

ULIRVISION

# **EAGLE SERIES**

Thermal Imaging Camera

**User Manual**

# About this manual

Dear users,

Thank you for choosing the E-Series Thermal Imaging Riflescope!

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!

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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.
- 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 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.

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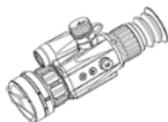
# 1. Product Overview

Eagle (Abbreviated as E series) is a kind of infrared thermal imaging rifle scope, suitable for outdoor exploration, emergency search and rescue, mountain guarding, hunting and other occasions. The combination of high-performance infrared detector 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, can take photos, video, recoil automatic recording;
- Hot spot marking and tracking function;
- With WIFI, hotspot function, support APP, can quickly transfer and share pictures.

## 1.1 Packing List



E series thermal imaging device (x1)



18650 battery (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)

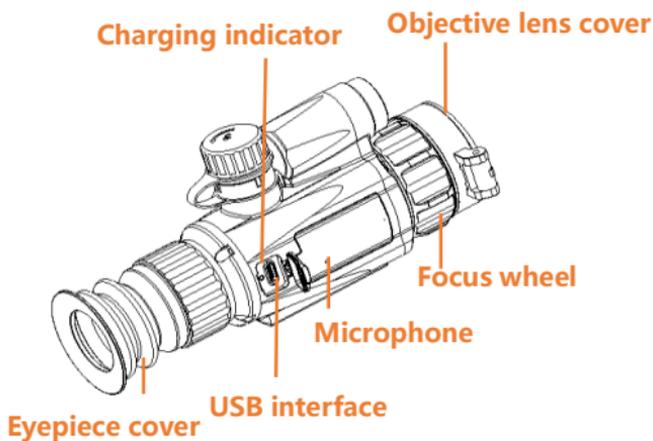
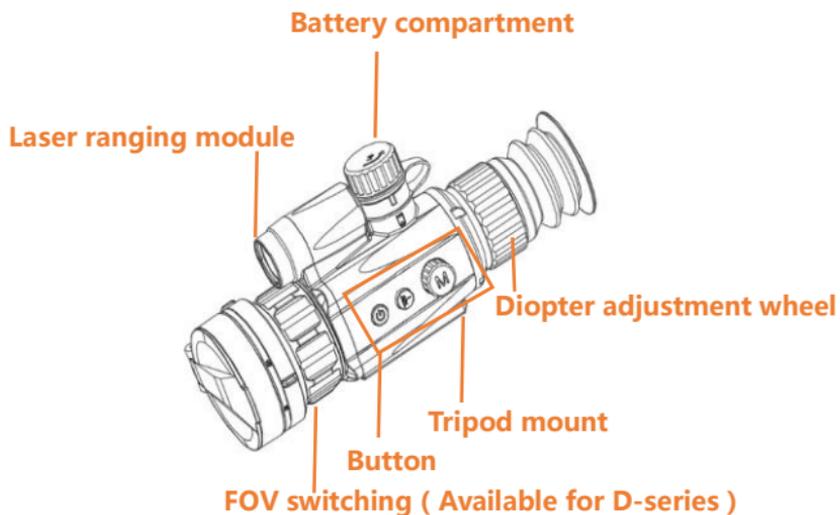


Manual (x1)



Target Hot Posts (x5)

## 1.2 Appearance Introduction



## 1.3 Buttons and Operating Instructions

Note: Short press the laser button in the main preview interface to trigger the laser ranging function. The distance value returned by the ranging and the indication of the laser drop point will be displayed on the screen as well as. The ranging supports multiple modes, which can be selected in the settings. Long press the power button for 6 seconds to force it to shut down.

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

<p>Menu button (Rotation)</p> 	<p>Digital zoom/ up button in menu</p>	<p>Scene switch/down button in menu</p>
<p> +  Menu button + Laser button (Press together)</p>		<p>According to the setting Photo/video (long press for 2 seconds).</p>
<p> Menu button long press + (Hold to rotate)</p>	<p>Switch the current cursor table forward</p>	<p>Switch to the previous cursor table</p>

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;



Image setting

 Brightness	Adjustable from 0 to 8 gears
 Contrast	Adjustable from 0 to 8 gears

 Sharpness	Adjustable from 0 to 8 gears
--	------------------------------

## 2.2 Scenes

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



Scene

 Search	It increases contrast and accentuates high-heat subjects. Applicable to scenarios where hotspot targets need to be found at the first time.
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 Jungle	Wide dynamic algorithm, dark part lifting, 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

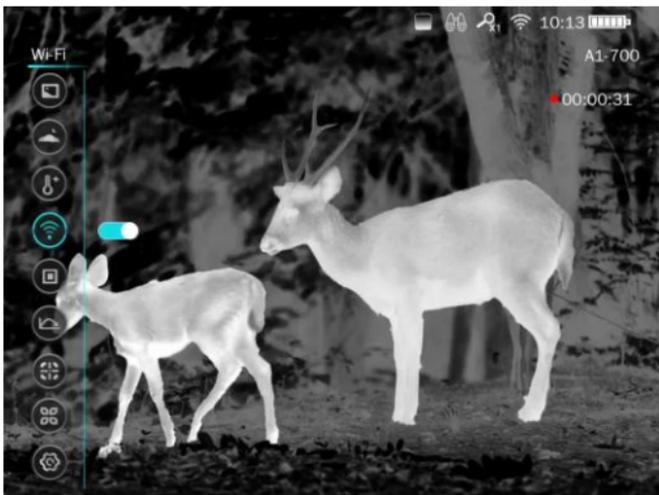
Select the icon" ", when the hotspot tracking is turned on, a hotspot indicator green cross cursor appears on the screen, automatically pointing to the location with the highest temperature. The cursor is green by default, and automatically switches to red when the color plate is green hot.



Hot spot tracking

## 2.4 Wi-Fi

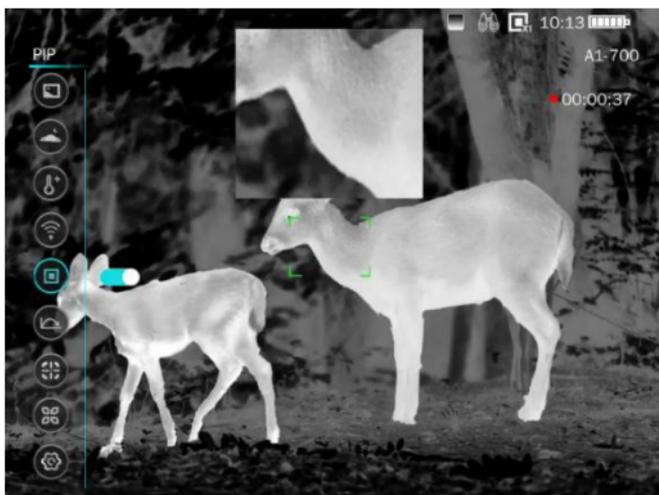
Select the Wi-Fi"  ", turned it on or off, and the device will turn on the Wi-Fi after this function is turned on, meanwhile the Wi-Fi icon and the current number of connections will appear on the navigation bar. Up to 3 users can be connected at the same time.



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

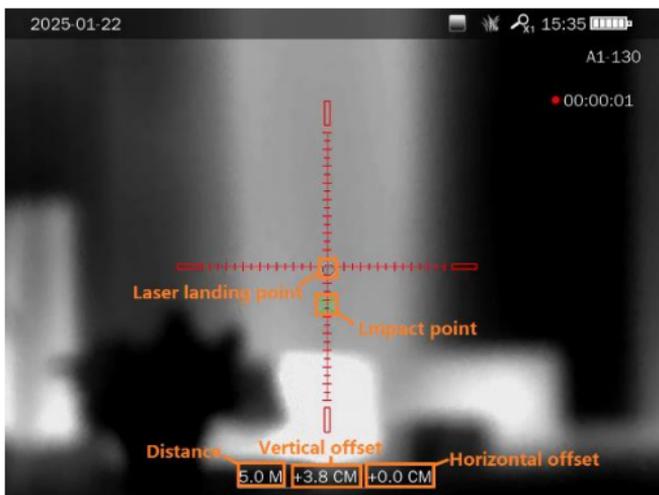
Select the smart trajectory " , you can choose to turn it on or off, this function is related to ranging, user cursor table, and landing point compensation. After it is turned on, the landing point will appear on the interface at the center of the cross division (it will not be displayed if there is 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

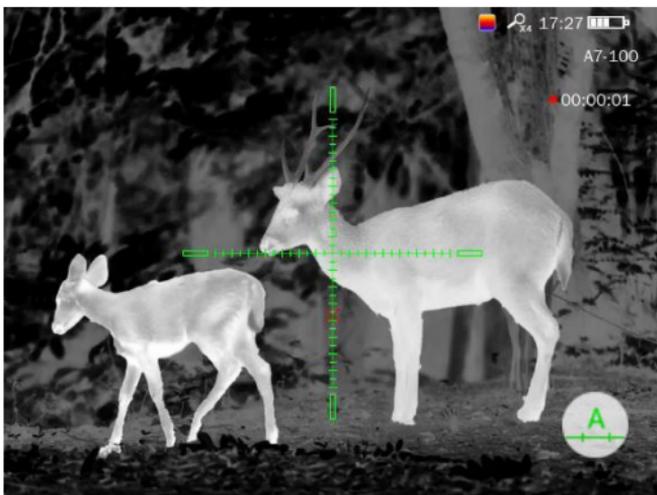
Select the zeroing profile "  "to set the following options:



### Cursor Calibration

 Cursor User	A to J, 10 gears, associated with the cursor table, distance, shape, color, calibration, and landing 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, 0-5, with 0 being no cursor.

 <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-hair, make the cross-hairs move to the specified position. (The current user group takes effect)</p> 
 <p>Trajectory Calculation</p>	<p>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.</p>



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 Setting

Function settings include shooting mode, RAV, OLED screen adjustment, OSD, microphone, ranging mode, auto power off, bad pixel correction.

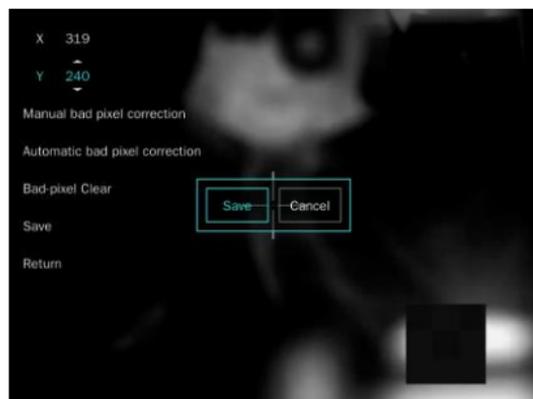


 Record	Mode setting, set the camera button to take photos or record videos
 RAV	After it is turned on, the instrument will record videos 10 seconds before and 10 seconds after the impact, and the RAV icon appears on the navigation bar

 OLED Brightness	Spin code adjustment, cool or warm color for selection, 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 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.

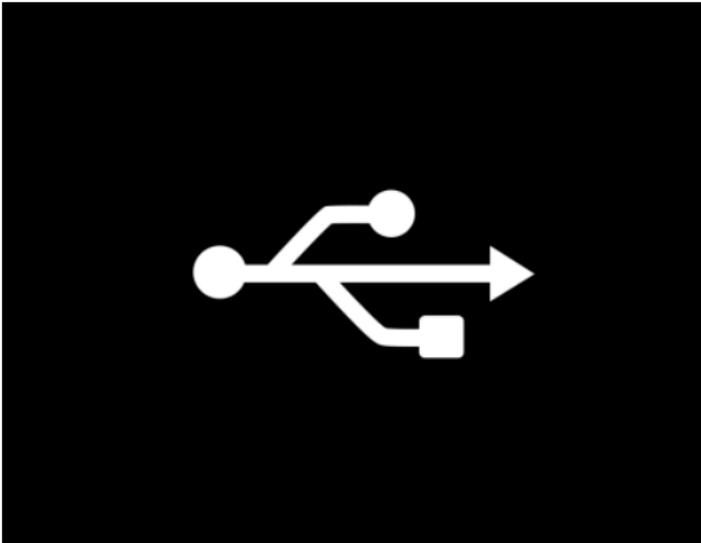
 Language	Five language options are available
 Time	 Spin code selection, short press the menu button to confirm, and long press the menu to return
 Image Correction	Automatic and Manual modes are available
 Distance units	Yards and Meters are available

 Six-axis calibration	<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. <b>When calibration, please keep the device on horizontal surface).</b></p>
 Anti-burn	<p>Tip : <b>The Anti-burn function has been triggered, long press the laser button back to normal,</b> and when turned on this function, the lens will be automatically turned off to protect the detector when encountering ultra-high temperature scenes</p>
 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	E325	E335	E350	E350D
Resolution	384×288			
Pixel pitch	12μm			
Operating wavelength	8-14μm			
Laser type	class1 laser product			
Thermal sensitivity NETD	≤18mk @25℃ 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	-20~55□			
Storage temperature	-40~65□			
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	≤18mk @25□ F=1.0			
Frame rate	50Hz			
<b>Lens</b>				
Lens focal	25mm	35mm	50mm	25mm

length (F-number)	(F1.0)	(F1.0)	(F1.0)	(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	5V DC 2A			

supply				
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	-20~55℃			
Storage temperature	-40~65℃			
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 power 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 is not 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

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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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