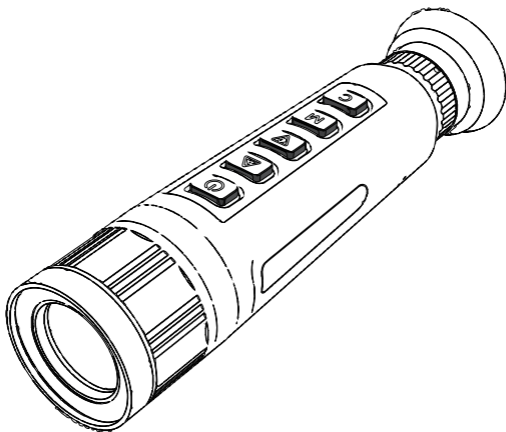


Handheld thermal imager

Enjoy every moment without the fear of the night






CE-series
Product User Manual

Preview

The purpose of this section is to ensure that the user can use the product correctly through this manual to avoid danger or property damage during operation. Before using this product, please read the product manual carefully and keep it properly for future reference. This manual is applicable to monocular handheld observation thermal imager (equipment for short), and describes the specific use of the equipment.

Symbol Conventions

The symbols that may be found in this document are defined as follows.

Symbol	Description
 Danger	Indicates a hazardous situation which, if not avoided, will or could result in death or serious injury.
 Caution	Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results.
 Note	Provides additional information to emphasize or supplement important points of the main text.

Safety Instruction

Danger

- During the installation and use of the equipment, all electrical safety regulations of the country and the region of use must be strictly observed. Use the power supply that matches and meets the SELV (safety extra-low voltage) requirements, and the equipment uses DC5V 2A power supply.
- Please use the power adapter provided by the regular manufacturer. See the product parameter table for the specific requirements of the power adapter. It is recommended that each device be equipped with an independent power adapter (if the load of the adapter is exceeded, it may generate too much heat or cause fire).
- When wiring, disassembling and other operations, please disconnect the power supply of the equipment and do not operate with power.

- In order to avoid heat accumulation, please keep the ventilation around the equipment smooth.
- Do not touch the heat dissipation parts of the product directly to avoid scalding.
- If the equipment emits smoke, odor or noise, please disconnect the power supply of the equipment immediately and contact the dealer or service center in time.
- Do not place the battery near the heat source or fire source to avoid direct sunlight.
- Do not swallow the battery to avoid chemical burns.
- If the removable battery is built in the equipment, please use the battery with the correct specification. Improper use may cause explosion hazard. After the battery is installed or removed, it is required to close the battery compartment safely.
- Do not place the battery within the reach of children.
- If the equipment is laser equipment, do not shoot the laser directly into the human eye to avoid possible injury to the human eye; If the laser irradiates combustible objects at a close distance, it may cause fire hazards. Please keep a certain safe distance during installation.
- After the laser light is turned on, it is strictly forbidden to aim the laser at objects with strong reflection such as glass and reflector to avoid damaging the thermal imaging probe by laser reflection.



Caution

- Please avoid falling objects onto the equipment or vibrating the equipment vigorously, and keep the equipment away from the place where there is magnetic interference.
- Avoid installing the equipment in the place where the surface vibration or impact is easy (ignoring this item may damage the equipment).
- Do not use the product in extremely hot, extremely cold, dusty, corrosive, high-salinity or high-humidity environment. Please refer to the product parameter table for specific temperature and humidity requirements.
- The charging environment of the device battery is required to be above 0 °C, otherwise the charging function will be automatically turned off.
- Do not aim the lens at strong light sources, such as the sun, incandescent lamps and other high-temperature targets, otherwise the lens or thermal imaging detector will be damaged.
- The equipment shall be stored in a dry and non-corrosive environment. Avoid storing the equipment in places such as direct sunlight, poor ventilation or near heat sources (such as heaters and heating). Ignoring this item may cause fire hazard.

- The equipment stored for a long time shall be powered on for inspection every half a year, and the power on time shall not be less than 3h each time.
- When cleaning the lens, please use a dry soft cotton cloth or lens wiping paper to wipe the surface to avoid scratching the lens by hard objects.
- If you connect the product to the Internet at your own risk, including but not limited to the possibility that the product may suffer from network attacks, hacker attacks, virus infection, etc., the company will not be responsible for the product's abnormal work, information disclosure and other problems caused by this, but the company will provide you with product-related technical support in a timely manner.
- The device may face network security problems when accessing the Internet. Please strengthen the protection of personal information and data security. When you find that the device may have potential network security hazards, please contact us in time.
- Please keep all the original packaging materials of the equipment properly so that if there is a problem, the equipment can be packaged with packaging materials and sent to the service center for treatment. The company will not be responsible for accidental damage during transportation caused by non-raw packaging materials.

1 Product Introduction

1.1 Description

The handheld thermal monocular camera is a handheld device with functions of observation, highest temperature target tracking, distance measurement, and so on. The high-sensitivity built-in thermal detector provides you with clear view even in total darkness. The device is mainly applied to outdoor scenarios such as hunting, searching and rescue, hiking, and travel.

1.2 Key Features

- High-performance processing chip and image detail enhancement technology are adopted.
- Support 1024 × 768 resolution OLED display.
- Built-in rechargeable lithium battery can last for 7 hours after charging.
- Equipped with USB power cable for charging.
- Small and exquisite, easy to carry.

1.3 Main Functions

Hot spot tracking

Detect and mark the highest temperature in the scene.

Network Function

Support hot spots, add thermal imager through mobile phone APP, and realize the functions such as capturing, recording and parameter configuration.

Storage Capacity

Built-in Storage(up to 16G), support recording and screen capture.

Digital Zoom

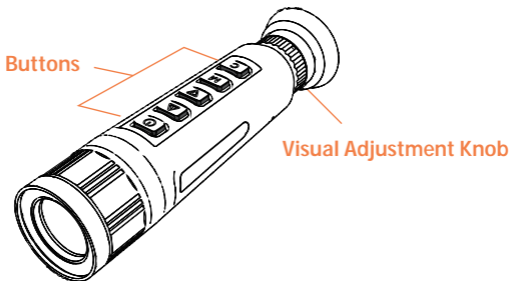
Support 1X、2X、4X、8X

Laser Lamp

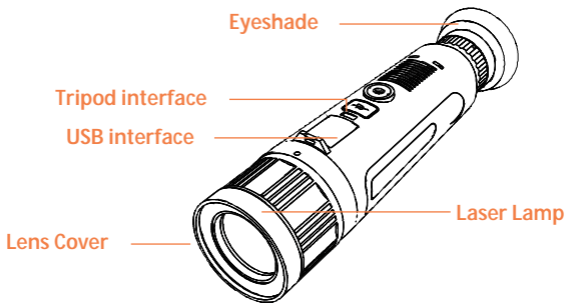
It is used to indicate the orientation. After the laser lamp is turned on, do not shine on the eyes to avoid eye injury caused by the laser.

1.4 Product Appearance

1.4.1 Interface



P 1- 1 Front of the Thermal Monocular

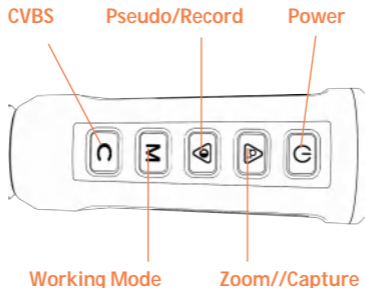


P 1-2 Back of the Thermal Monocular

- Lens cover: Dust protection. Please don't forget to cover the lens protection after using.
- Power indicator: the indicator light is on when working, and off when shutting down.
- Vision adjustment knob: Adjust according to the user's vision.
- USB interface: Connect to USB power cable to charge.






1.4.2 Button instruction

Panel button of thermal imager.



P 1-3 Button on the Thermal Monocular

G 1- 1 Button function definition

	Power	Press: Turn on/off the IR; Hold: Power on/off
	Zoom	Press: zoom Hold : Capture
	Pseudo/Record	Press: Pseudo color; Hold: video Recording on/off
	Mode	Press: Confirm; Hold: Enter/Quit the menu
	CVBS/Capture	Hold: switch CVBS

There are five physical keys on the panel of the thermal imager, including power key, shooting key, variable multiple key, mode key and menu key.



Danger

After entering the thermal imager menu, please refer to the menu description for the specific definition of keys

2 Preparation

Take out the equipment accessories, read the instructions carefully, and understand the precautions and use methods of the equipment.

2.1 Charge

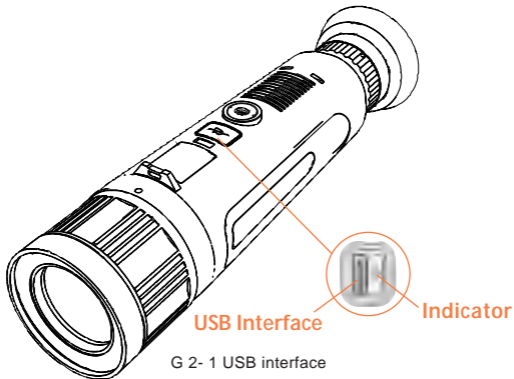
After the thermal imager is turned on, the battery power information is displayed in the upper right corner of the screen. When the screen shows the reminder of the remaining power, it means that the battery of the device is low. Please charge it in time to prevent delay in normal operation.

Precondition

- The charging environment of the thermal imager battery is required to be 0 ℃~45 ℃, otherwise the charging function will be automatically turned off.
- Please use the standard USB power cable to charge the thermal imager.

Operation Procedures

1. Please open the USB connector sealing cover on the back of the device when charging.
2. Connect the USB power cable to the USB interface of the device for charging.



- The red light on: the device is charging.
- The red light is off and the green light on: the device is fully charged.
- Indicator off: indicates that the device is not charging.

2.2 Switch On/Off


This section describes how to start and shut down the device.

Switch On




Danger

The thermal imager needs to be connected to a USB power cable or the battery power of the thermal imager is sufficient.

When the thermal imager is off, press and hold  for 5 seconds on the device to enter the device startup interface, and then enter the main preview interface about 5 seconds.

Switch Off

When the device is on, press and hold  for 2 seconds, the device will be off.

2.3 Menu Instruction

In the main preview interface, press and hold the **M** Button to enter the main menu.



P 2-2 Button Operation Guide

- Press Δ cursor moves up.
- Press ∇ cursor move down.
- Press M to confirm, hold to quit.

3 Image adjustment

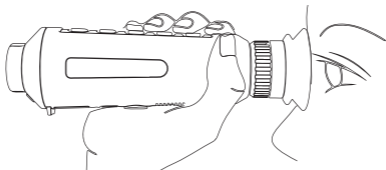
By adjusting the pseudo-color mode, brightness and scene mode, the image display can be optimized.

3.1 Visual Adjustment

By adjusting the visual adjustment knob, the scene image can be clear.

Operation Procedures

1. Aim the thermal imager lens at the scene to be observed.
2. Adjust the visibility adjustment knob clockwise or counterclockwise to adjust the image.



P 3- 1 observation



Danger

When focusing manually, please do not touch the lens surface to avoid the lens being dirty and affecting the

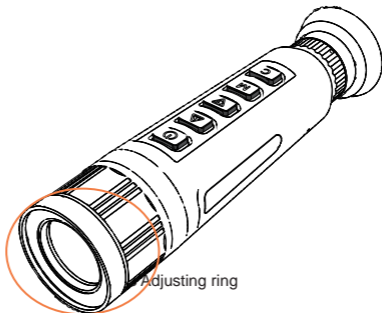


Visual adjustment knob


P 3-2 Adjustment of visibility

3.2 Focus Adjustment

Some thermal imagers support focusing, and adjust the image through the adjusting ring on the thermal imaging lens. This function is subject to the actual equipment.




3.3 Brightness Adjustment

Press and hold M to enter the main menu. In the white-hot mode, select  and press M to adjust the brightness, which means that the image brightness of the thermal imager is getting brighter, and the display effect is as follows. In the black-heat mode, the image effect is opposite.




P 3-3 Brightness adjustment in white-hot mode

3.4 Contrast Adjustment

Hold the M to enter the main menu. In the white-hot mode, select  and press M to adjust the contrast

3.5 Pseudo Color Adjustment

For the same scene or target, select different pseudo color modes, and the display effect is different. In the main preview interface, short press  to switch pseudo color mode.

White Hot mode

Indicates that objects with high temperature in the scene display white. The higher the temperature, the whiter the color in the image.



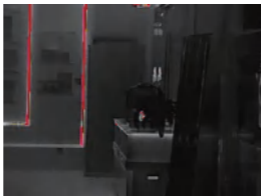
Black Hot mode

Indicates that objects with high temperature in the scene display black. The higher the temperature, the darker the color in the image.



Red Hot Mode

Indicates that objects with high temperature in the scene display red, which plays the role of highlighting the target.



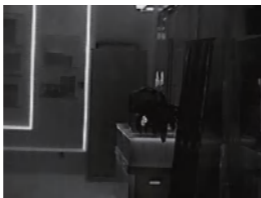
Fusion Mode

Indicates that the temperature of the object in the scene changes from high to low, and the image changes from white ->yellow ->red ->pink ->purple.



Bird-watching mode

On the basis of white-hot mode, strengthen the dynamic display of heat source and highlight the **screen heat source**.



Sky pattern


On the basis of white-hot mode, the background interference is reduced and the heat source is highlighted.



4 Hot Spot Tracking

Indicates real-time tracking of the highest temperature point in the scene.

Operation Procedures

1. Hold the M key to enter the main menu.
2. Select  to enable hotspot tracking.

Display Instruction


A hotspot icon  is displayed on the image. If the scene changes, the hotspot icon will automatically locate the highest temperature point in the scene.

5 Recording and Capture

When previewing real-time images, you can manually record or capture the pictures that need to be saved.

5.1 Recording


Operation Procedures

1. On the observation interface, hold the  button to start the recording.



P 6- 1 turn on the record function

The time information will be displayed in the upper left corner of the image.

2. Hold the  button again to stop recording. After the recording is stopped, the image will show that the recording has been saved.

Follow-up

For video file export methods, refer to the File Export section.

5.2 Capture

Observation interface, Press the  key, indicating the capture.



5.3 File Export

To export video and Capture files.

Operation Procedures

1. Connect the thermal imager and computer through USB data cable. When the thermal imager and the computer are connected for the first time, the driver will be installed automatically.
2. Enter the computer disk, open the thermal imager disk at the removable storage device, and enter picture/video.
3. Select the exported file and copy it to the computer.
The Capture picture file is viewed through the image viewing software. The Video files are played through the player.
4. Disconnect the USB cable and the computer.
After the thermal imager is connected to the computer, the thermal imager can display only.

6 Network



The phone scans the QR code to download the APP



Hotspot Connection



The thermal imager connects to the hot spot of the mobile phone for network connection.

Operation Procedures

11. Press M button to enter the main menu.
2. Select  and press M button to switch the hot spot . Then the  icon will be displayed in the upper right corner of the screen. Hold M button to exit the menu.
3. Turn on the WLAN function of mobile phone and connect the hot spot of the thermal imager.
 - Wi-Fi name: CENV-***** (Last 8 digits of device serial number)
 - Wi-Fi password: 12345678.
4. Add access devices according to the software (Under Construction) interface prompts.

The device connects to the cell phone hotspot

Operating Procedure

1. Press M to enter the main menu.
2. Select  and press M button to switch the WIFI. Then the  icon will be displayed in the upper right corner of the screen. Hold M button to exit the menu.
3. Set the cell phone hotspot parameters.
 - Hotspot name: CENV (uppercase)
 - Password: 12345678.
4. The device automatically connects to the cell phone hotspot.

7 DDE

7.1.Enabling DDE

Long press M to enter the main menu. Select DDE and press M to adjust the image quality enhancement. (7 levels adjustable)




The DDE function can greatly enhance the details of the image while preserving the dynamic range.

8 Correction

It is used to correct the non-uniformity of the image and keep the image uniform.

Steps of operation

- 1.Long press M to enter the main menu.
2. Select  short press M to select correction mode.
 - Manual mode: On the main preview interface, press M once to make a correction.
 - Automatic mode: After the thermal camera is turned on, it will be corrected periodically according to the equipment program.
3. Long press M to save and exit.




9 Bad point correction

It is used to correct the bad points in the image and maintain the integrity and clarity of the image.

Prerequisites

The bad points in the image are manually selected for correction.

Steps of operation

1. Long press M to enter the main menu.
2. Select  short press C to switch the XY axis.
3. Press  or  switch arrow keys.
4. Short press the arrow key to adjust the cursor to the bad point, long press M to clear the selected bad point.
5. Long press M to enter the exit interface, short press or select Save or cancel exit.








Note After exit, the bad points will be removed after flat field correction.

10 calibration time

For adjusting the calibration device time.

Operation Steps

- 1 Press and hold M to enter the main menu.
- 2 Press  to enter the device timing.
- 3 Short press  or  to switch 24-hour switching, time setting, date setting.
- 4 Short press M to select the parameter to be modified, short press  or  to modify the time.
- 5 Long press M to exit setting interface.

11 External CVBS Screen

The external CVBS display screen is used to enlarge and expand the image of the thermal imager, so as to view the image details. This function is subject to the actual device.

Pre-condition

- The CVBS cable used to connect the device and external screen is special. Please check before purchase.
- Please connect the cable before the device is powered on. The USB interface of the device cannot be hot-swapped.

Operation Procedures

1. Connect up the CVBS screen.
2. Hold C button to switch.
3. When disconnecting the CVBS screen, hold C button to switch back to the OLED screen.

Result

The image of the device will be displayed on the external CVBS display screen.

12 System Maintenance

To know the device information, upgrade equipment and restore factory settings.

9.1 Check the device info

View the system version, serial number and other information of the device.

Operation Procedures

1. Hold M Button.
2. Select  menu, press M button to read the device information.

9.2 Upgrade

Introduce the operation of thermal imager upgrade.

Pre-condition

Please obtain the upgrade package of the device first.

Operation Procedures

1. Connect the thermal imager and computer through USB data cable.
2. Enter the computer and open the removable storage disk of the thermal imager device.
3. Copy the upgrade file to the root of t removable storage disk of the thermal imager device
4. Disconnect the USB cable to the computer.
5. Restart the thermal imager and wait for the screen to shut down automatically.

Warranty card

Dear Customer

Thanks for your purchase of our product, in order to offer you full enjoyment of our sincere service, please read the following service terms carefully.

Article 1. Hdanige guaranteed to keep limited warranty and lifetime maintenance to Thermal Imaging System

1. We provide warranty within 24 months since the date of sale, you will enjoy free repair for the device under the warranty, malfunction device shall be sent to us by customer to repair (If device is damaged by purposed action , non-proper usage or force majeure damage , repairs are not covered under warranty)

2. Beyond the 24 months of warranty, product failures implement charging lifetime maintenance.

Article 2 .Respond time

1. To respond within 72 hours since date we received the malfunction device.

2. Before customer send the device to us, please confirm with our staff or dealer. Otherwise, customer shall respond for the untimely maintenance if happen.

3. This card and the relevant invoice copy shall be send to us together with the device when needs to repair.

4. Unauthorized disassembly, removed the sealed label, shall be charged as the regulation for the maintenance fees and the components costs.

5. Any device failures after unauthorized modification will not be accepted.

Hdanige will not provide free repair for the following situations:

1. Periodic inspection, maintenance, repair or replacement of parts due to normal wear and tear.

2. The product was connected to the wrong power connection (e.g., over voltage) or obvious artificial damage, like screen damage or shell damage.

3. Due to the damage caused by the flood, fire, lightning and other force majeure.

4. Machine repaired by unauthorized institutions.

5. Any change listed above shall subject to the relevant regulation.

E-mail: service@hdanigetech.com

Web: www.hdanigetech.com

Manufacturer Add: 619,Jinhuiqiu Building, Langshan 2nd Rd, Nanshan Dist, Shenzhen, 518000, China

Product Information

Model	
MFG No.	
The Date of Purchase	

Customer Information

Name	
Tel	
Add	

Maintenance Records

Date	Failure	Result	Contact Person

FCC WARNING

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Note: The Grantee is not responsible for any changes or modifications not expressly approved by the party responsible for compliance. Such modifications could void the user's authority to operate the equipment.

The device has been evaluated to meet general RF exposure requirement.

This equipment complies with FCC's RF radiation exposure limits set forth for an uncontrolled environment. This device and its antenna(s) must not be co-located or in conjunction with any other antenna or transmitter.