



## IRAY J-YM2.0 Multi Function Thermal Imager User Manual

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**J-YM2.0 Multi-function Thermal Imager  
User Manual**





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## J-YM2.0 Multi Function Thermal Imager

### • Warnings, Cautions and Notes

Warnings, cautions, and notes may be found in this document. They are defined as follows:

#### • Warnings

Alert you to potentially hazardous situations, and conditions, practices or procedures that users must follow, so as to avoid serious injury and death.

#### • Cautions

Alert you to potentially hazardous situations, and conditions, practices or procedures that users must follow, so as to avoid moderate injury and equipment damage.

#### • Notes

Provide basic information that helps you better use or operate the product.

#### • Legal and regulatory information



2012/19/EU (WEEE directive): Products marked with this symbol cannot be disposed of as unsorted municipal waste in the European Union. For proper recycling, return this product to your local supplier upon the purchase of equivalent new equipment, or dispose of it at designated collection points.

For more information see: [www.recyclethis.info](http://www.recyclethis.info)



IRay Technology Co., Ltd. declares that the radio equipment type J-YM2.0 is in compliance with Directive 2014/53/EU, 2011/65/EU.

Frequency range of WLAN radio module: 2400–2483.5 MHz Maximum power of WLAN radio module: less than 20dbm

V1.5	<ol style="list-style-type: none"><li>1. +Legal and regulatory information</li><li>2. Note PAL video capable shuttle cables are sold separately</li><li>3. Note When connected to USB, the camera recording function may be abnormal</li></ol>	

## Device Information and Description

### 1.1 Device Information

Device model and name:



J-YM2.0 Multi-function Thermal Imager

Device use:

Designed to thrive in complex scene conditions, this device boasts a compact size, lightweight construction, low power consumption, and a long battery life. Whether helmet-mounted, handheld, sights or front string sights, it is well-suited for various applications such as law enforcement, outdoor hunting, wilderness exploration, and search-and-rescue operations.

J-YM2.0 packing list: mounted thermal imager body, helmet adapter bracket, L4G24 helmet bracket, Type-C data cable, Picatinny rails mounting clamp, Picatinny rail mounting clamp screws, Sights Eyeshade, Quick Guide, Lens cloth, Portable bag and Waterproof case.

J-YM2.0 packing list:

No.	Component
1	J-YM2.0 thermal imaging scope
2	Helmet mounting clamp
3	L4G24 helmet mount
4	Type-C data cable
5	Picatinny rails mounting clamp
6	Picatinny rail mounting clamp screws
7	Sights Eyeshade
8	Quick Guide
9	Lens cloth
10	Portable bag
11	Waterproof case

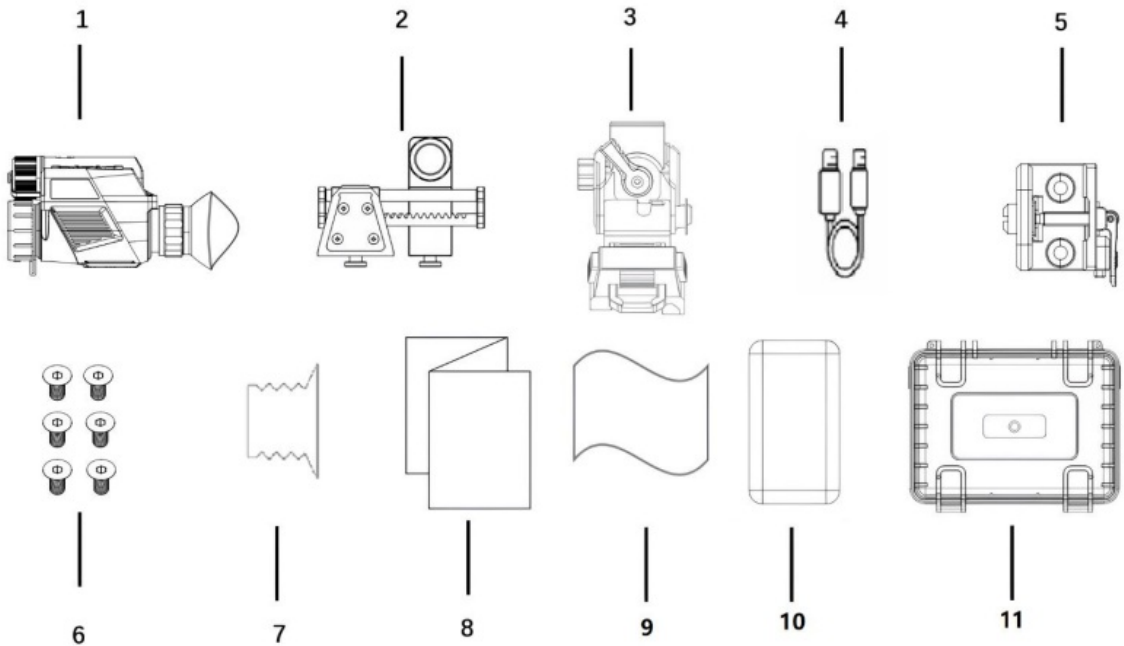








Figure 1.1 J-YM2.0 Packing List

This section provides an overview of the components and their corresponding functions found in the body of the JYM2.0 multi-function thermal imager device.



No.	Component	J-YM2.0 Function Description	
1		Press	In the menu returns to the previous option/increases the value.
			Out of menu digital zoom
		Press and hold	In/Out the menu correction
2		Press	In the menu confirm
			Out of menu Menu display
		Press and hold	In the menu Exit Menu
			Out of menu On/Off
3		Press	In the menu moves to the next option/decreases the value.
			Out of menu image capture
		Press and hold	In the menu no function
			Out of menu video capture
1+3		Press	In/Out the menu switch image polarity
1+2		Press	In/Out the menu turn off the screen
2+3		Press	In/Out the menu icon hidden
4	Eyepiece		diopter adjustment knob
5	Mounting interface		Head-mounted adapter bracket interface
6	Objective lens		Adjusts the focal length of the objective lens
7	Type-C interface		External USB serial port
8	Battery compartment		Adapts to 18650 batteries after battery cap is installed



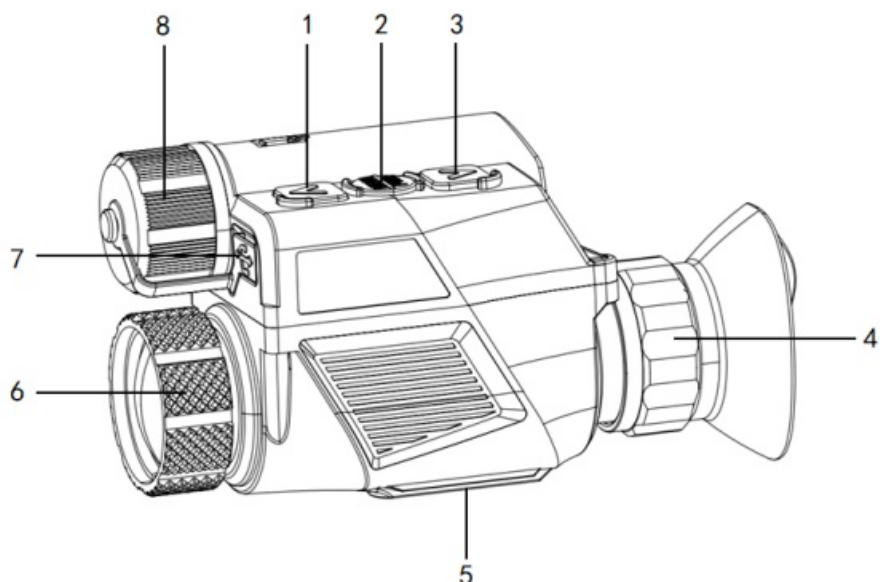


Figure 1.2 Components of the J-YM2.0 Multi-function thermal imager Device Body

## 1.2 Device Specifications

### Device Specifications

Parameters		Value
Thermal	Pixel Pitch	12 $\mu\text{m}$
	Resolution	640*512
	Frame Rate	50 Hz
	Display	1024 $\times$ 768 OLED
Optical	Focal Length of Objective Lens	26.7mm/F1.0
	FOV	16.3° $\times$ 12.3°
	Visual Amplification	1 $\times$
	Diopter Adjustment	-5 +2
	Exit Pupil Distance	>20mm
Display Mode	Polarity	WhiteHot, BlackHot, Iron, Outline, Green and RedHot
Functions	Digital Zoom	1 $\times$ 2 $\times$ 4 $\times$ 6 $\times$



	DMC	Azimuth, Pitch, Roll
	Wi-Fi image transmission	Support
	Video/Image Capture	Support
	Memory	64G
Power	Battery	1 x 18650 3.7V
	Max Battery Life (Wi-Fi disabled)	10h
Weight & Volume	Weight (w/o battery)	< 270g
	Dimension (mm)	113 × 70 × 48
Mounting Type		Handheld, Head-wearing, Sights, Front string sights
Environmental Requirement	Encapsulation Rating	IP67
	Operating Temperature Range	-20°C — 50°C
External Interfaces	Type-C	power supply, serial port

#### Recognition Distance Specifications:

Target	Type	Distance
Human target 1.7m×0.5m	Identification	310m
	Recognition	630m
	Detection	1800m
Vehicle target 4.6m×2.3m	Identification	425m
	Recognition	850m
	Detection	2500m

#### Assembly and Power-on for Use



## 2.1 Assembly/Disassembly

The J-YM2.0 Multi-function thermal imager offers four usage methods: helmet-mounted, handheld, sights or front string sights. Each method requires specific accessories and mounting techniques. Before using, make sure to install the battery properly.

### 2.1.1 Installing the Battery

J-YM supports 18650 battery with protective board battery diameter  $18\pm0.5\text{mm}$ , length  $69\pm0.5\text{mm}$  positive pole with bump

**Note:** confirm the battery polarity before installation, the incorrect installation may lead to boot problem or device damage.

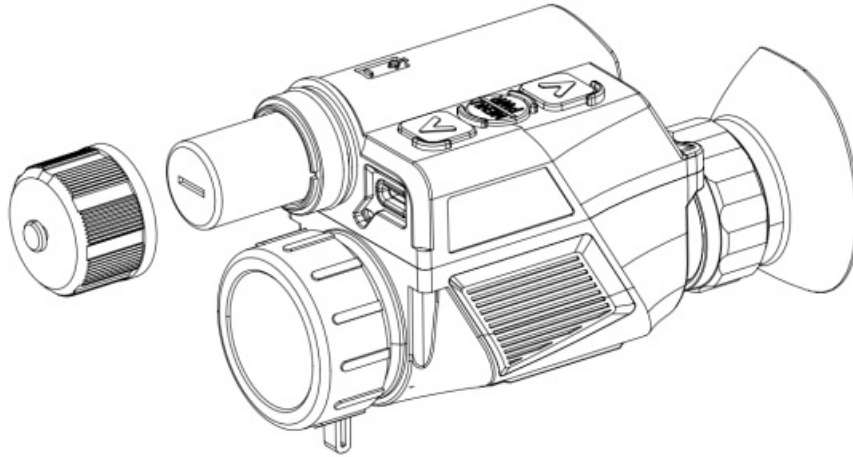


Figure 2.1 J-YM2.0 18650 Battery Installation Diagram

### 2.1.2 Handheld Use

By default, the J-YM2.0 is designed for handheld use, requiring no additional accessories. Simply install the battery and start using it immediately.

### 2.1.3 Helmet-mounted Use

To use the J-YM in a helmet-mounted configuration, first, install the battery, then attach the helmet adapter bracket. The installation steps are as follows:

1. Retrieve the helmet adapter bracket and securely fasten the screw on the bracket into the central screw hole of the thermal imager device mounting interface.
2. Install the device with the helmet adapter on a L4G24 standard helmet bracket.
3. Adjust the L4G24 bracket and adapter to the optimal observation position.

**Note :** In helmet-mounted use, you need to operate the menu in the device to flip the screen.



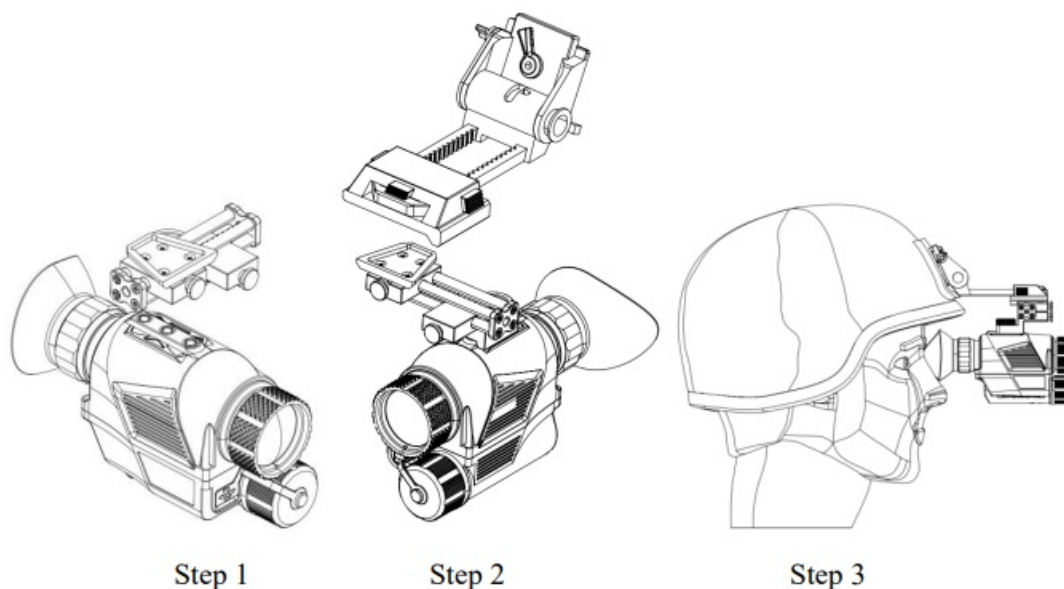


Figure 2.2 J-YM2.0 Installation Diagram for Helmet-mounted Use

#### 2.1.4 Sights/Front string sights Use

When using the device as a Sights or Front string sights , after installing the battery, you need to install the Picatinny rail adapter on the device, and then install the device (with the adapter) on the Picatinny rail, the installation steps are as follows:

1. Take out the Picatinny adapter, and use two M5 screws to fix it in the two screw holes on the outside of the device mounting interface;
2. Remove the monocular eye shield and attach the sights eyeshade;
3. Install the device with the Picatinny rail adapter on the Picatinny rail.

**Note:** when removing the monocular eyecup, hold the part that connects the eyecup to the device and pull it out pulling on the eyecup directly may cause damage to the eyecup.



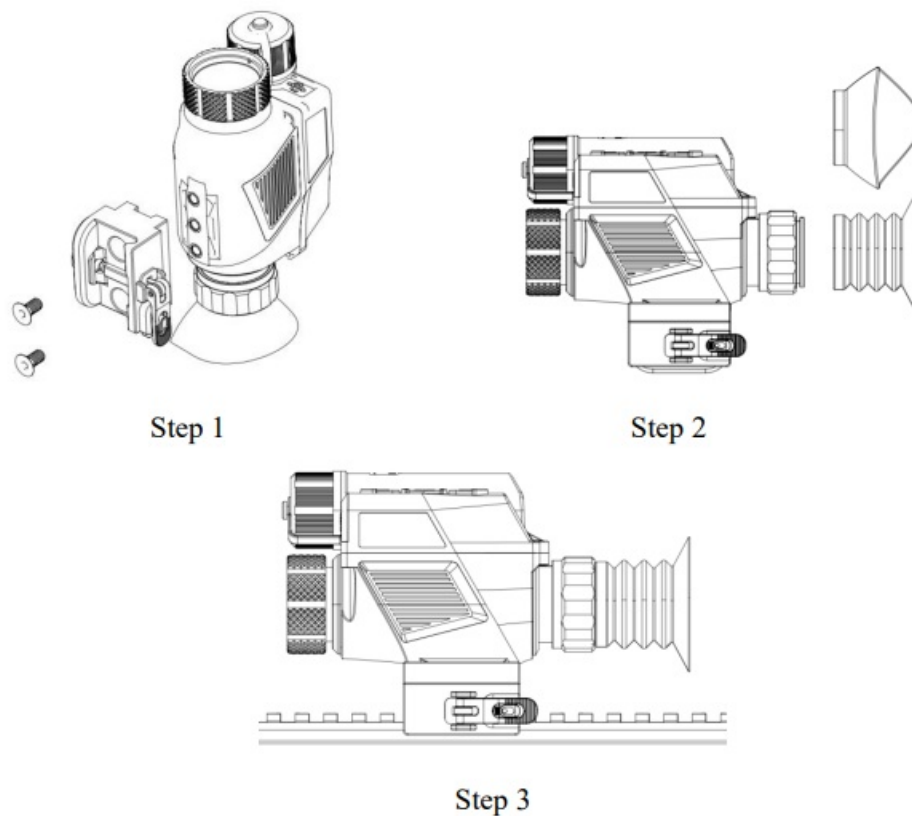


Figure 2.3 J-YM2.0 Thermal Scope Installation Diagram

## 2.2 Power-on for Use

Remove the lens hood before powering on the device, and press and hold the On button for 3s. The device will show a startup screen during the initialization process, and the image will be displayed after the shutter correction.

## Operating Instructions

### 3.1 Home Screen Operations

#### 3.1.1 Home Screen Display

The information displayed on the home screen of J-YM2.0 includes the infrared image, time, battery level, azimuth information, pitch angle information, roll angle information, digital zoom amplification, image polarity, reticle (displayed after being set in the menu), PIP (displayed after being set in the menu) and WIFI.

#### J-YM Home Screen Display



No.	Icon	Description
1	Azimuth compass	Displays W, NW, N, NE, E, SE, S, and SW azimuths and angles.
2	Time	Hours and minutes are displayed
3	Battery level	When the battery is fully charged, the color of the battery frame changes from white to red when the battery is low
4	Reticle	By default, it is not displayed and can be enabled in the menu settings.
5	Pitch angle	-90°~ 90°
6	Roll angle	-90°~ 90°
7	PIP digital zoom	Can be displayed after being set in the menu, with the default mode being full-screen digital zoom centered on reticle.
8	Image polarity	WhiteHot, BlackHot, Iron, Outline, Green and RedHot
9	Video capture icon	Video capture prompts icon
10	Image capture icon	Image capture prompts icon
11	Digital zoom amplification	Display digital zoom magnification
12	WIFI	WIFI is on

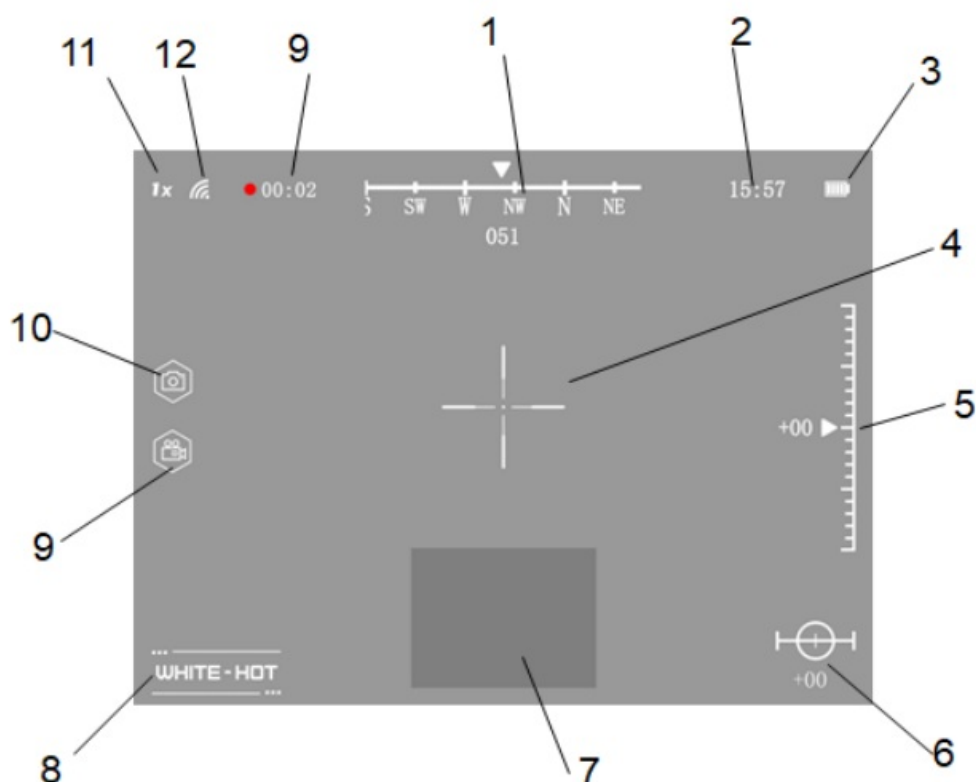








Figure 3.1 J-YM2.0 Home Screen



## Main functions of J-YM2.0 buttons

No.	Component	J-YM2.0 Function Description	
1		Press	In the menu returns to the previous option/increases the value.
			Out of menu digital zoom
		Press and hold	In/Out the menu correction
2		Press	In the menu confirm
			Out of menu Menu display
		Press and hold	In the menu Exit Menu
			Out of menu On/Off
3		Press	In the menu moves to the next option/decreases the value.
			Out of menu image capture
		Press and	In the menu no function
		hold	Out of menu video capture
4		Press	In/Out the menu switch image polarity
5		Press	In/Out the menu turn off the screen
6		Press	In/Out the menu icon hidden

### 3.1.2 Digital Zoom

In the home screen, tap the ▲ button to display the digital zoom image. The device defaults to full-screen digital zoom centered on division.

J-YM2.0 supports 1.0–6.0× digital zoom, image centered 1×/2×/4×/6× amplification.

### 3.1.3 Polarity Switching

Press and hold the ▲+▼ button to switch image polarities among WhiteHot, BlackHot, Iron, Outline, Green and RedHot cyclically.

### 3.1.4 Manual Image Correction

If the infrared image appears blurry, degraded, uneven, or with halos, manual shutter correction is necessary.

Press and hold the ▲ button simultaneously for 2s to manually correct the shutter. You can hear the shutter click during the correction. The correction time is less than 1s.

### 3.1.5 Image Capture

In the home screen, press the ▼ button to capture an image. The interface will display the image capture icon on



the left side during the capture process, and the captured image will be named according to the current time and date.

### 3.1.6 Video Capture

In the home screen, press ▼ button to capture a video, the video capture icon will be displayed on the left side of the interface during image capture, the captured image will be named by the current time and saved, every 20 minutes is saved as a video file.

### 3.1.7 Turn off the screen

Pressing “▲+●” (1s) at the same time will turn off the screen.

### 3.1.8 Icon hidden

Pressing “●+▼” (1s) at the same time will remove the icon.

## 3.2 Menu Operations

In the home screen, tap **MENU** button to enter the menu mode. In the menu mode, you can set the Image, Reticle, Settings and Clip-on.



Figure 3.2 Main Menu

### 3.2.1 Image

**Brightness:** set the screen brightness to 1-10; the default value is 5.

**Contrast:** set the image contrast to 1-10; the default value is 5.

**Red value:** set the prominence of the heat source in the Red-hot image from 1 to 3, and the default value is 2.

**Edge:** Set the color of the edge of the heat source of the Outline image, the optional values are white, green, and red.

The PIP allows setting the display mode of the image. The default is Full-screen, and PIP can be selected. When PIP is selected, it will be overlaid on the bottom of the display.

The COMP allows you to configure the compass information display and choose whether to show the pitch angle and roll angle.

The Auto Flip allows you to configure the menu display orientation. By default, it is set for handheld use where the buttons are facing up. However, for head-mounted use, you can enable menu flip to and align it to your specifications. This function is disabled by default.

The Flip the screen up allows you set the switch of the screen off function after the device is flipped up, and the device is turned off by default when the headset is in use.





Figure 3.3 Image

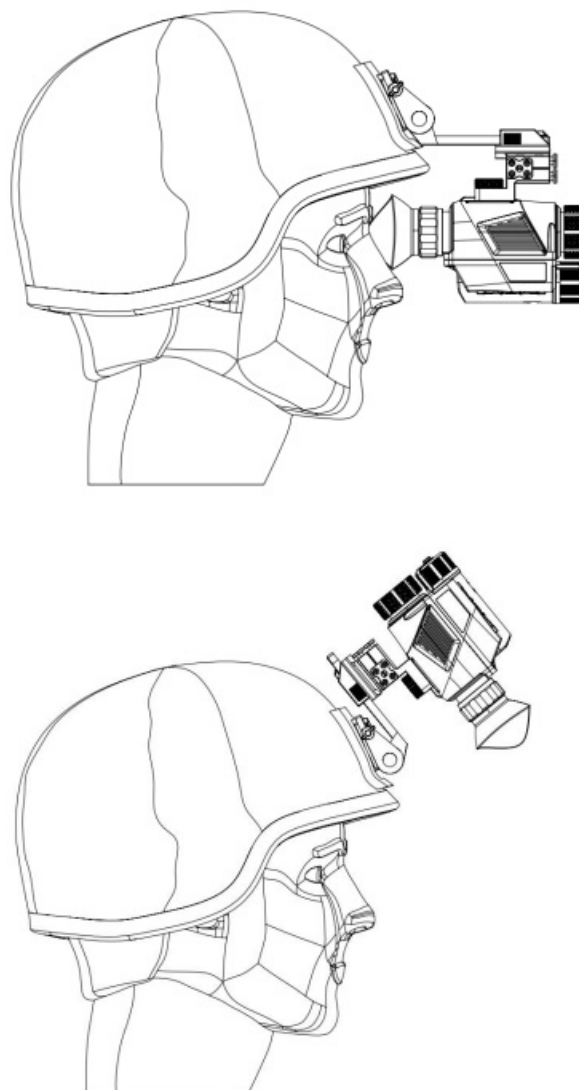


Figure 3.4 Flip the screen up



### 3.2.2 Reticle

The Reticle settings allow you to customize the Reticle Display, Reticle Type, Reticle Multiplier, Reticle Color, and Reticle Movement to your preferences.

The Reticle Display toggles the reticle ON/OFF. When the reticle is visible, you can customize its color and position to your preferences.

Reticle Type can be 5 types.

Reticle Multiplier can be set to ON or OFF. If ON is selected, the reticle changes with the electron zoom.

Reticle Color can be set to White, Black, Green, Red and Blue.

Reticle Move can be set to Default, Horizontal, or Vertical. If Default is selected, the position of the reticle will be reset to the center of the image. If Horizontal or Vertical is selected, the reticle will move horizontally or vertically.

The move value ranges from -100 to 100, and each move value represents a pixel with 5 archives.



Figure 3.5 Reticle

### 3.2.3 Settings

The Settings menu provides options to calibrate the device, restore factory settings, and more. It includes settings for Wi-Fi, COMP AC, Date and Time, PAL, Correcting, Reset, Working Hours, SN, Memory Format, and other functions.

Wi-Fi functionality can be enabled or disabled in the settings, with Wi-Fi being disabled by default. When Wi-Fi is enabled, the Wi-Fi icon will be displayed on the home interface. After about 10 seconds, a mobile device can find the access point named XWIFI\_XXXXX, and the default password is 12345678. Once successfully connected to Wi-Fi, you can use the app to observe or capture images/videos.

**Note:** During the Wi-Fi activation process, the Wi-Fi icon will flash as a prompt. Please be aware that you will be unable to take photos or videos during this time.

**Please contact the supplier for App.**

The COMP-AC feature is mainly used to calibrate the compass accuracy. It is recommended to perform azimuth calibration when using the device for the first time or in a different location. During the calibration process, rotate the device horizontally 360° and then rotate it upward and downward by 90°. Follow the on-screen instructions and click “Start” to initiate the rotation. After completing the rotation, click the middle button to finish the calibration.

Date and Time set device date and time.

PAL allows you to enable or disable the output of analog video, which is disabled by default. You can observe the image on a monitor. by connecting the Type C interface on the device to the BNC connector on the monitor using the cable provided in the package.

Note: The power consumption will be increased after PAL video output is enabled.

Note: When this function is enabled, the photo and video functions may be abnormal.

“Correcting” allows you to set the time interval for shutter correction. A value of 0 3 5 10 15 20 25 30 indicates that shutter correction will be performed at fixed time intervals, with the unit being minutes. A value of 0 means



that the user needs to manually perform the shutter correction operation.

“Reset” allows you to restore the device to its factory settings. Selecting this option and clicking OK will reset the device data to its default settings and exit all menus. Please note that the Type C interface cannot be used to connect other devices while this function is running.

Working Hours displays accumulated service time.

Note: The factory reset will not clear the service time of the device.

SN displays product serial number and product software version information “Memory Format” allows you to delete photos and videos stored in the device. Before selecting this option, please ensure that the WIFI switch is turned on. During the execution of this function, the Type C interface cannot be used to connect other devices.

WiFi Reset can restore the WIFI name and password to the default settings. Before selecting this option, you need to turn on the WIFI switch. When this function is running, you cannot use the Type-C interface to connect other devices.

### 3.2.4 Serial port

After connecting the device to a PC via the Type C interface, it provides the option to switch between the serial port mode and the OTG mode. By default, it is set to the serial port mode, enabling serial port debugging with the PC. When the WiFi is turned on, the connection can be switched to OTG mode, allowing for video and photo storage and reading. The PC will recognize the device as a camera device and prompt accordingly.

**Note:** The device Wi-Fi needs to be enabled when exporting images and videos via cables.

**Note:** When this function is enabled, the photo and video functions may be abnormal.

Under the serial port debugging mode, when the device is connected to a PC using the USB connector, a serial port will be detected on the PC. This allows the user to perform updates and debugging tasks using client software.

**Note:** To prevent any damage to the device, it is recommended to perform updates using the appropriate client software.

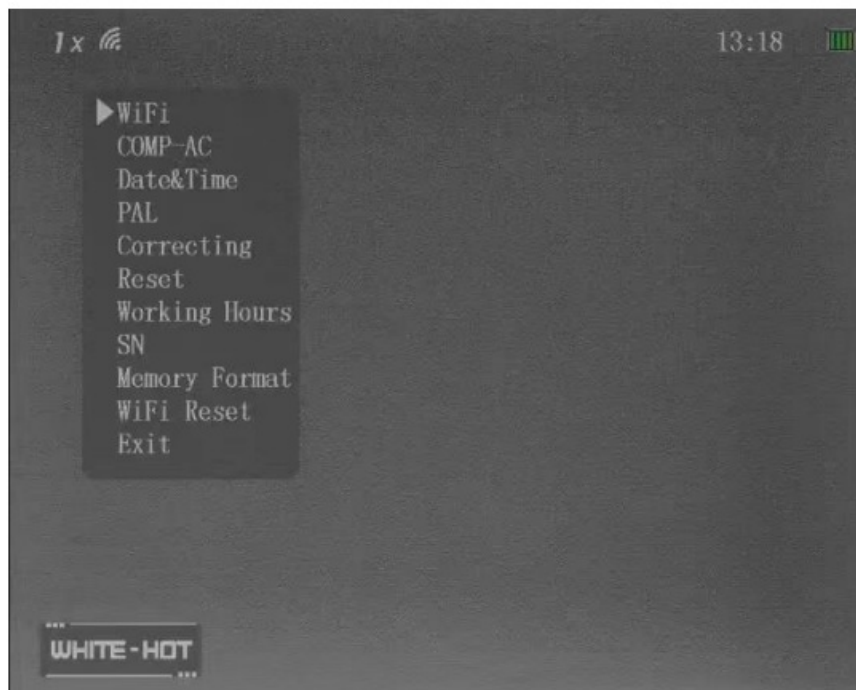


Figure 3.6 Settings

### 3.2.5 Clip-on

Mode switching Select “M” to exit the pre-string mode interface.

Brightness: Select “☀️” to set the display brightness of the screen, the adjustment range is 1-10, and the default value is 5.

WIFI: Select “📶” setting to turn WIFI on or off, the default is off.

Screen movement: Select “⬆️” to set the three options of “Archive G”, “Horizontal X” and “Vertical Y”, select “Archive G” will archive the division position to 5 gears, change the “Horizontal X” and “Vertical Y” two options to make the division move in both horizontal and vertical directions  $\pm 83$  and  $\pm 111$ , each moving value represents a pixel, and it will be automatically saved after exiting.

Exit: Select “👉” to exit the menu.



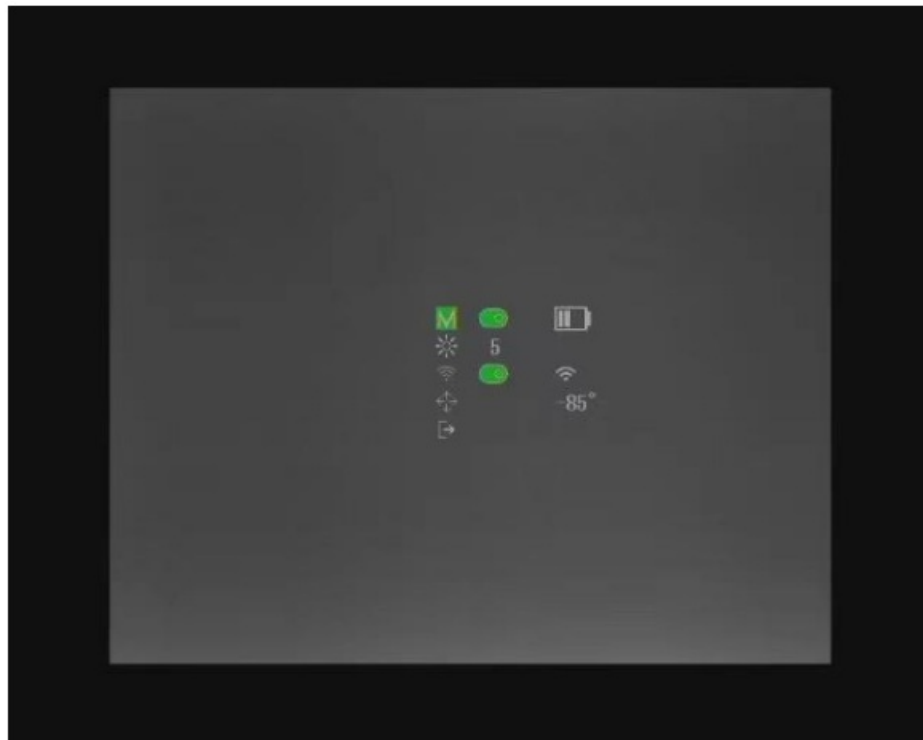


Figure 3.7 Clip-on



Figure 3.8 Screen movement

## Faults and Troubleshooting


Table 4.1 provides a list of common issues that may occur while using the J-YM2.0 device. Please refer to the steps listed in Table 4.1 to troubleshoot and resolve the specific issues. It is important to verify whether these problems have been successfully resolved after troubleshooting. Please note that Table 4.1 may not include all issues that may arise during use. In these instances please contact the manufacturer at (phone number)

Table 4.1 J-YM2.0 Troubleshooting



No.	Faults	Test or Check	Troubleshooting
1	Verify if the battery contacts are clean and free from any debris or corrosion	(a) Check whether the battery is installed in the correct direction. (b) Check whether there are sundries or scraps around the knob of the battery cover. (c) Check whether the battery cover is damaged, worn or deformed. (d) Check whether the battery compartment is damaged or deformed. (e) Verify if the battery dimensions meet the specified requirement: diameter of $\phi 18 \pm 0.5$ mm and a length of $69 \pm 0.5$ mm.	(a) Reinstall the battery. (b) Clean the threads of the battery cover and battery compartment. (c) Perform the higher level maintenance. (d) Perform the higher level maintenance. (e) Change 18650 battery conforming to standard
2	Unable to power on	(a) Check whether the battery is installed, whether its direction is correct, and whether its power is sufficient. (b) Check whether the On/Off button can be pressed normally.	(a) Replace the old battery with a new one and install it correctly according to the instructions in Chapter 2. (b) Perform the higher level maintenance.
3	Unable to display the image	(a) Check whether the lens hood is removed and whether the focal length is appropriate. (b) Check whether the objective lens is blocked during operation. (c) Check whether the lens is damaged. (d) Long press the ▲ button to perform manual shutter correction.	(a) Remove the lens hood and adjust the objective lens focusing knob. (b) Remove the barriers. (c) Perform the higher level maintenance. (d) Perform the higher level maintenance if the fault persists.

## Documents / Resources

	<a href="#">IRAY J-YM2.0 Multi Function Thermal Imager [pdf] User Manual</a> J-YM2.0 Multi Function Thermal Imager, J-YM2.0, Multi Function Thermal Imager, Function Thermal Imager, Thermal Imager
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