

ULIRVISION

EAGLE SERIES

Thermal Imaging Camera

User Manual

About this manual

Dear users,

Thank you for choosing the E-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.
- Your device may have risks such as network attacks, hacker attacks, and virus infections when you access your products to the Internet, and ULIRVISION will not be responsible for the abnormal working of the products and information leakage caused by this, but ULIRVISION will provide you with product-related technical support in a timely manner.
- 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

rights, data rights or other privacy rights. You shall not use this product for illegal hunting of animals or infringing on the privacy of 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.
- 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 use 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	1
1.1 Packing List	2
1.2 Appearance Introduction	3
1.3 Buttons and Operating Instructions	4
2. Description of the Main Operation Interface	6
2.1 Image Settings.....	6
2.2 Scene.....	7
2.3 Hot Spot Tracking	8
2.4 Wi-Fi.....	9
2.5 PIP	10
2.6 Smart Trajectory	12
2.7 Zeroing Profile	14
2.8 Function Setting.....	20
2.9 System Settings.....	23
2.10 Others	25
3. Simple Fault Diagnosis and Elimination.....	31
4. Product Warranty Card.....	32

1. Product Overview

Eagle (Abbreviated as E 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.

1.1. Packing List



E series thermal
imaging device



18650 batteries (x2)



18650 battery charging
stand (x1)



Adapter plug (x1)



USB cable (x1)



Guide rail (x1)



Hexagon wrench (x2)



Hexagon socket head
cap screw (x2)



Carry bag (x1)

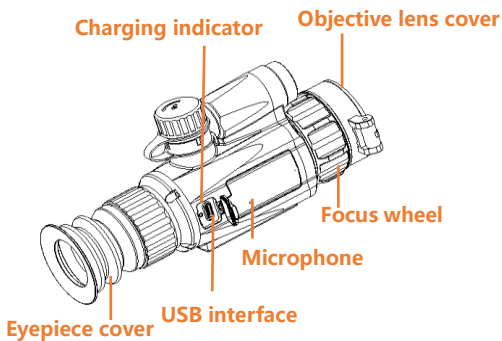
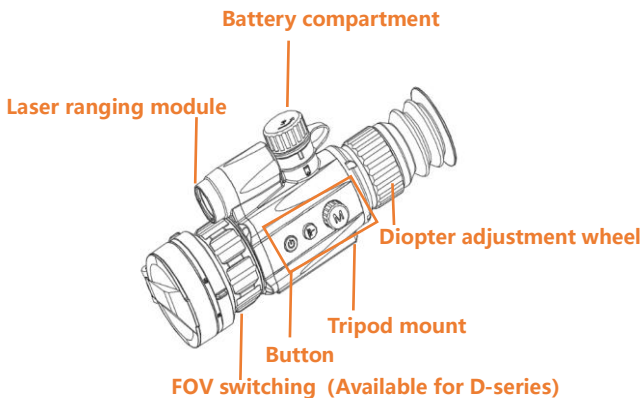


Manual (x1)



Target Hot Posts(×2)

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 6 seconds to force power off.

Buttons	Short press (Rotate Forward)	Long press (Rotate Backward)
Power button 	Sleep/wake	Power on/off (long press for 3s)
Laser buttons 	Ranging	 Image Correction (Long press for 2 seconds).
Menu button (short press) 	Color palette switch/ Confirm in the menu	Invoke menu/return to the upper level in the menu (long press for 2 seconds).

Menu button (Rotation) 	Digital zoom in/ up button in the menu	Scene switch/ down button in the menu
Menu button (double click) 	Lock the menu button function	Unlock the menu button function
Menu button +Laser button (press together) 		Up to your setting Take photos/Videos (Long press for 2s)
Menu button (Menu button + Rotation code) 	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;



 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

 Sharpness	Press the up and down arrows, adjustable from 0 to 8 gears
 Tone	Cold/Warm for selection (Effective in white heat and black heat modes)

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  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.



Wi-Fi

2.5. PIP

Turning on the PIP function " , the image in the center frame will be magnified 2/4/8 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.

When the trajectory calculation function is enabled, the PIP zoom position is centered on the impact point, with a 1/36 area of the full image around the impact point enlarged to 1/9 of the image. When the impact point is out of range, zooming around the cursor.

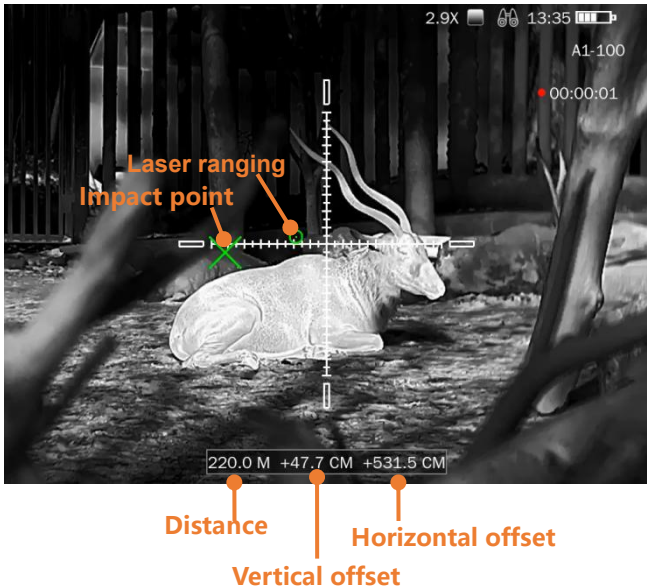
2.6. Smart Trajectory

Select the smart trajectory " , you can choose to turn it on or off, this function is related to ranging, user cursor table, and trajectory 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 "X":



Smart trajectory

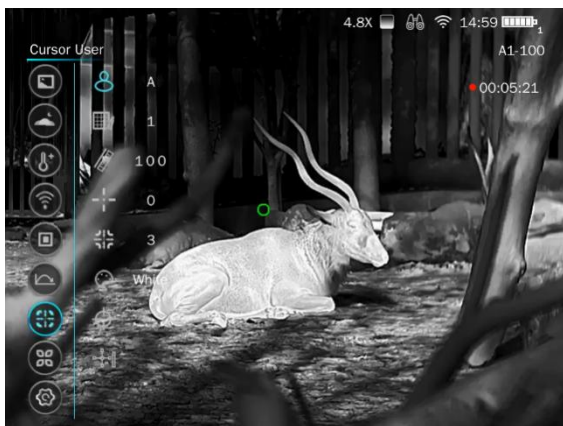
After the smart ballistics function is turned on, a single range measurement triggers the display of simulated impact point calculation. The display content includes the impact point, distance information, and information on the offset from the cursor center. The information will be displayed continuously 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:



Cursor Reset

 Cursor User	A, B, C, D and E, 5 users, 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

 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 7 types of patterns, from 0 to 6, with 0 being no cursor.
 Cursor Thickness	1-5 Adjust cursor thickness, long press menu to return to exit
 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



Configure

There are 8 groups of custom settings that can be saved P1-P8. You can set the diameter, weight, resistance function, ballistic coefficient, initial velocity and visual height. After the adjustment is completed, press and hold to save

		and exit for next use. Diameter: 0.01-99.99mm, default 5.7, press the up and down arrows to adjust Weight: 0.01-9999.99 g, default 25g, press the up and down arrows to adjust Resistance function: drop-down selection (G1/G7/GS), default G1, press the up and down arrows to adjust Ballistic coefficient: 0.010-9.999, 0.13, press the up and down arrows to adjust Initial velocity: -9999 m/s, default 600m/s, press the up and down arrows to adjust Visual height: 0-999 mm, default 50mm
	 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	5 available colors for impact point and laser landing point: green, white, black, red and blue.



Model type	E325	E625	E335	E635	E350	E650	E350D	E650D
Mil	2.22	3.70	1.59	2.64	1.12	1.86	2.22/ 1.12	3.7/1.86
A (MOA)	8	13.3	5.7	9.5	4	6.7	8/4	13.3/6.7
Click Value, cm@100	1.8	3.0	1.3	2.1	0.9	1.5	1.8/0.9	3.1/1.5

2.8. Function Settings

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



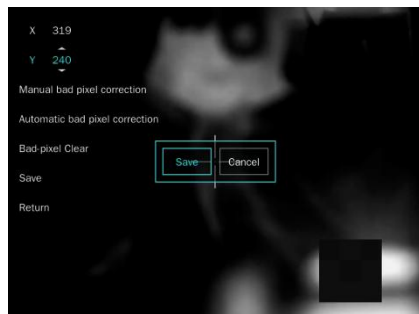
 Record	Mode setting, set the camera button to take photos or record videos
 RAV	After it is turned on, the instrument will record videos 10 seconds before and 10 seconds after the impact, and the RAV icon appears on the

	navigation bar
 OLED Screen Brightness	Spin code adjustment, 1-5 gears to adjust OLED brightness
 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	After entering the bad pixel correction operation interface, short press the menu key to confirm, and long press the menu key to return. Manually

correction

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.

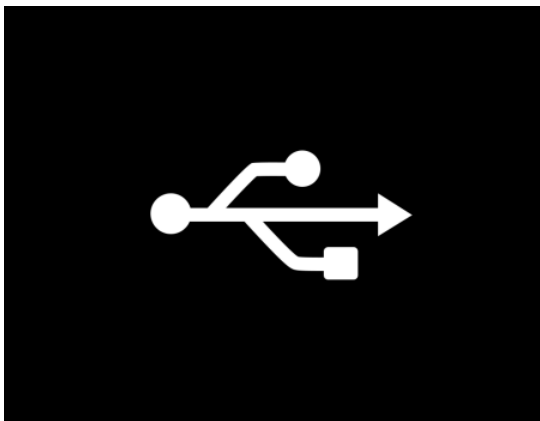
 Language	Five language options are available
 Time	 Spin code selection, short press the menu button to confirm, and long press the menu to return
 Image Correction	Automatic and Manual modes are available
 Distance units	Yards and Meters are available
 	When the device is placed on a horizontal surface, but the pitch and tilt

Six-axis calibration	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 shutter will be automatically turned off to protect the detector when encountering high temperature scenes
 Restore factory setting	Restore factory settings
 Format	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	E325	E335	E350	E350D
Resolution	384×288			
Pixel pitch	12μm			
Operating wavelength	8-14μm			
Laser type	class1 laser product			
Thermal sensitivity NETD	≤17mk @25°C F=1.0			
Frame rate	50Hz			
lens				
Lens focal length (F-number)	25mm (F1.0)	35mm (F1.0)	50mm (F1.0)	25mm (F1.0) /50mm (F1.1)
FOV	10.5°×7.9°	7.5°×5.6°	5.3°×4.0°	10.5°×7.9°/ 5.3°×4.0°
Minimum imaging distance	>2.5m	>3.5m	>5m	>2.5m/ >5m

Detection range	1280m	1800m	2600m	1280m/2600m
Optical magnification	2.4	3.4	4.8	2.4/4.8
Diopter adjustment	±5			
Distance of exit pupil	45mm			
AMOLED	1024×768			
Internal storage	32G (actual 27G, system operation occupies a portion).			
Power supply	5V DC 2A			
Battery	18650 with protection board, 3400mAh			
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	-30~55°C			
Storage	-40~65°C			

temperature				
Humidity	≤90%			
IP rating	IP67			
Size	196×62× 90	196×62× 90	203×66×90	212×66×90
Weight	≤600g (with battery).	≤600g (with battery).	≤620g (with battery).	≤750g (with battery).
Shock	1000g/0.4ms			

640 Model	E625	E635	E650	E650D
Resolution	640×512			
Pixel pitch	12μm			
Operating wavelength	8-14μm			
Laser type	class1 laser product			
Thermal sensitivity NETD	≤17mk @25°C F=1.0			
Frame rate	50Hz			

Lens				
Lens focal length (F-number)	25mm (F1.0)	35mm (F1.0)	50mm (F1.0)	25mm (F1.0) /50mm (F1.1)
FOV	17.5°×13.1°	12.5°×9.4°	8.8°×6.6°	17.5°×13.1° / 8.8°×6.6°
Minimum imaging distance	>2.5m	>3.5m	>5m	>2.5m / >5m
Detection range	1280m	1800m	2600m	1280m/2600m
Optical magnification	1.4	2.0	2.9	1.4/2.9
Diopter adjustment	±5			
Distance of exit pupil	45mm			
Internal storage	32G (actual 27G, system operation occupies a portion).			

Power supply	5V DC 2A			
Battery	18650 with protection board, 3400mAh			
Battery operating hours	≥4 hours (when WIFI and hotspot turned off)			
USB	USB Type-C supports charging, powering, transferring files, and transferring videos			
Operating temperature	-30~55°C			
Storage temperature	-40~65°C			
Humidity	≤90%			
IP protection class	IP67			
Size	196×62×90	196×62×90	203×66×90	212×66×90
Weight	≤600g (with battery).	≤600g (with battery).	≤620g (with battery).	≤750g (with battery).
Shock	1000g/0.4ms			

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: 3 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



Zhejiang ULIRVISION Technology Co.,LTD.

Tel: +86(0)571 8720 9881

Web: www.ulirvisiontech.com

Fax: +86(0)571 8512 5358

E-mail : overseas@ulirvision.com

Add: 8F/9F/10F/17F, Block C, No. 581 Huoju Avenue, Puyan Street,
Binjiang District, 310000 Hangzhou, Zhejiang, China