

# **HOLO Series HL25B**

## **User Manual**

**V1.0**

**InfiRay Technologies Co., Ltd.**

## Specifications

Model	HL25B
<b>Detector Parameters</b>	
Type	Uncooled Vox
Resolution	384x288
Pixel Size, $\mu\text{m}$	12
NETD, mk	$\leq 40$
Frame Rate, Hz	50
<b>Optical Characteristics</b>	
Objective Lens, mm	25
FOV	$10.5^\circ \times 7.9^\circ$
Digital Zoom, $\times$	$\times 1, \times 2, \times 3, \times 4$
Detection Range, m (Target Size: $1.7\text{m} \times 0.5\text{m}$ , P(n)=99%)	1300
<b>Display Parameters</b>	
Type	2.6" AMOLED
Resolution	800x600
<b>Power Supply</b>	
Battery Type/Capacity/Output Voltage	18500/ 1500mAh /3.7V
Max. Operating Time (at temp.=22°C), h*	$\leq 3$
External Interface Power Supply	5V (Type C)
<b>Physical Characteristics</b>	
IP Rating	IP67
Amount of Built-in Memory, GB	32
Operating Temperature, °C	-20~+50
Weight (without battery), g	<700
Dimension, mm	245×115×75

Improvements may be made to the design and software of this product to enhance its features without prior notice;

## **I. Package Contents**

- HOLO Series Thermal Imager + External Rangefinding
- Heated target for zeroing
- USB cable
- Lens cloth
- L-type socket wrenches (BS 1/8 L-type socket wrench and SI 2.5mm L-type socket wrench)
- Adapter of composite bow
- Screws (4 M3×6, 4 BS internal hexagon-socket 3/16 countersunk machine screws)

## **II. Description**

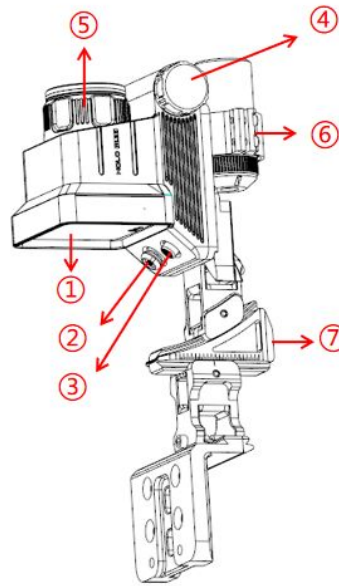
HOLO-HL25B is a thermal imager suitable for night-time observation and aiming. It features pitch and deflection adjustment, facilitating the adjustment and calibration process. It is suitable for hunting, searching and positioning in mountains and other wild environments.

## **III. Product Features**


- 12μm self-developed detector;
- High image quality;
- HD AMOLED display
- 50Hz frame rate;
- Built-in memory space, supporting photo taking and video recording;
- Convenient operation interface;
- Both pitch and deflection adjustments are available, as well as electronic fine-tuning at the aiming point;

## IV. Device Composition

1. Display
2. Five-way button
3. Power button
4. Battery holder cover
5. Lens
6. Rangefinding module
7. Fixture subassembly



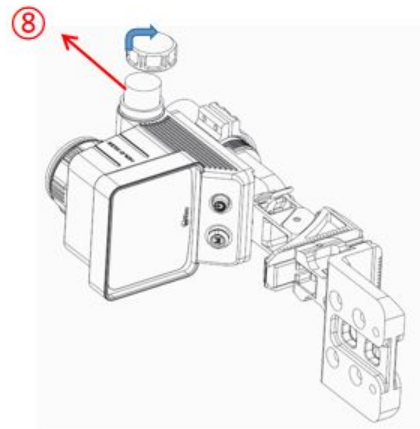
## V. Button Operations

Button	Device status/ Current operation mode	Press	Press and hold
<b>Power button</b> 	Powered off	---	Power on the device
	Always-on interface	Shutter	Shutdown after 3s / standby before 3s
	Advanced menu	Return to the upper level	---
<b>Right Button</b> →	Always-on interface	Digital zoom (1.0×--4.0×)	---
	<b>Shortcut Menu</b>	Laser switching (10m/ 30m/ 50m/ off)	---
	Advanced menu	Move right	---
<b>Down Button</b> ↓	Always-on interface	Screen brightness (1.0× to 5.0×)	single ranging
	<b>Shortcut Menu</b>	Types of Target Cursors	
	Advanced menu	Move Down	

<b>Right Button</b> ←	Always-on interface	Photo Taking	Start/end Recording
	<b>Shortcut Menu</b>	Sharpness (1 to 5)	---
	Advanced menu	Move left	---
<b>Up Button</b> ↑	Always-on interface	Palette mode	Continuous ranging
	<b>Shortcut Menu</b>	Colors of Target Cursors	---
	Advanced menu	Move up	---
<b>Menu Button</b> <b>(M Button)</b> <b>M</b>	Always-on interface	Open the shortcut menu	Enter the advanced menu
	Advanced menu	Switch on and off/Enter the next-level options/Confirm the current option parameters	Save and return to the upper menu
	<b>Pixel Defect Correction</b>	<b>Add/delete defective pixels</b>	<b>Save/cancel calibration</b>

## VI. Battery Installation

- Turn anticlockwise to open the battery holder cover (4) as shown in the figure;
- Install one 18500 battery (8) according to the device body battery installation instruction icon, i.e. the positive pole of the battery faces inward and the negative pole faces outward, and put it into the battery holder;
- Close the battery holder cover (4) and turn clockwise to tighten it.



### ★ Special description:

This device can also be connected to an external power supply through the Type-C interface data cable. There is no need to remove the battery, but it cannot charge the rechargeable battery.

## 七、Operating Instructions

## 7.1 Startup and Shutdown

When the power is off, press and hold the **Power Button**, the thermal imager starts, and the screen displays the image.

When the power is on, press and hold the **Power Button**, the thermal imager shuts down.



## 7.2 Status Bar Display

When the thermal imager is on, a row of status bars is displayed above the image, as shown in the following figure.



The top status bar from left to right is:

- Palette mode: white hot, black hot, red hot, pseudo-color, target highlighting (white hot by default)
- Digital zoom: 1×, 2×, 3×, 4× (1× by default)
- Shutter mode: automatic shutter A / manual shutter M (automatic mode by default)
- Screen brightness: 1 to 5 (3 by default)
- Lasers :10m / 20m / 50m / off (off by default)

- Standby shutdown: on/off (off by default)
- Battery icon, USB icon

### 7.3 Always-on Interface

- Press the ↑ **button** – palette mode. White hot, black hot, red hot, pseudo-color and target highlighting circulate in order (white hot by default);
- Press and hold the ↑ **button** – continuous ranging. Press and hold to enable the continuous ranging, and repeat the operation to disable it (enable by default) enable/disable;
- Press the ↓ **button** – screen brightness. Levels 1 to 5 circulate in order (Level 3 by default);
- Press and hold the ↓ **button** – single ranging. When the imager is on, press the down button to enable single ranging;
- Press the ← **button** (Photo taking) – take photos. If the camera icon flashes once, it indicates that the photo has been taken; on the home screen;
- Press and hold the ← **button** (Palette) – recording. Press and hold to start video recording, and repeat the operation to end and save recording;
- Press the → **button** (Brightness button) – digital zoom. 1×, 2×, 3× and 4× circulate in order on the home screen. The top status bar is updated in real time. (1× by default) Level 1 to 4 changed in sequence (Level 3 by default);

### 7.4 Shortcut Menu

On the home screen, press the **M button** to enter the shortcut menu; press the M button to save and return to the previous level, namely the home screen. The shortcut menu function information is displayed on the interface:



- ↑ **Button** – reticle color. Press the **Up Button** to switch the reticle colors (black/white/red/green in turn). (black by default)
- ↓ **Button** – reticle type. Press the **Down Button** to switch the reticle types (5 types in turn). (Circle center by default)
- ← **Button** – Sharpness. Press the **Left Button** to adjust the sharpness (1 to 5 in turn). (1 by default)
- → **Button** – Lasers. Press the **Down Button**. The laser function (10m / 30m / 50m / off in sequence). (off by default)







## Caution!



The Holo Series holographic thermal imager is equipped with a laser pointer. Please pay attention to the following.

- Do not look directly at the laser;
- Do not point the laser at a person;
- Do not use optical equipment to look directly at the laser pointer;
- Do not remove, modify or repair the thermal imager by yourself;
- The laser may be harmful to your health.



## WARNING!




The Holo Series holographic thermal imager is equipped with a laser pointer that meets the standards of Class 3R laser.

**Laser Radiation Avoid  
Direct Eye Exposure  
Class 3R Laser Products**

The laser wavelength is 650nm; energy < 3mW.

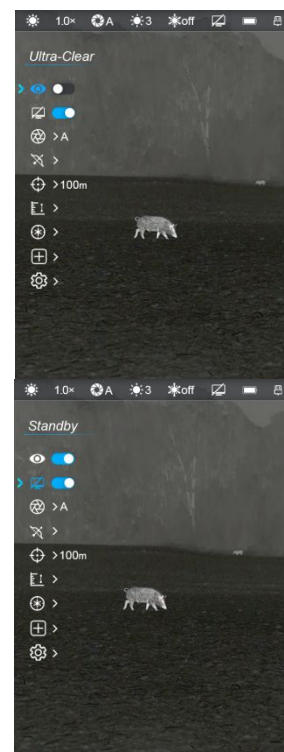
## 7.5 Advanced Menu

- On the home screen, press and hold the **M button** to enter the advanced menu.
- Press the **↑** or **↓ button** to switch the menu function options;
- The function options of the main menu are cyclical: When the cursor **>** reaches the last menu option on the first page, it will start from the first menu option on the second page; When the cursor **>** stays at the first option on the first page, you can press the **↑ button** to jump directly to the last menu option on the second page;
- Press the **M button** to modify the parameters of the current option or go to the next level of the menu;
- The position of the cursor **>** indicates the selected option, the icon of which turns from white into blue;
- The operations for secondary and tertiary menus are the same as above;
- Under all menu interfaces, you can press and hold the **M button** to save changes and return to the home screen, and press the **Power button**  to return to the upper menu without saving changes;
- During the continuous operation of the thermal imager, when exiting from the main menu, the cursor **>** remains at the position before exiting. When you restart the thermal imager and go to the main menu for the first time, the cursor stays at the first menu option.

## Main Menu Features and Descriptions

### Ultra-Clear Mode ----- Enable/Disable the ultra-clear mode

- On the home screen, press and hold the **M button** to enter the advanced menu screen;
- Press the **Up** or **Down button** to select the "Ultra-Clear";
- Press the **M button** to turn on or off the Ultra-Clear;
- In ultra-clear mode, the thermal imager can display more vivid image details in severe weather conditions such as heavy fog, rain, and snow.



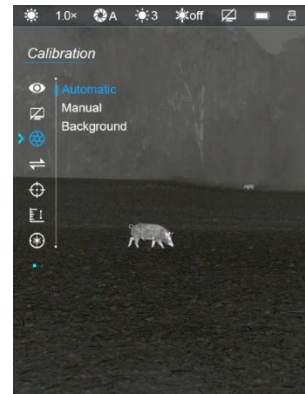
### Standby ----- enable/disable the automatic standby function

- On the home screen, press and hold the **M button** to enter the advanced menu screen;
- Press the **Up** or **Down button** to select the "Standby Settings" option;
- Press the **M button** to enable or disable the Standby function;
- After enabling, the icon in the status bar will prompt, and in case of no button operation within 15 minutes, the device will automatically enter the Standby state.



### Image Calibration ----- Select different calibration modes

- On the home screen, press and hold the **M button** to enter the advanced menu screen;
- Press the **Up** or **Down button** to select the Image Calibration option;
- Press the **M button** to enter the submenu of the Image Calibration;
- Press the **Up** or **Down button** to select calibration types (Automatic/Manual/Background);



When Manual is selected, press the power button on the always-on interface to finish the image calibration;

When Background is selected, make sure that the front end of the lens is against the black uniform surface, and press the Power button in the always-on interface to correct the image;



### Reticle ----- turn on or off some reticles of different kinds

- On the home screen, press and hold the **M button** to enter the advanced menu screen;
- Press the **Up** or **Down button** to select the Reticle option;
- Press the **M button** to enter the submenu of Reticle;
- Press the **Up** or **Down button** to select P1 to P7, and press the **M button** to show or hide the status;



### Reticle Calibration

If there is still minor deviation after mechanical calibration, reticle fine tuning can ensure a higher shooting accuracy;

- On the home screen, press and hold the **M button** to enter the advanced menu screen;
- Press the **Up** or **Down button** to select the Reticle Calibration option;
- Enter the reticle fine tuning interface, and the screen displays P1 to P7, which indicates the number of reticles. The distance is displayed under each of them;
- P1 can be set as the main aiming point and can be placed in an appropriate position during the first calibration. The specific method is as follows;
- Enter the interface, select P1, and press the M button to enter the Calibration and Distance Setting interface. You can set the close range first, such as 10 mm or 10 yards. After the distance is saved, enter the calibration interface, and move the main aiming point P1 to a suitable position. It is recommended to set it on the vertical line in the center of the screen. Refer to Chapter 8 Main Aiming Point Calibration;
- After the mechanical calibration still has a certain error, the P1 aiming point can be fine-tuned to ensure shooting accuracy;
- After the main star is calibrated, set the distances of other stars in turn, and operate the up, down, left and right buttons to move the reticle.



### Rangefinding Calibration

This function can be used to calibrate the position in the rangefinding box when the

location displayed in the box is not consistent with that of the actual target.

- On the home screen, press and hold the **M button** to enter the advanced menu screen;
- Press the **Up** or **Down button** to select the Rangefinding Calibration option;
- Press the M button to enter the Laser Calibration page. The X-axis and Y-axis directions are displayed. The center cursor returns to the center of the screen. The default cursor returns to the factory setting.
- When selecting the X or Y axis, press the **Up, Down, Left, and/or Right buttons** to move the laser to the correct position. Press the M button to exit the X or Y axis;
- Press and hold the **M button** to save the operations and return to the home screen;



### **Laser Calibration**

If the actual target location differs from the location marked by the laser cursor, you can use this function to calibrate the laser cursor.

- On the home screen, press and hold the **M button** to enter the advanced menu screen;
- Press the **Up** or **Down button** to select the Laser Calibration option;
- Press the **M button** to enter the Laser Calibration screen;
- Press the **Up** and **Down button** to select the laser distance value, 10m / 30m / 50m;
- Press the **M button** to enter Laser Calibration, the X-axis direction and the Y-axis direction are displayed. Press or press and hold the **Up** or **Down button** to fine-tune or quickly calibrate the laser cursor to the correct position in the Y-axis direction. Press or press and hold the **Left** or **Right button** to fine-tune or quickly calibrate the laser cursor to the correct position in the X-axis direction;
- Press and hold the **M button** to save the calibration parameters and return to the home



screen.

### **Pixel Defect Correction -- Correction of image defective pixels**

When using the thermal imager, you may see defective pixels, such as visible light spots or dark spots with stable brightness. To address this problem, use the Pixels Defect Correction function to remove the defective pixels.

- On the home screen, press and hold the **M button** to enter the advanced menu screen;
- Press the **Up** or **Down button** to select the Pixel Defect Correction option;
- Press the **M button** to enter the correction screen, and display the X-axis, Y-axis, and the number of defective pixels at the same time;
- Press the Up, Down, Left, or Right button to adjust to the position where pixel defect correction is required, and press the **M button** to add/delete the defective pixel;
- Press and hold the **M button** to display the prompt box of whether to save defective pixel. After confirming the saving, it will automatically return to the previous level of the menu;
- Press the **Power button** to not save this pixel defect correction and return to the main menu.

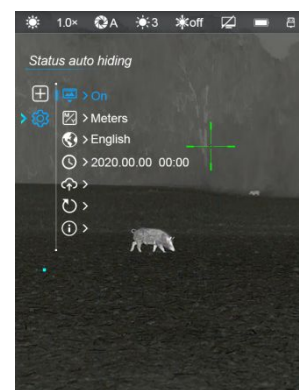


### **Settings**

Set the date, time, language, status auto-hiding, factory reset, and device information query.

### **Status Auto Hiding -- Enable/disable the Status Auto Hiding function**

- Press the **Up** or **Down button** to select Status Auto Hiding option;

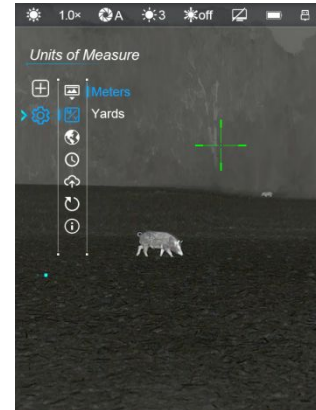


- Press the **Up** or **Down button** to enable or disable this function;
- Press the **M button** to confirm selection and save and return to the previous level.



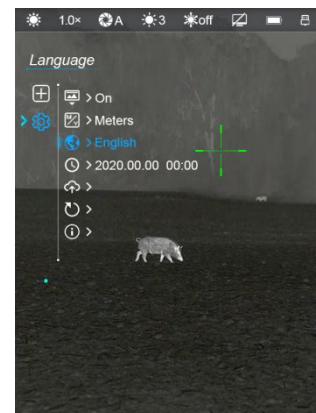
### Unit Conversion -- Convert meter/yards

- On the home screen, press and hold the **M button** to enter the advanced menu screen;
- Press the **Up** or **Down button** to select the Unit Conversion option;
- Press the **M button** to enter the Unit Conversion submenu. HOLO series supports Meter and Yards;
- Press the **M button** to confirm selection and return to the previous level.



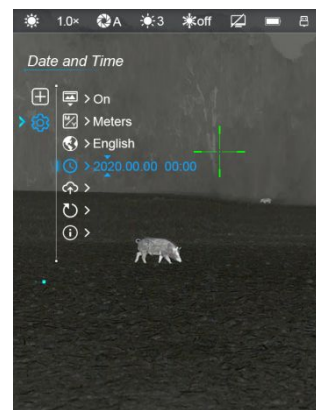
### Language -- Select system language

- On the home screen, press and hold the **M button** to enter the advanced menu screen;
- Press the **Up** or **Down button** to select the Language option;
- Press the **M button** to enter the Language submenu. HOLO series supports English and simplified Chinese;
- Press the **Up** or **Down button** to switch languages;
- Press the **M button** to confirm selection and save and return to the previous level.



### Date and Time

- On the home screen, press and hold the **M button** to enter the advanced menu screen for settings;
- Press the **Up** or **Down button** to select the Date and Time option;
- Press the **M button** to display upper and lower blue triangle,



indicating selected;

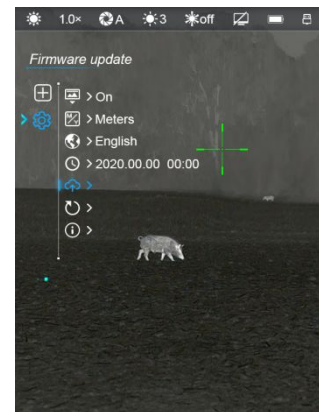
- Press the Up or Down button to select the appropriate time, and press the **M button** to switch from left to right;
- After the setting is completed, press and hold the **M button** to save and exit the date reset function and return to the previous menu.



### Firmware Update

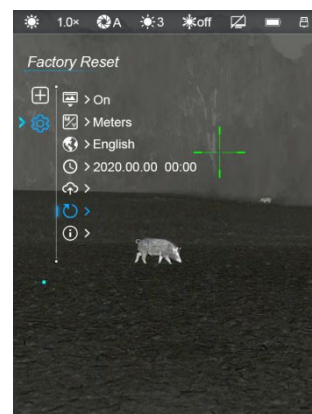
When new firmware needs to be updated, it can be obtained from the after-sales service and placed in the root directory of the built-in storage. The firmware update can be performed according to the following operations.

- On the home screen, press and hold the **M button** to enter the advanced menu screen for settings;
- Press the **Up** or **Down button** to select the Firmware Update option;
- Press the **Up** or **Down button** to select Yes/No;
- Select Yes and press the **M button** to update, and select No and press the **M button** to return to the previous level.



### Factory Reset -- Restore to the default settings at factory

- On the home screen, press and hold the **M button** to enter the advanced menu screen;
- Press the **Up** or **Down button** to select Factory Reset option;
- Press the **M button** to enter the submenu of this function;
- Press the **Up** or **Down button** to select Yes or No, and press the **M button** to confirm the selection;
- If select Yes, the device will automatically shut down, and return to the default state after the restart; if select No, cancel and return to the previous menu;





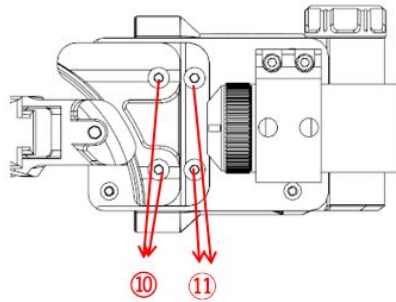


### Info -- Query relevant information of device

- On the home screen, press and hold the **M button** to enter the advanced menu screen;
- Press the **Up** or **Down button** to select the Info option;
- Press **M button** to query relevant information of the device, including product model, GUI version number, software and hardware version number, and PN\SN code;
- Press the **M button** or the **Power button** to exit to return to the previous menu.



## 八、 Device Installation and Setting of Main Aiming Point



### Fixture Installation

8.1 The device installation is shown in the figure above. Install four M3\*6 screws into the screw holes to lock the fixture tightly.

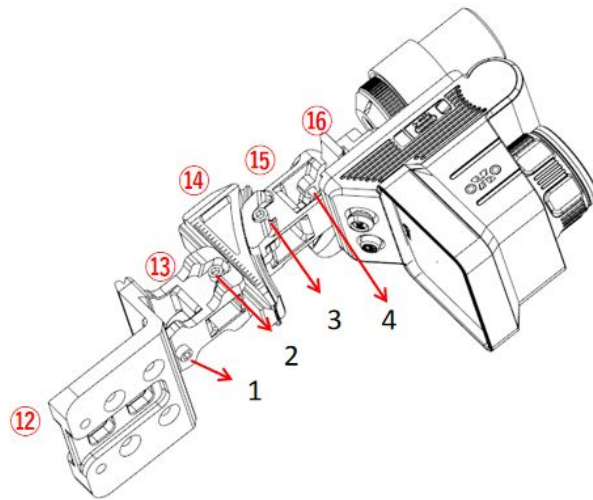
### 8.2 Setting Main Aiming Point

Main aiming point is a fixed aiming point on the display of the device. You can align the main aiming point with the horizontal, vertical, pitch, and deflection tracks on the bracket. After the main aiming point is set, you can set the aiming point for different distances through the device software.

1. Fully pull the bow, observe the thermal imager through the peep sight, and adjust the horizontal and vertical tracks with a 1/8-inch Allen key to ensure that the sight window and the baseline of the bow & arrow are aligned with the display center of the thermal imager through the peep sight;

2. Set the main aiming point to a proper position, and refer to 7.5 Reticle Calibration;

3. Aim at targets at a distance of 10m (10yd) or farther;
4. Put the arrow on the string and pull the bow full. When the bow is full, check through the peep sight on the bow to align the main aiming point with the target center, and pay attention to ensuring that the device is kept horizontal;
5. Shoot the target and observe the landing position of the arrow;
6. Use a 1/8-inch Allen key to loosen the pitch and deflection tracks on the bracket, adjust the pitch and deflection tracks correspondingly along the landing direction of the arrow, and then tighten the screws;
7. After calibration, verify the accuracy after one shot;



★ Special description: If you want to calibrate at 2x magnification, you should set 2x magnification before calibration. This is also true at other magnification levels.

Can be corrected magnifications

## 九、 Technical Inspection

Perform a technical inspection to check the following items each time before you use the device.

- Exterior of the device (no crack on the enclosure).
- Lens and screen (no crack, oil, stain, or other sediments)
- Status of the battery (fully charged in advance) and electrical contact (no salinization or oxidation).

## X. Product Maintenance

The maintenance should be carried out at least twice a year and includes the following steps:

- Wipe the surface of metal and plastic parts to clear off dust and dirt by using a cotton cloth. Silicone grease may be used for the cleaning process.
- Clean the electric contact and battery slots on the device using a non-greasy organic solvent.
- Check the glass surface of the screen and lens. If necessary, clear off the dust and sand on the lens (it is perfect to use a non-contact method). Use a specialized wiping tool and solvent to clean the optical surfaces.

## XVI. Troubleshooting

The following table lists all problems that are likely to occur during device operation. Inspection and repair should be conducted according to the suggestions in the table. If faults not included in this table occur or you cannot fix the fault, return the device to the vendor or supplier for troubleshooting.

<b>Fault</b>	<b>Possible Causes</b>	<b>Solution</b>
The thermal imager cannot start.	The battery is out of charge.	Replace battery
The device cannot be powered by using an external power supply.	The USB cable is damaged.	Replace the USB cable.
	The external power supply is insufficient.	If necessary, check the external power supply.
Images are unclear, vertical lines are present, or the background is not even.	Calibration is required.	Calibrate the images as per the user manual.
The image is too dark.	The screen is not bright enough.	Adjust the display brightness
The icons are clear but the image is blurry.	The lens is not focused.	Rotate the lens focus knob to adjust the focus.
	The inner or outer optical surface of the lens is dusted or iced.	Wipe the outer optical surface by using a soft cotton cloth or leave the device to dry in a warm and dry environment for more than 4 hours.
The observed target disappears.	Glass and other crystalline objects may cover the field of view.	Find the glass and other crystalline objects from the field of view and move them out of the field of view.
The image quality is poor or the detection range shortens.	These problems are likely to occur when you use the device in harsh weather (such as snow, rain, and fog).	
When the device is used at a low	At temperatures above 0°C, the temperature rise varies with the observed objects (environment and background) due to different heat	

<p>temperature, the imaging quality is poorer than that at a normal temperature.</p>	<p>conductivity coefficients. As a result, high-temperature contrast occurs and the image quality is better.</p> <p>At low temperatures, the observed targets (background) usually cool down to a similar temperature because of reduced temperature contrast. Therefore, the image quality (details in particular) is poor, which is a characteristic of thermal imaging devices.</p>
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