



Outdoor Thermographic Telescope

User manual



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HT-C8

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Summary

The HT-C8 outdoor thermal image telescope takes advanced uncooled focal plane infrared detector and high-quality optical lens as the core in combination with a convenient and fast operating system, compact shape design, fully functional expansion spare parts, long service life, ruggedness and durability, suitable for various environments. It has built an infrared thermal imaging tool with “clear imaging, simple operation and easiness to carry”.

This product is used for field animal observation, search and rescue, police law enforcement and investigation, night patrol, outdoor sports, personal security, etc. This product functions as photo taking, and can browse photos taken through the USB connected computer, which is convenient for multiple people to observe at the same time and create possibilities for more applications.

Cautions and Safety Maintenance

To ensure the proper use of this product, please read the instructions carefully:

- Do not use this product in a flammable, explosive, humid or corrosive environment.
- This product contains precision electronics and sensitive optical devices. Please do not make it collide or fall to avoid damage.
- Do not disassemble and refit this product without permission.
- Use wet cloth or weak soap to clean the casing of this product. Do not use abrasive, isopropanol or solvent. Use professional optical lens cleaning agent for the lens and screen.
- When the product works, there will be a slight click every few seconds. This is the sound of lens shutter, which is a normal case.
- Warning: Do not use the lens to look directly at the sun, which may damage the optical lens.

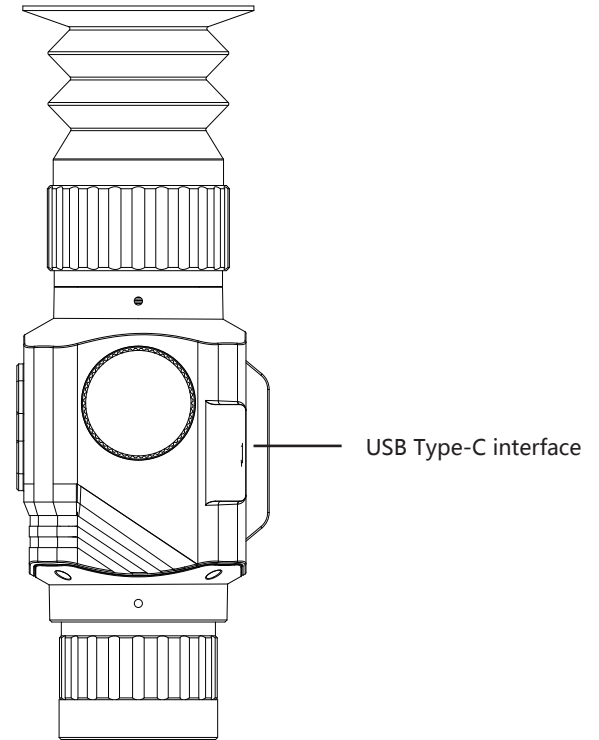
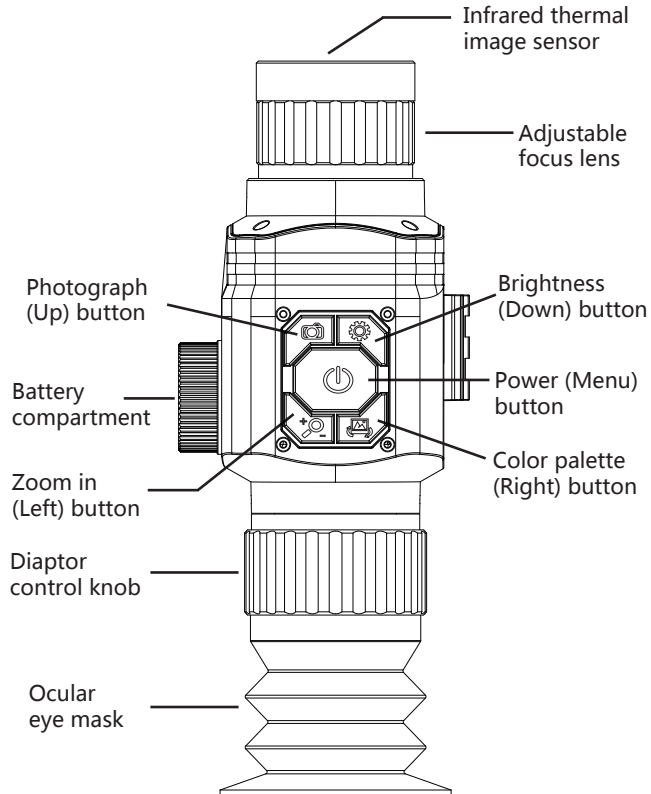
Performance Indicators

Infrared detector	Type of detector	Amorphous silicon uncooled infrared focal plane			
	Resolution ratio	384×288			
	Pixel size	17μm×17μm			
	Working band	8~14μm			
	NEDT	< 40mk (50Hz, F/1, 300K)TFPA 25°C(±5°C)			
	Scene dynamic	> 50°C (50Hz, F/1, 300K)TFPA 25°C(± 5°C)			
	Frame rate	60Hz			
infrared objective	Focusing way	Manual focusing			
	F factor	1.0			
	Effective image surface	Φ8.2mm	Φ9.6mm	Φ8.2mm	Φ12mm
	Focal length	25mm	35mm	54mm	75mm
	Field angle	14.9°×11.2°	10.7°×8.0°	6.9°×5.2°	5.0°×3.7°
	Focusing range	> 0.3m	> 3.0m	> 1.5m	> 5.0m
eyepiece	Focal length	18mm			
	Distance of exit pupil	48mm			
	Exit pupil diameter	8mm			
	Diopter regulation	±4SD			
	Visual magnification	14x			

Displayer	Display screen type	OLED			
	Resolution ratio	1024×768			
	Display screen size	0.39 inch			
System function	Electron doubling	×2/×4/×8/×16			
	Color palette	White Hot, Black hot, Rainbow, Hot metal, Yellow saturated, Bird watching mode			
	Intensity control	10 file			
	Contrast control	10 file			
	Image detail mode	Two types of fifth gear			
	Photograph	support			
	Hotspot tracking	support			
	Language	Chinese、 English			
Reticle	Type of divergence line	7 kinds			
	Calibration of drop distance	10m、 30m、 60m、 100m、 300m、 600m、 customized distance			
Detection range	Infrared objective	25mm	35mm	54mm	75mm
	Character	≤1667m	≤2333m	≤3600m	≤5000m
	Wild boar	≤1471m	≤2059m	≤3176m	≤4412m
	Vehicle	≤2501m	≤3500m	≤5400m	≤7500m
Recognition distance	Character	≤416m	≤583m	≤900m	≤1250m
	Wild boar	≤367m	≤515m	≤794m	≤1103m
	Vehicle	≤626m	≤875m	≤1350m	≤1875m
Storage	Built in storage	16G			
	image format	BMP			
Interface	USB interface	Type-c Export picture and battery charging function			

Power supply	Removable rechargeable lithium battery	18500/2040mAh		
	Overall power consumption	≤1W		
	Battery life	≤6 hours		
Work/ storage environment	Working temperature	-20°C ~ +50°C		
	Storage temperature	-30°C ~ +60°C		
	Resistance to impact	≤1200g		
	Protection grade	≤IP66		
Overall dimensions / weight	Overall dimensions / weight (without bracket)	25mm	181*71*62mm	517g±5g
		35mm	188*71*62mm	537g±5g
		54mm	211*71*64mm	567g±5g
		75mm	238*87*87mm	742g±5g

Product Structures



Description of Button Operation

1. Power button: Long press the Power button for power on, and short press the Power button to enter the menu mode.
2. Photo button: Short press the photo button to display the camera symbol and take photos. Long press the photo button for selection the cursor type upward
3. Brightness button: Short press the Brightness button to change the brightness by 10 levels (0 ~ 9). Long press the Brightness button for selection the cursor type downward.
4. Zoom in button: Short press the Zoom in button, 1x, 2x,4x,8x and 16x and long press the Zoom in button to extract the cursor calibration upward.
5. Color palette button: Short press the Palette button, rainbow, hot metal, white heat, black heat, yellow saturation and bird watching mode. Long press the Color Palette button to extract the cursor calibration downward.

Description of Menu Operation

1. Main menu: Press the Power button to open the main menu, press the Up button or Down button for selection, press the Power button for confirmation, select the Exit item to exit the main menu.
2. Color palette selection: 6-color palette. Press the Up button or Down button for selection, press the Power button to confirm and return to the main menu.

3. Cursor switch: Press the Up button or Down button for selection, press the Power button to confirm and return to the main menu.
4. Cursor type: 7 kinds of differentiation lines. Press the Up button or Down button for selection, press the Power button to confirm and return to the main menu.
5. Extract cursor calibration: 10m, 30m, 60m, 100m, 300m, 600m, user-defined. Press the Up button or Down button for selection, press the Power button to confirm and return to the main menu.
6. Hotspot tracking: Press the Up button or Down button for selection, press the Power button to confirm and return to the main menu.
7. Zoom in and zoom out: 1x, 2x ,4x, 8x and 16x times. Press the Up button or Down button for selection, press the Power button to confirm and return to the main menu.
8. Brightness selection: 10 levels (0-9). Adjust the detector's brightness other than the brightness of the display. Press the Up button or Down button for selection, press the Power button to confirm and return to the main menu.
9. Contrast: 10 levels (0-9). Adjust the detector's contrast other than the contrast of the display. Press the Up button or Down button for selection, and press the Power button to confirm and return to the main menu.
10. Image detail mode: Adjust the image edge or image detail. Press the Up button or Down button for selection, and press the Power button to confirm and return to the main menu.

11. Image detail value: Level 5 (0-4). Press the Up button or Down button for selection, and press the Power button to confirm and return to the main menu.

12. Language selection: Press the Up button or Down button for selection, and press the Power button to confirm and return to the main menu.

13. Cursor calibration: Press the Up button or Down button for activation, select the Exit item to return to the main menu, press the Power button to confirm to go to the second layer menu, press the Up button or Down button for selection (10m, 30m, 60m, 100m, 300m, 600m, custom), press the Power button for confirmation, and the calibration distance is displayed in the lower right corner of the display. Press the Up button or Down button to change the value of Y axis, and press the left button or right button to change the value of X axis. The coordinate values of X-axis and Y-axis are displayed on the display. Press the Power button for confirmation and return to the previous layer. After all calibration is completed, select the exit option, return to the main menu, and deactivate the cursor calibration.

14. Firmware upgrading: When power is on, connect the device with the computer using USB, copy the upgrading file of uconfig.bin to the SD card of the device, and then disconnect the USB. Press the Up button or Down button to the "Firmware Upgrade" option. Press the Power button for confirmation. The display of YES on the display screen indicates successful upgrading. If it is not successful, please repeat the upgrading steps. After upgrading is ok, connect the device

with the computer with USB, and delete the upgrading file.

Remember: Do not rename the upgrade file or change the file suffix type. Otherwise, the upgrade will fail.

15. Eyepiece visibility adjustment: Rotate the visibility adjustment knob left and right to adjust your visibility.

16. Adjustable lens: Rotate the adjustable lens left and right to focus. Rotation clockwise means near focus, and rotation counterclockwise means far focus.

Description of battery charging

This product is built-in with chargeable batteries. When the power is insufficient, please charge it in a timely manner. Charging can be made in 2 modes.

Charging mode 1:

Batteries are charged by the USB Type-C interface of the thermal image telescope. After it is fully charged, unplug the USB wire.

Charging mode 2:

1. Unscrew the battery cover and take out the batteries.

2. Used the charger from the original manufacturer to charge the batteries. Install the batteries properly according to the polarity as shown on the charger.

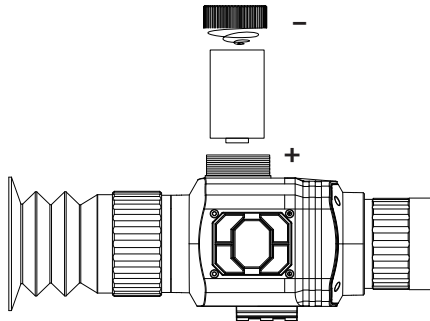
3. After it is fully charged, disconnect power supply for the charger, and remove the batteries.



Prompt: When this product lies idle for long, it shall be charged at least every three months to prevent irreversible loss of capacity due to too low battery power arising from its own discharge as it is kept too long.

Description of Battery Installation

1. Open the battery cover: Unscrew the battery cover counterclockwise.
2. Install the lithium battery: Put the battery into the battery compartment with the negative pole of the battery facing outward.
3. Install the battery cover: Tighten the battery cover clockwise.



Application of Color Palette

The palette menu can change the pseudo color of the infrared thermal image, and provides 6 palettes: rainbow, hot metal, white heat, black heat, yellow saturation and bird watching mode.

Choosing an appropriate palette can better display the details of the target object. For rainbow, the hot metal palette focuses on displaying colors, which is very suitable for high thermal contrast and is used to improve the color contrast between high and low temperatures. However, the white hot palette provides uniform linear colors.

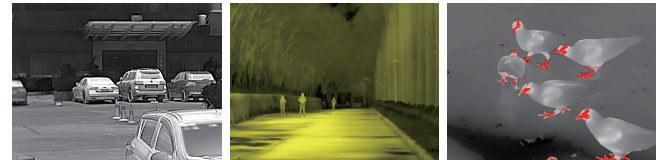
Image effects out of photo taken by six kinds of color palettes:



Rainbow

Hot metal

Black heat



White heat

Yellow saturation

Bird watching mode

Application of Image Detail Mode

1. Only one of the image edges or image details can be selected for the adjustment to image quality.
2. If you want the image edge to be clearer and more stereoscopic, then select the image edge before selecting the corresponding value on the image detail value to make the image edge clear.
3. If you want the overall image quality to be clearer, select details, and then select the corresponding value on the image detail value to make the overall image quality clear.

Calibration and Application of Cursors

1. Before use for the first time, mount the C8 product onto the equipment. As customers maintain a variety of equipment, it is necessary to complete the matched setting for the C8 product and the equipment. At different distances, the landing point and the C8 cursor must be calibrated consistently. Select the landing point distance (10m, 30m, 60m, 100m, 300m, 600m or user-defined distance). Perform cursor calibration for each item. Please refer to the previous operation for cursor calibration.

Note: As the target distances are different and the coordinates of the cursor are not located at the same point, so it is necessary to select the calibration distance according to the distance so as to achieve the purpose that the landing point coincides with the C8 cursor and aims at the target more accurately.

2. During actual use, visually check the prey distance, for example, about 10m, and extract the cursor calibrated for 10m. At this time, the center position of the cursor is the center position of the prey. Aim directly according to the cursor of C8 product.
3. Visually check the prey distance, for example, about 100m, and extract the cursor calibrated for 100m. At this time, the center position of the cursor is the center position of the prey. Aim directly according to the cursor of C8 product.

Precautions for formatting an SD card

When the SD card inside the machine is connected to the computer through USB to format the SD card, the SD card needs to be re-identified when using the machine for the first time. This process takes 3~5 minutes, during which all keys cannot be operated. This is a normal appearance.

Product After-Sale Service

Dear our customer,

Thank you for having purchased our products. The warranty period of this product is from the date of sale.

During the warranty period, the product shall be installed and used in accordance with the operation instructions under normal environment and conditions. If the defective product is caused by raw materials and processing process, you will be entitled to free maintenance service with the warranty certificate. You are kindly requested to keep the warranty certificate properly, for there will be no reissue of it in the case of loss thereof.

To avoid problems in the process of application, we recommend that you be familiar with the product manual before using the product.

Under any of the following circumstances, the product will not be covered by the warranty:

1. The original of valid warranty certificate fails to be presented;
2. Damage caused by product installation not meeting product requirements and relevant specifications;
3. The user's improper use of the product, improper storage, unauthorized disassembly, unauthorized maintenance and other reasons.
4. Damaged caused by natural disasters (such as earthquake, flood or lightning strike), or external disasters (such as fire or house collapse).
5. The product is beyond the warranty period.

Cautions:

1. In case of any product failure, the product will be inspected and repaired or replaced with new or good products as the case may be;
2. For any products beyond the warranty period, it will be decided whether to repair or replace parts and components after product inspection, and charge related fees for various maintenance and replacement services.