3350mAh		
Battery operating hours	≥5 hours (when 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	399*97*76mm	402*102*76mm	427*102*76mm
Weight (with battery)	≤975g	≤995g	≤1198g

Shock, vibration	Packaging and transportation level
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640 Model	EL635	EL650	EL660D
Resolution	640×480		
Pixel pitch	12μm		
Operating wavelength	8-14μm		
Laser type	class 1 laser		
NETD	≤15mk @25°C F=1.0		
Frame rate	50Hz		
Lens			
Lens focal length (F-number)	35mm (F1.0)	50mm (F1.0)	25mm (F1.0) /60mm (F1.2)
FOV	12.5°×9.4°	8.8°×6.6°	17.5°×13.1° /7.3°×5.5°
Min. imaging distance	>3.5m	>5m	>2.5m/>5m
Detection range	1800m	2600m	1280m/3100m

Diopter adjustment	±5		
Distance of exit pupil	48mm		
Internal storage EMMC	32G (actual 27G, system operation occupies a portion).		
Power supply	5V DC 2A		
Battery	18650 3350mAh		
Battery operating hours	≥4 hours ((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	399*97*76mm	402*102*76mm	427*102*76mm

Weight (with battery)	≤975g	≤995g	≤1198g
Shock, Vibration	Packaging and transportation level		

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	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 5s and then restart. (Original batteries are required)
The device shuts down automatically	The battery runs out →Replace the battery.
Battery power runs out too fast	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 display thermal image	The lens cap can't open→ Open the lens cap.

4. Product Warranty Card

User Notice:

1. If this product is damaged under normal use, the company is responsible for free warranty; 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 the dealer or call the company's after-sales telephone: 400-711-1599 to obtain timely repair information.

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);

- ⑤Unauthorized alteration of the warranty certificate;
- ⑥Product failure caused by the use of third-party accessories;
- ⑦Damage 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 dealer. Thank you for cooperation

Download the "ULIRVISION Insights" app

Scan the QR code below to download the "ULIRVISION Vision" APP, connect to the remote-control device via Wi-Fi, and share data. For instructions on how to use the APP, see the client.



Ios



Android



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