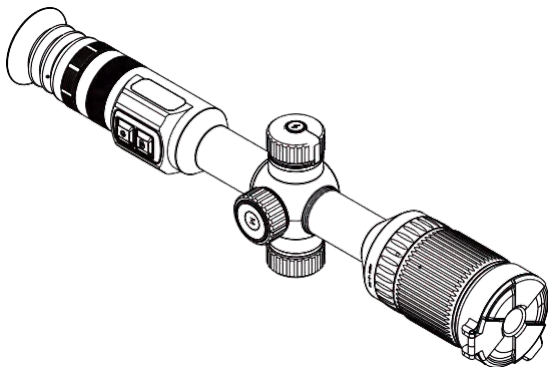


Operation Instructions for The Monocular Outdoor Thermal Imaging Telescope



LIGHT Series

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Foreword

Dear the user,

Hi! Thank you for having purchased our meters. To ensure that you can use it better, we remind you to carefully read the operation instructions before use and recommend that you keep it properly for future reference.

For Your Safety

Before using this product, please ensure that you have already read and understood safety cautions as mentioned below so that you can use this product properly.

The safety cautions mentioned below guide users to operate the product safely and properly so as to avoid damage to the users themselves, others, and the device.

Cautions

In order that the product will not be damaged, please follow the following instructions:

Please do not reconstruct or dismantle this product without authorization.

This product is a set of very precision device. Please do not try to dismantle or reconstruct any part of the product. Repair of this product shall be performed by the technicians appointed by this Company.

Sound of kaka out of the product

There will be a slight sound like kaka out of this product while it is working every few seconds. This is a normal case of image capture by lenses.

Note: Do not face the sun or other strong light sources directly. Otherwise it may damage the detector of the product.

Warning

The description of warning may cause act of hazardous conditions. To avoid an electric shock or personal injury, please follow the following operations.

If the product's casing is damaged, please do not continue to use it. In this case, please contact the local dealer or the agent of the Company.

If smoke, sparks, or burnt odors are found from the product during use, please stop using it immediately.

In this case, please turn off power for the product. After smoke or odor stops completely, please contact the local dealer or the agent of the Company.

Please do not weld the batteries without authorization.

Such operation may damage the batteries, and may cause battery leak or explosion.

Please do not allow the batteries shocked (such as collision or fall, etc.)

Such operation may damage battery casing, and may cause battery leak or explosion.

When it is not in the process of discharging, please remove the adaptor on the power socket.

When the adaptor is electrified, it may be overheated, deformed or a fire.

Please ensure that the plug of the adaptor is inserted into the designated power socket.

The adaptor plugs differ as areas are different. Before operation, please ensure that the specification of the adaptor will maintain consistent with the specifications of electric appliances of the area you live. Otherwise, there may be overheating of the device, an electric shock, fire, leak of chemical matters out of the batteries, explosion or other serious consequences.

When the adaptor plugs or electric wires are damaged, please stop using them immediately.

Charge the instrument after ensuring that the adaptor plugs have been inserted into the plugs completely.

When your hands are wet, please do not touch the electric wires. Touching electric wires with wet hands may cause an electric shock. When pulling out the wire, grip the wire head tightly before pulling out the wires. Do not directly pull or tug on the wires. Otherwise it may cause wire breakage, an electric shock, or fire.

It is not allowed to dip this product in water or put water on it. If the casing is dipped with water or other solution, please wipe it dry immediately. If water or other liquid flows inside the instrument, please turn off power immediately, for continued use of it may cause damage to the product.

Clear dust off adaptor plugs and data cords regularly. Exposure to dusty or humid environments for long may accumulate moisture around electrical equipment, which may cause short circuits or a fire.

Please do not use abrasives, isopropanol, or gaseous organic solvents to clean the product casing. This type of operation may damage the casing of the product.

After used for long, the product's temperature may rise. When hands touch the adaptor, they may feel very hot.

Try to avoid problems caused by condensation.

Taking the product from high temperature to low temperature, or from low temperature to high temperature, may cause condensation (water droplets) to form on the casing and inside of the product. In this case, you can put the product in the randomly included instrument package, gradually adjust the product to the ambient temperature before using it, and then take out the product for operation.

If there is condensation in the product, please turn off the device, and take out the battery. Otherwise, it may damage the device. Operation can be done only after the condensation has completely disappeared.

Please avoid shock to the product (such as collision or fall, etc.)

Such operation may cause damage to the product. Please be careful to avoid it.

Storage for long and regular charging.

When the product lies idle for long, please keep it in a dark, cool and dry environment. If you store the product with batteries, please charge it regularly. Otherwise, the power will run out, and it will shorten the service life of battery.

Preliminary Understanding of the Therma Imager

Infrared thermal imaging detection technology has long been an important means to ensure the safety of industrial products in developed countries. Infrared thermal imaging detection technology is widely used in industries such as power, metallurgy, petrochemicals, machinery, coal, transportation, fire protection, and national defense in China. Real time detection under high voltage, high current, and high-speed operation, facilitating the detection of potential problems and preventing the occurrence of faults. Such “non-contact” modern detection technology is safe, fast and reliable.

The infrared thermal imaging detection technology is widely used in the following field:

- Inspection of power equipment, transmission, and transformer circuits;
- Search for concealed fire sources in firefighting;
- Search and rescue of personnel in a fire as well as command of the fire scenes;
- Analyze the location of dew points and heat loss in thermal pipelines and heating equipment;
- Determine the location of heating faults in operating trains;
- Night monitoring by security authorities.

Profile

This product is an infrared thermal imaging device that combines surface temperature measurement and real-time thermal imaging. Traditional infrared thermometers require measuring each component one by one, while infrared thermal imagers do not require so, thus saving time and allowing potential issues to be clearly displayed on a color screen. By measuring the cursor at the center point, the temperature of the target object can be located and measured quickly and accurately.

Thermal images can be saved in this device. USB is used to read images or save it to computer used to generate reports and print. This product is small in size, easy to be operated, with strong functions, so it is an ideal choice for power, electronic manufacturing, industrial detection and other fields.

Product Cleaning

The casing of this product shall be cleaned with wet cloth or diluted soapy water. Do not use abrasives, isopropanol or solvent for cleaning, use professional optical lens cleaning agents for lenses and screens.

Lens Maintenance

Try not to damage infrared lenses:


- Be careful to clean infrared lenses. The lens is provided with a fine anti reflection coating.
- Please do not do cleaning by force so as not to damage the anti reflection coating.
- Use cleaning solution for lens maintenance, such as commercial lens cleaning solution containing alcohol, or alcohol, and a piece of lint free cloth or tissue. You can remove loose particles using a compressed air tank.

Cleaning lenses:

- Compressed air tanks or dry nitrogen ion sprayers (if applicable) can be used to blow particles off the surface of the lens.
- Soak the lint free cloth in alcohol.
- Twist off excess liquid from the cloth or gently apply a lint free cloth onto a dry cloth.
- Perform circular motion on the surface of the lens for wiping, and then discard the cloth strip.
- To repeat the above steps, please use a new cloth strip dipped in liquid to wipe.

Battery charging and description

Use USB data cords for charging:

- This product is built-in with two rechargeable batteries (one of which is not detachable).
- When the battery is low, “” will be displayed in the upper right corner of the screen. Please charge it in a timely manner through the Type-C USB interface.
- After it is fully charged, unplug the USB cable.

Charging using the charging base:

1. Open the battery cover and remove the battery.
2. Use the charger provided by the factory to charge the battery, and install the battery properly according to the polarity instructions on the charger.
3. After it is fully charged, disconnect power for the charger, and remove the battery.



Prompt 1: When this product lies idle for long, it must be charged at least once three months to avoid prolonged storage time and irreversible capacity loss caused by low battery capacity due to self discharge of the battery.

Prompt 2: During operation, if the battery power is low, the display screen will pop up. Please replace the battery or connect a charger to charge. Otherwise it will be powered off 5 minutes later.

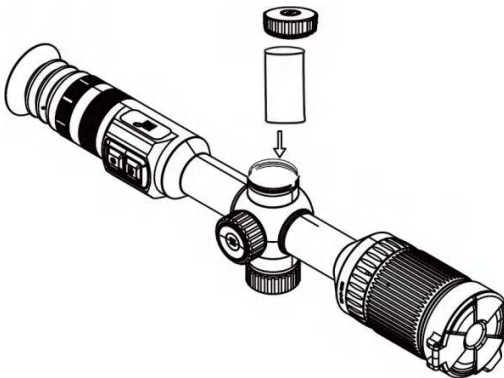
If the battery power is low and the automatic magnetic machine is turned off or manually turned off before turning it back on, the display screen will pop up “Low battery” and it will be automatically off 10 seconds later.

Warning: If the user does not replace or charge the battery and turns it on again after a period of time, the device's display screen may remain on the starting logo and no prompt message to replace the battery will pop up until the battery is depleted. Now, the user can press and hold the power button for 10 seconds to force power off!

Battery installation

- (1) Turn the battery compartment knob counterclockwise to open the battery compartment cover;
- (2) Install the battery strictly in the direction of the positive and negative poles on the battery compartment cover;
- (3) Close the battery compartment cover and turn the battery compartment knob clockwise until it is locked up.

Note: 1. Do not use batteries whose insulation layers have been damaged; 2. If the positive and negative terminals of the battery are reversed, the device will not work and may damage the battery.

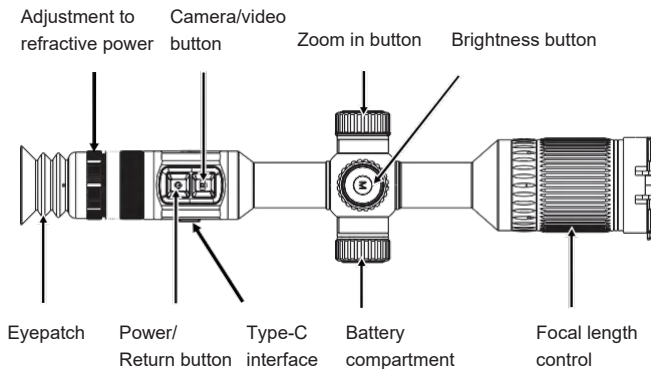


Performance indicators

Product model	Light 384	Light 640
Infrared		
Detector's type	Vanadium oxide uncooled infrared focal plane	
Resolution ratio	384x288	640x512
Pixel size	17um	12um
Focal length	54mm	
Viewing angle	10.7°x 8.2°	
Operating band	8-14um	
NETD	≤25mk@25℃, @F/1.0	
Frame rate	≤50Hz	
Focusing mode	Manual focusing	
Detection distance		
Characters 1.7m x 0.5m x 0.3m	2550m	
Vehicles 5.5m x 2.0m x 1.5m	6750m	
Identification distance		
Characters 1.7m x 0.5m x 0.3m	638m	
Characters 4.5m x 2.0m x 1.5m	1688m	
Display		
Display screen's type	OLED	
Resolution ratio	2560x2560	
Display screen's size	1.03 inches	
Electronic magnification	1X, 2X, 4X, 8X	
Diopter adjustment	±5SD	
Color palette	White heat, black heat, fiery, rainbow, iron red, cold color	

Hot track	Supported
Picture in pictures	Supported
Language	Simplified Chinese, traditional Chinese, English, etc.
Memory	
Capacity	Built-in 16GB EMMC (System takes up some space, actually as 13.8GB)
Shooting	Supported
Video recording	Supported
Microphone	Supported
Photo/Video format	JPG/MP4
Interface	
USB interface	Charging/Exporting pictures and videos
WiFi hot spot	Supported
APP	Version of iOS11 and above, Version of Android 7.0 and above
Power supply	
Detachable rechargeable lithium battery	3500mAh (battery model 18650); Built in 3500mAh battery (for continuous power supply in case of abnormal power failure during battery disassembly)
General technical indicators	
Overall power consumption	$\leq 1.8W$
Endurance	≥ 7.5 hours
Operating temperature	-20 C to +60 C
Store temperature	-30 C to +70 C
Impact	$\leq 6000J$
Protection grade	IP67
Size/Weight	
Product dimension	419x104x70mm
Product weight	1035g

An introduction to the product structures



Focal length control: Focal length control makes images clearer.

Type-C interface: used for battery charging and connecting computer to view device photos and video files.

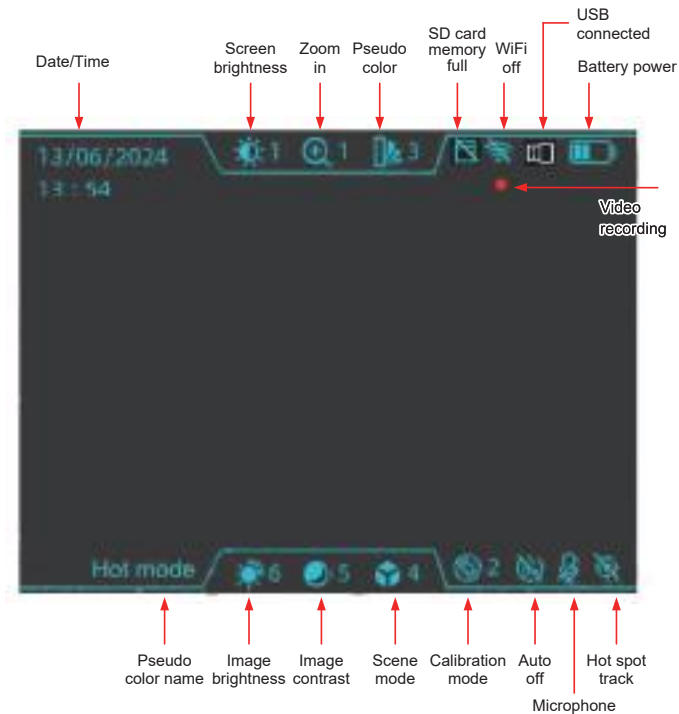
Battery compartment: detachable 18650 lithium batteries.

Adjustment to refractive power: Adjust the refractive power to make the display screen clearer.

Button Description

Button/Status		Shortly press	Long press	Turn
Power button	Main interface	It can be configured through the menu as a screen stop or freeze-frame function	Pop up shutdown prompt box, and you can perform power off operation	---
	Main interface	Return	---	---
Shooting button	Main interface	Shooting	Start video recording / Stop video recording	---
	Main interface	---	---	---
Brightness button	Main interface	Go to menu	Enable UI display/Disable UI display	Brightness control
	Main interface	Confirm	---	Direction (left, right)
Zoom in button	Main interface	Pseudo color switching	Refresh shutter	Zoom in
	Main interface	---	---	Direction (up, down)

Button Description



In the following cases, the icon will be display in the interface:

Video recording: when long pressing the shooting button for video recording;

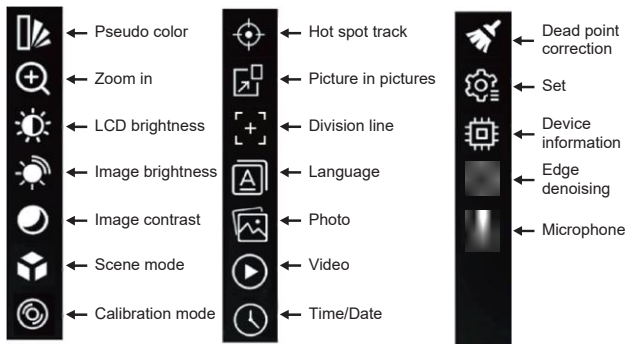
USB connection icon: when data cords connect computers;

SD card memory full icon: when the storage space is less than 100M.

WiFi icon: On or off can be set for the wireless network hot spot.

When the wireless network hot spot is activated, the mobile APP can connect to this device.

Menu description



Pseudo color: White hot, black hot, fiery, rainbow, iron red, cold color.

Zoom in: Electric zoom in 1,2X,4X,8X.

LCD brightness: display screen brightness adjustable at levels 1 to 10.

Image brightness: The infrared image brightness adjustable at levels 1 to 10.

Image contrast: The contrast of infrared image adjustable at levels 1 to 10.

Scene mode: The application scene can be set as standard, urban, jungle, and user defined.

Calibration mode: The infrared image calibration mode can be set as manual calibration, auto calibration and scene calibration.

Hot spot track: The infrared image hot spot tracking can be set as on or off.

Picture in pictures: The picture in pictures function in the infrared image mode can be set as on or off.

Edge denoising: The infrared image edge denoising function on or off.

Microphone: Microphone acquisition sound function on or off.

Operation methods:

- Press the brightness button to go to the menu;
- Up and down rotating zoom in button (up or down) Select the required setting option, and press the brightness button to go to the setting;
- Turn up or down the zoom in button (up or down) to perform corresponding settings. After the setting is finished, press the power button to exit the setting, as shown in the figure below.

Pseudo color



Zoom in



LCD brightness



Edge denoising



Image brightness



Image contrast



Scene mode



Microphone



Calibration mode



Hot spot track



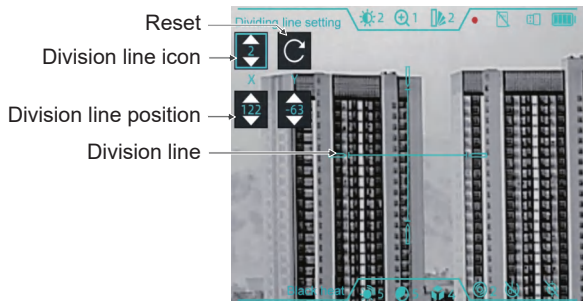
Picture in pictures



Division line: Select the division line and set the division line position through the X and Y axes.

Operation method: Turn left or right the brightness button (left or right) to select the division icon, reset, X-axis and Y-axis. After the setting is finished, press the power button to exit the division line settings as shown in the figure below.

- Reset: Select reset. Press the brightness button to reset. After it is reset, the values of X- and Y-axis will be cleared.
- Division line icon: Select the division line icon. Turn up or down the zoom in button (up or down) setting icon. 5 division line icons are optional.
- Division line position: Select X- or Y-axis. Turn up or down the zoom in button (up or down) to set X- or Y-axis values. According to the X- or Y-axis values, set the position of the division line.



Language: The language of the device can be set into simplified Chinese, traditional Chinese, English, etc. After the language is chosen, press the brightness button to confirm and quit, as shown in the figure below.



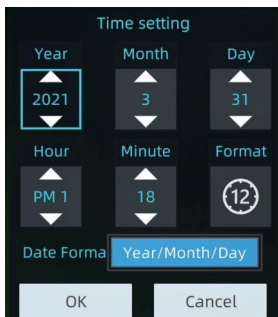
Photo: photo list, view the photo.

Video: video list, view videos.

Time/Date: set dates (year, month, date) and time (hour and minute), time format (12 hours, 24 hours), date format (year/month/date, date/month/year, month/date/year).

Operation methods: turn left or right the brightness button (left or right) to select year, month, date, hour and minute. After they are selected, turn up and down the zoom in button (up or down) again to set them. For the time format and date format, press the brightness button to be switched.

After the setting is finished, select “OK”, press the brightness button to exit the time setting as shown in the figure below.

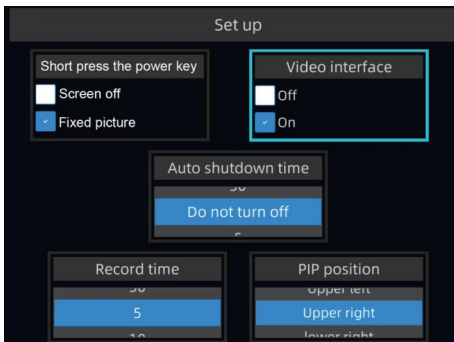


Dead point calibration: Manual dead spot calibration correction (turn the brightness button or zoom in button, adjust the cursor position up, down, left, right, press the brightness button to confirm the removal of bad spots, and press the power button to return).

Settings: to set shortly pressing of power button, video recording interface, automatic power off time, video recording duration, and picture in pictures position.

- Power button short pressing function: The power shortly pressing function can be set to turn off the screen or freeze the screen;
- Video recording interface: when video recording is set, whether it is provided with UI interface's display information;
- Auto power off time: to be able to set no power off, 5 minutes, 10 minutes, 20 minutes, and 30 minutes;
- Video recording duration: to set the duration of each video recording file. You can set 5 minutes, 10 minutes, 20 minutes and 30 minutes;
- Position of picture in pictures: to set picture in pictures at the center position. You can set left upper, upper middle, left upper, left lower, lower middle and right lower.

Operation methods: Turn the brightness button left and right (left or right) to select the power button shortly pressing, video recording interface, automatic power off time, video recording duration, and position of picture in pictures. After selection, turn the up and down rotary zoom in button (up or down) to set them. After setting is finished, press the power button to quit the setting, as shown in the figure below.



Device information: View the model, detector pixel, detector type, screen size, screen pixel, battery capacity, hardware version, firmware version, application version, storage space of this device, and perform application updates, parameter resets, formatting, and other operations on the device.

- Application update: update software.
- Reset parameters: to restore to factory settings.
- Formatting: to clear disk memory (chiefly storing images and videos).

Device info

Model:Light 640	Battery capacity:7000mAh (typ)
Detector pixel:640x480	Hardware version:V1.0.0
Detector type: VOx	Firmware version:V1.0.0
Screen size:1.03(OLED)	Application version:V1.2.10
Screen pixels: 2560x2560	Serial number: J14488F4C359EB3

Storage space
used 74.0MB/14176.1MB



App update Reset parame Format

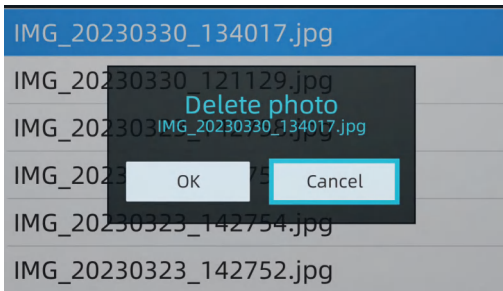
Pictures and videos

View photos: From the menu, select photos. Press the brightness button to go to the photo list, and press the brightness button to view photos. When viewing photos, turning the zoom in button up can view the previous photo, and turning the zoom in button down can view the next photo.

Delete photos: From the photo list, turn the brightness button right will pop up the “delete photos“ prompt. Select “OK”, and press the brightness button, and you can delete photos.

View videos: From the menu, select video, press the brightness button to go to the video list, and press the brightness button to view videos.

Delete videos: From the photo list, turn the brightness button right will pop up the “delete videos“ prompt. Select “OK”, and press the brightness button, and you can delete videos.



An introduction to pseudo colors

They are used to change the pseudo color display of infrared images on display screens. Some pseudo colors are more suitable to specific application, and can be set as you require.

Pseudo colors are divided into: six colors such as white hot, black hot, fiery, rainbow, iron red, and cold.

These pseudo colors play the best role in situations with high thermal contrast, from which you can be provided with additional color contrast between high and low temperatures.

Choosing appropriate pseudo colors can better showcase details of target objects. For pseudo colors such as rainbow, iron red, and cool colors, emphasis is placed on displaying colors, which is very suitable for high temperature contrast situations and is used to improve color contrast between high and low temperatures.

However, white hot and black hot provide uniform linear colors.

The following are images taken from the same object with different pseudo colors:



White heat



Black heat



Fiery



Rainbow



Iron red



Cold color

Microphone

Enable microphone: From the menu, select the microphone. Press the brightness button to go to the microphone on/off. Turn up or down the zoom in button to the ON position, and press the power button to return to the main interface. After the microphone is on, there is sound from the recorded video.

Disable microphone: From the menu, select the microphone. Press the brightness button to go to microphone on/off. Turn the zoom in button up or down to the OFF position. Press the power button to return to the main interface. After the microphone is disabled, there is no voice when videos are recorded.

Edge denoising

Enable edge denoising: From the menu, select edge denoising. Press the brightness button to go to the edge denoising on/off. Turn up or down the zoom in button to the ON position, and press the power button to return to the main interface.

Disable edge denoising: From the menu, select edge denoising. Press the brightness button to go to edge denoising on/off. Turn up or down the zoom in button to the OFF position, and press the power button to return to the main interface.

WiFi hot spot (WiFi AP)

Activate WiFi hot spot: From the menu, select WiFi hot spot. Press the brightness button to go to the WiFi hot spot setting page. Turn left or right the brightness button to select ON/OFF button. Press the brightness button to activate WiFi hot spot (ON is chosen).

After WiFi hot spot is activated, the mobile phone APP compatible to this device can be connected to this device via WiFi.

For specific operation process, refer to the operation instructions for mobile phone APP.

Disable WiFi hot spot: From the menu, select WiFi hot spot. Press the brightness button to go to the WiFi hot spot setting page, turn the brightness button left or right to select the ON/OFF button, and press the brightness button to disable WiFi hot spot (after OFF is selected).



ABOUT US

ABOUT US

EVERVIEW



When it comes to quality, we ensure that every product meets the highest standards so that every customer can experience our commitment to excellence. When facing customers, we always put their needs and satisfaction first and provide a service experience that exceeds expectations.

Our Mission

Customer first, excellent quality



Become the world's leading technical solution provider in the field of night vision and thermal imaging, lead the future with innovation, become a model of sustainable development in the industry, and promote industry progress.

Our Vision

Innovation driven, sustainable development



We adhere to the principles of honesty and transparency, make products serve customers, give back to customers with quality, continue to innovate, and promote technological development.

Our Values

Integrity, responsibility, win-win, enterprising



Customer first, excellent quality,
innovation-driven, sustainable
development, integrity, responsibility, win-
win, enterprising.



Working Hours

Monday - Friday 7/24 Hours

Saturday 09:00 - 18:00

Sunday 09:00 - 18:00

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Our Gallery

