EAGLE-L SERIES

红外热成像

使用说明书

About this manual

Dear users,

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

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 notice!

Disclaimer

- To the fullest extent permitted by law, this manual and the products described (including its hardware, software, firmware, etc.) are provided "as is" and may be subject to defects or errors. ULIRVISION does not provide any form of express or implied warranties, including but not limited to warranties of merchantability, satisfactory quality, fitness for a particular purpose, etc., and shall not compensate for any special, incidental, or consequential damages arising out of the use of this manual or the use of ULIRVISION products, including, but not limited to, lost business profits, system failures, loss of data or documentation.

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- When using this product, please strictly follow applicable laws and regulations and avoid infringing on the rights of third parties, including but not limited to rights of publicity, intellectual property

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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

- 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℃.

- When wiring, disassembling and other operations, please disconnect the power supply of the device, and do not operate

with electricity.

- You must use the battery provided by our company, or the model battery with protection specified by our company.

- 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.
- 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.

Table of Contents

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, take photos, video, and recoil automatic recording;
- Hot spot marking and tracking function;
- With WIFI function, support APP, support quickly transfer and share pictures；connect to the supporting client via Wi-Fi or hotspot, and realize functions such as multi-person synchronous

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thermal imager preview, recording and parameter configuration on mobile terminals such as smart phone/tablets

1.1 Packing List
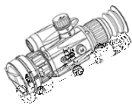
EL series thermal imaging device (x1)

18650 battery (x2)

18650 battery charging stand (x1)

Adapter plug (x1)

USB cable (x1)

Guide rail (x1)
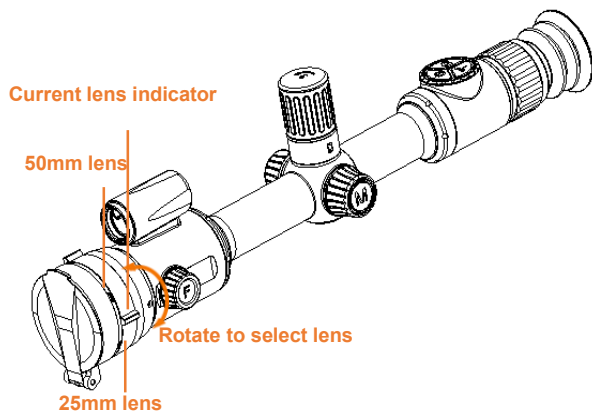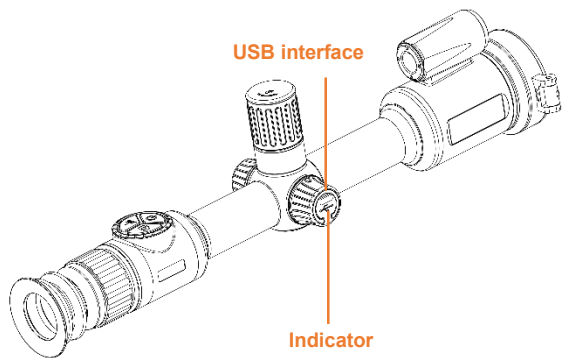

Carry bag (x1)

Manual (x1)

Target Hot Posts(×5)

1.2 Appearance Introduction

Eyepiece cover

Buttons

Battery compartment

Laser ranging module

Diopter adjustment wheel

Menu Key

Lens focus knob

Objective lens cover

USB interface

Indicator

Current lens indicator

50mm lens

Rotate to select lens

25mm lens
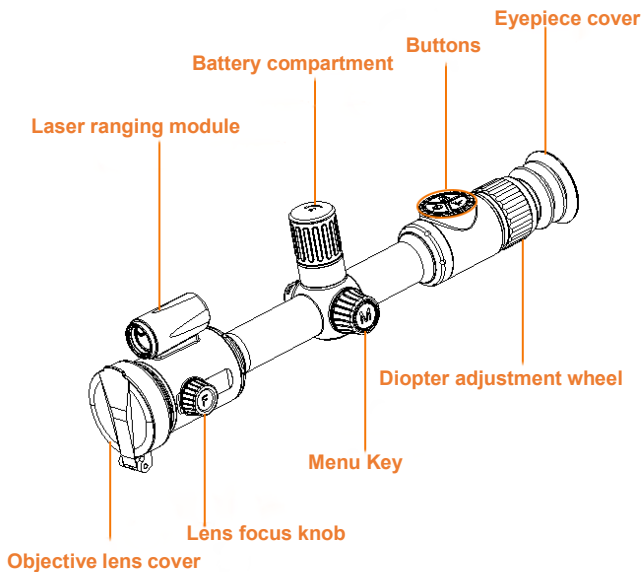
Host appearance

1.3 Buttons and Operating Instructions

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.

Buttons	Short press (Levorotation)	Long press (Dextrorotation)
Power button ⏻	Short press to wake up in sleep mode; short press in other modes does not respond	1. Power on (Long press for 3 seconds). 2. When the device powers on, long press 2 to 4 seconds, and release to enter sleep mode 3. Long press over 4 seconds and hold, a secondary shutdown confirmation screen will pop up.

		4. Long press for more than 8 seconds, hardware forced shutdown
Laser buttons ✺	Ranging	Image Correction (Long press for 2 seconds).
Menu button M	Color palette switch/ Confirm in the menu	Invoke menu/return to the upper level in the menu (long press for 2 seconds).
Menu button (Rotary switch) M	Digital zoom in/ up button in the menu	Digital zoom out/ down button in the menu
📷 camera	Take photos/ videos	custom
M Combinations	Switch to the next cursor table	Switch to the previous cursor table

(Menu button + Rotation code)		

Buttons and operating instructions

2. Description of the Main Operation Interface

2.1 Image Settings

Select the image setting " "to set brightness, contrast, and

sharpness;

🔆 Brightness	Press the up and down arrows, adjustable from 0 to 8 gears
◑ Contrast	Press the up and down arrows, adjustable from 0 to 8 gears
◢	Press the up and down arrows, adjustable

Sharpness	from 0 to 8 gears

2.2 Scene

Select the scene " " to enter the secondary menu, there are search,

jungle, custom three modes.

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

2.3 Hot Spot Tracking

When the hotspot tracking [icon] 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 plate is green hot.


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.
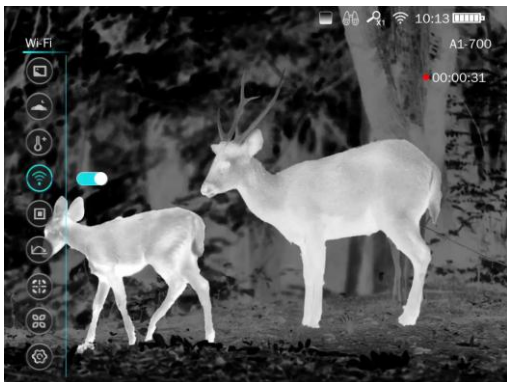
Network

2.5 PIP

Turning on the PIP function " ", the image in the center frame will be magnified 4 times. The framing area is shown in the picture
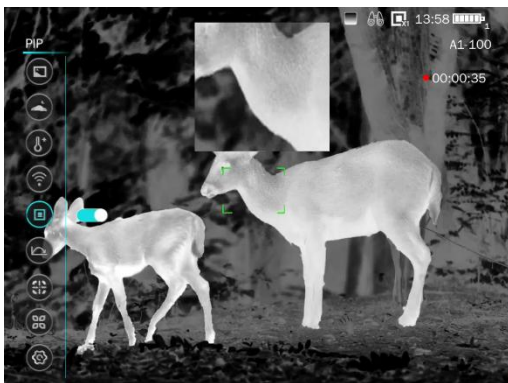
Picture-in-picture

The default PIP enlarges the 1/36 screen of the center of the full image to 1/9 screen. When there is a cursor, the PIP is to enlarge the 1/36 screen of the full image to 1/9 screen with the cursor as the center.

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 landing point compensation. 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 in 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

continues to be displayed until the next range measurement is triggered

or the range measurement is turned on or off, the shooting table is

operated, and the parameters related to the trajectory calculation are

refreshed or disappear.
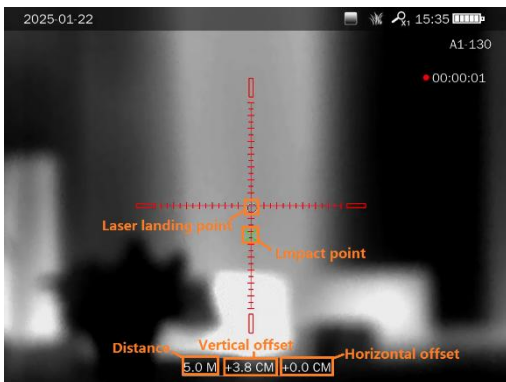
2.7 Zeroing Profile

Select the zeroing profile " "to set the following options:
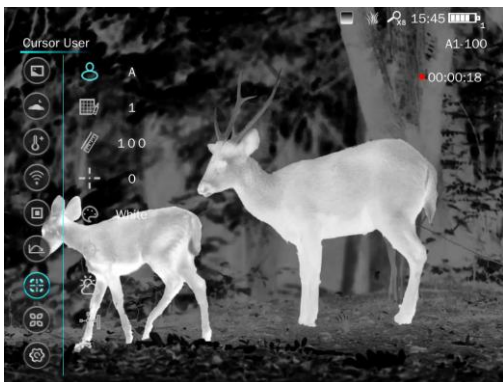
👤 Cursor User	A to J, 10 gears, associated with the cursor table, distance, shape, color, calibration, and impact point compensation
📖 Cursor table	1-10 groups can be set, associated with subsequent distance, shape, color, and calibration
📏 Cursor Distance	0-999, press the up and down arrows to adjust, and long press the menu to exit
╌┆╌ Cursor shape	Press the up and down arrows to adjust, and there are 6 types of patterns, from 0 to 5, with 0 being no cursor.

🎨 Cursor color	The cursor supports 5 colors: green, white, black, red, and blue
⊕ Cursor Reset	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)
⊶⊣ Trajectory Calculation	Enter the interface, you can set the resistance function, ballistic coefficient, muzzle velocity, angle, distance, zero distance, visual height, altitude, temperature, and color. When the settings are completed, select the code switch and save. After the parameters are set, you can open the intelligent trajectory for verification.
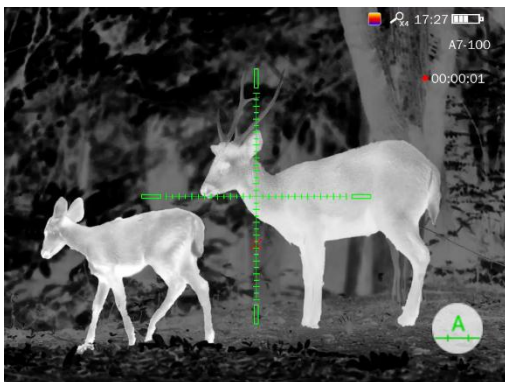
Model type	EL335	EL635	EL350	EL650	EL360D	EL660D
A (MOA)	5.7	9.5	4	6.7	8/3.4	13.3/5.6
Click Value, cm@100	1.3	2.1	0.9	1.5	1.8/0.75	3.0/1.25

2.8 Function Setting

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

correction.

⌷/🎥 Record	Mode setting, set the camera button to take photos or record videos
RAV RAV	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
OLED OLED Screen Brightness	Spin code adjustment, cool or warm color for selection, 1-5 gears to adjust OLED brightness

OSD 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
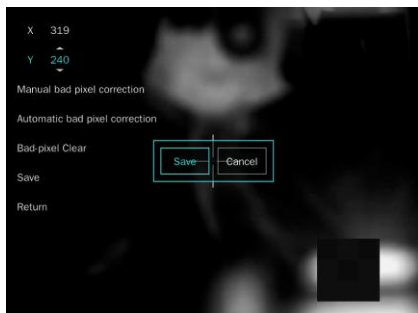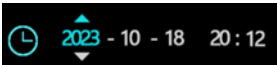
2.9 System Settings

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

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

ⒶⓏ Language	Five language options are available
🕒 Time	🕒 **2023** - 10 - 18 20 : 12 Spin code selection, short press the menu button to confirm, and long press the menu to return
✺ Image Correction	Automatic and Manual modes are available
📏 Distance units	Yards and Meters are available
∞ Six-axis calibration	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 horizontal surface).

⬡ Anti-burn	Tip ⚠ : The Anti-burn function has been triggered, long press the laser button back to normal, and when turned on this function, the lens will be automatically turned off to protect the detector when encountering ultra-high temperature scenes
⬡ Restore factory setting	Restore factory settings
⬡ Formatting	Format the memory
⬡ System information	Display the factory information of the instrument

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.
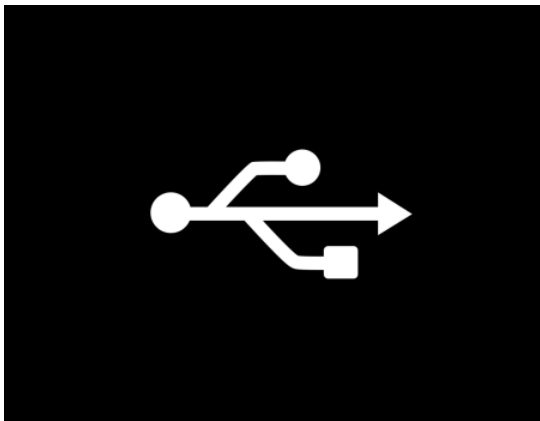
USB connection status

（2）Technical parameters

384 Model	EL335	EL350	EL360D
Resolution	384×288		
Pixel pitch	12μm		
Operating wavelength	8-14μm		
Laser type	class1 laser		
Thermal sensitivity NETD	≤18mk @25℃ 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°
Minimum 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℃		
Storage temperature	-30~65℃		
Humidity	≤90%		
IP protection	IP67		

class			
Size	399*97*76	402*102*76	427*102*76
Weight (including battery)	≤975g	≤995g	≤1198g
Shock	Packaging and transportation level		

640 Model	EL635	EL650	EL660D
Resolution	640×480		
Pixel pitch	12μm		
Operating wavelength	8-14μm		
Laser type	class 1 laser		
Thermal sensitivity NETD	≤18mk @25℃ 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°
Minimum 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	≥4hours ((when WIFI and hotspot turned off)		
USB	USB Type-C supports charging, powering, transferring files, and transferring videos		

Operating temperature	-20~55℃		
Storage temperature	-30~65℃		
Humidity	≤90%		
IP rating	IP67		
Size	399*97*76	402*102*76	427*102*76
Weight (with battery)	≤975g	≤995g	≤1198g
Shock	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 5 seconds 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:

    1) Main unit: 2 years
    2) other accessories: 1 year
    3) 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);

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 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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