



BINOCULAR FUSION THERMAL IMAGER OPERATION INSTRUCTIONS



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HT-C600

HT-C640

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Summary

The integrated technology such as ultra-low illumination COMS, infrared thermal imager, electronic compasses, GPS, video compression storage and control are used for the binocular fusion thermal imager (hereinafter referred to the thermal imager), which can be used for tactical reconnaissance day and night, monitoring and identifying camouflage targets. It is characteristic of a small size, convenience in taking and good adaptation to environments. The thermal imager is easy to carry by a single person for front observation, and is also suitable for setting up a fixed observation station for observation, day and night observation, photographing and video recording of targets. It can be widely used in patrol, investigation, law enforcement, anti smuggling, anti drug, forest fire prevention, emergency search and rescue and other occasions.

Safety Operation and Maintenance

Cautions in the use of the device:

- (1) It is forbidden to directly observe the sun when this device is used;
- (2) In the case of any unknown situation such as failure in the device, please contact the manufacturer. Please do not dismantle it unless authorized.

Daily maintenance of the device:

- (3) Please wipe the device after it has been used so as not to allow water stains or dirt to remain on the surface of the device and on the objective lens, and cover the lens cap;
- (4) When the device lies idle for long, please take the battery out of the device, and store it together with other components.

Charging the Battery

Take out the battery after the battery compartment cover is opened. Put it in the compatible charger, with its negative pole aiming at the compression spring, and with the positive pole aiming at the direction of the indicator. Plug it in the 5V 2A charger before charging can be done, as shown in the figure below.



In the charging process, you can confirm whether the battery is fully charged or fails according to the status of the indicator, with the statuses as follows:

After power connection if the four red indicators are normally on, it indicates that it is being charged;

Four yellow indicators normally on indicating the battery power is full;

When the indicator is not on, it indicates that the charging fails.

Installing the Battery

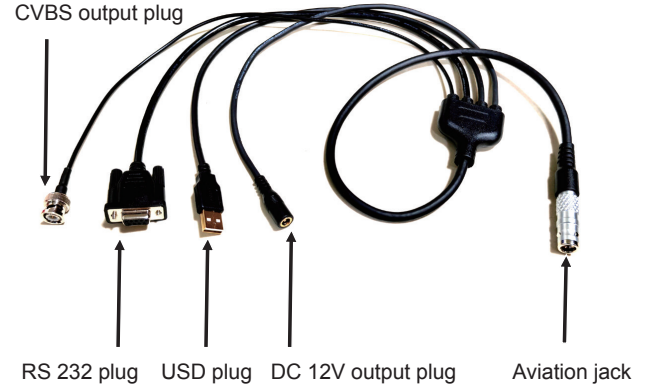
- (1) Turn the battery compartment knob counterclockwise to open the battery compartment cover;
- (2) Install the battery by strictly following the indicative direction of the negative and positive poles on the battery compartment cover (with negative and positive pole indication at the place of battery installation);
- (3) Close the battery compartment cover, and turn the battery compartment knob clockwise until it is locked up.

Note: 1. Please do not use the battery whose insulating layer is damaged; 2. If the battery's positive and negative poles are wrongly connected, the device will be unable to work, and that will damage the battery.



Description of the Connecting Wires

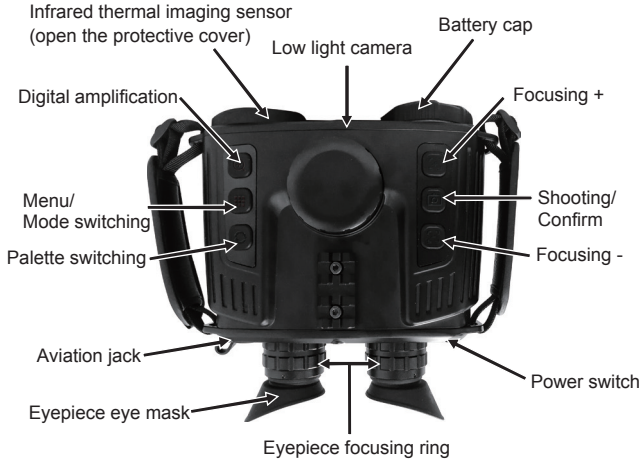
For the data cord attached with the device, connect one end to the device's aviation jack, with the other end to be plugged into the corresponding jack as required.



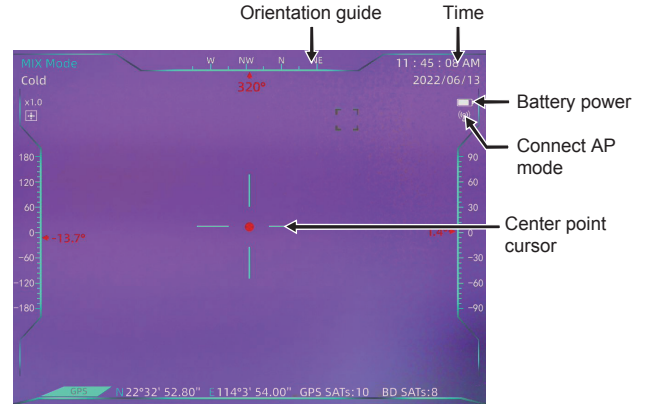
Product Description

1. Instruction to Structure

In visual structures of the product, they mainly consist of CMOS, infrared thermal imaging, battery compartments, buttons, eyepieces, GPS modules and WIFI modules.



2. Display Description



Standby connection mode: When the “” icon is displayed, it means the device is connected to AP (hotspot) mode (the device defaults to AP mode); when the “” icon is displayed, it means the device is connected to STA (station) mode;

When the icon is flashing, Indicates that the mode is being switched.

Note: Mode switching needs to be operated on the APP.

Performance Indices

Infrared		
Model	HT-C600	HT-C640
Detector type	Amorphous silicon uncooled infrared focal plane	Vanadium Oxide Uncooled Infrared Focal Plane
Resolution	384x288	640x512
Pixel size	17um	12μm
Field angle	7.5°x 5.6°	8.8°x7.0°
Working band	8-14um	
NETD	<50mk@25°C,@f/1.0	
Focal length	50mm	
Frame rate	≤50Hz	
Focus mode	Electric focus	
Detection distance		
Characters (1.7mx0.5mx0.3m)	3333m	4722m
Vehicles (4.5mx2.0mx1.5m)	8823m	12500m
Identification distance		
Characters (1.7mx0.5mx0.3m)	883m	1180m
Vehicles (4.5mx2.0mx1.5m)	2205m	3125m
Shimmer		
Detector type	Ultra-low illumination CMOS	
Resolution	1920x1080	
Pixel size	4.0um	
Focal length	35mm	
Frame rate	≤30Hz	
Focus mode	Focus free	

Display	
Display screen type	OLED
Resolution	1024x768
Display screen size	0.39 inches
Display screen mode	Infrared/shimmer/dual light fusion/picture in pictures
Electron doubling	1x /2x /4x
Visual control	±4SD
Color palette	Rainbow, iron red, cold color, white hot, and black hot
Other functions	
WIFI	2.4G image transmission
Electronic compass	Square angle display
Positioning	GPS/BD
Storage	
Capacity	Built-in 16G eMMC (Note: the usable storage capacity is less than this value, because the system software occupies a certain space)
Shooting	Supported
Video recording	Supported
Picture/Video format	JPG/MP4
Interface	
CVBS output	PAL system video output
USB interface	Export pictures and videos
External power supply	DC12/1A
Power supply	
Detachable rechargeable lithium battery	2000mAhx4 (battery model 18650)
Battery charging mode	Standalone charging stand
Overall power consumption	≤6W
Endurance duration	≤6 hours

Operating/storage environment	
Operating temperature	-20 ℃ to 50 ℃
Storage temperature	-30 ℃ to 70 ℃
Shock	≤30g
Protection level	IP54
Overall dimension/Weight	
Overall dimension	193.1mmx176.8mmx99mm
Weight	1.58kg (including batteries)

Description of Basic Operation

1. Device Power on/off and Interface Adjustment










Shortly press the power switch, and you can see the screen is lit from the eyepiece;

If the characters on the display interface are fuzzy, you can adjust the eyepiece focusing ring and rotate left and right until the characters on the interface are clear;


After the device is normally activated, you can go to the actual operation interface;

If power off is required, shortly press the power switch, and the device is normally off, and there is no display on the screen.

2. Button Operation





- After normal power on, if there is no menu display, press the “” button for amplification, with images switching in cycle in 1X, 2X and 4X.
- Press the “” button to be able to switch the color palette: rainbow, iron red, cold color, black hot and white hot.
- Press the “” button to be able to switch the mode: shimmer mode, infrared mode, blend mode and picture in pictures mode. Long press the “” button, and the menu is displayed on the screen. Now, it is the menu mode. Press the “” button to exit the menu mode.
- Press the “” “” button to play the role as image focusing.
- Press “” button for image snapshot. Long press the “” button to record videos, and long press press this button once again to exit video recording.




Menu Introduction

Long press the “” button to go to the menu. They are respectively: image, color palette, time and setting.





1. Image Menu

1.1 View Images

Go to the menu, select image icon, press the “” to go to the image list, press the “” or “” button to select image, and press the “” to go to the image.

While viewing an image, press the “” to view the previous image, press the “” to view the next image, and press the “” to return.

1.2 Delete Images

When viewing an image, press the “”, and “delete image” is displayed on the screen. Press the “” or “” button to select whether to delete the image, and press the “” again for confirmation.






2. Color Palette Menu

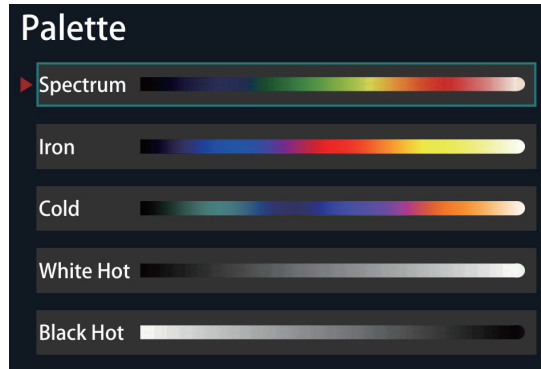
2.1 Description of Color Palette

The color palette can be used to change the pseudo color display of infrared images on the display screen. Some palettes are more suitable for specific applications, and can be set as needed. Color palette is divided into: rainbow, iron red, cold color, white hot, black hot as five color palettes. These palettes work best with high thermal contrast and provide additional color contrast between high and low temperatures.







Selecting the appropriate palette can better show the details of the target object. For rainbow, iron red and cool colors, the palette focuses on displaying colors. The palette is very suitable for high thermal contrast and is used to improve the color contrast between high temperature and low temperature. However, the white hot and black hot palette provides uniform linear colors.



2.2 Color Palette Application

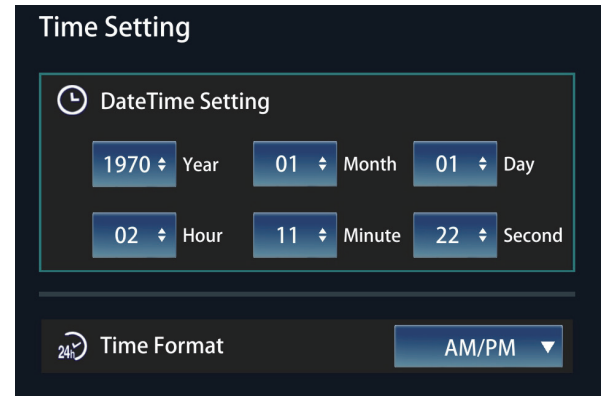
Go to the menu, select the color palette icon, press the “” to go to the color palette list, press the “” or “” button to select the color palette, and then press the “” to choose the color palette. Press the “” button to return.








3. Time Menu


Go to the menu, select the time icon, press the “” to go to time setting, press the “” or “” button to select time setting or time format. Choose it and press the “” button to go to the setting. After the setting is finished, press the “” button for confirmation, and press the “” button to return.





Among them, “” or “” plays a role as increasing/ decreasing values, and functioning as moving up/down in the list.











4. Setting







Go to the menu, select the setting icon, press the “” button to go to setting, press the “” or “” button to select the setting option, and press “” to go to settingm, press “” to return.

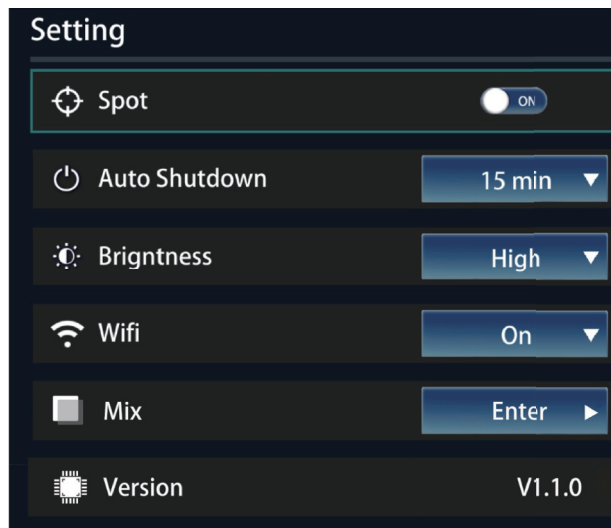
Hot spot tracking switch: Press the “” button to switch off the hot spot tracking, and press press this button once again to activate the hot spot tracking.

Automatic power off: Press the “” button to pop up the drop-down, and they are 5 minutes, 10 minutes, 15 minutes respectively, press the “” or “” button to select the power off time and press “” for confirmation.

Brightness setting: Press the “” button to pop up drop-down, and they are low brightness, medium brightness, and high brightness respectively. Press the “” or “” button to select brightness, and press “” for confirmation.

Wifi switch setting: Press the “” button to pop up drop-down, on or off. Press the “” or “” button to select wifi on/off. Press “” for confirmation.

Mixing mode: Press the “” key to enter the blending mode, and use the “” and “” keys to move the image up and down. If you need to adjust the left and right direction, please press the “” key to switch to the left and right mode, and then press the “” and “” keys to move the image to the left and right.

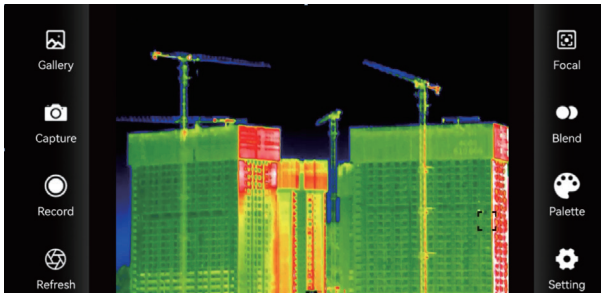


Connecting WIFI


Android system, please download the APP software first.


Connect the device hotspot after the device is powered on.

The default connection hotspot name of this device: Thermal-XXXX (XXXX is the last four digits of the device MAC) After connecting to the hotspot, open the APP software to enter the interface, the interface is displayed as follows:





“” Gallery, view pictures and videos.

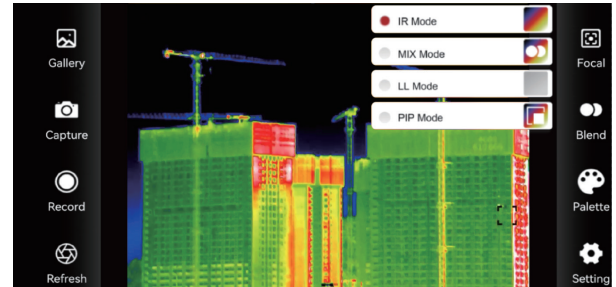
“” Snap the image.


“” Record, click this icon to record video, click again to end recording.

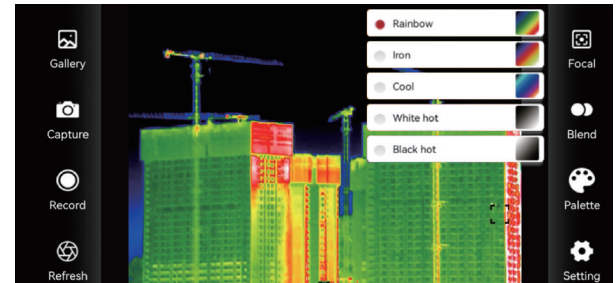
“” Refresh, refresh block.

“” Focal, adjust the focus to make the image clearer.

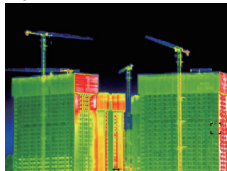
Click the “” icon to change the mode, which can be set to four modes: infrared, mixed, low-light, and picture-in-picture, as shown in the figure below.



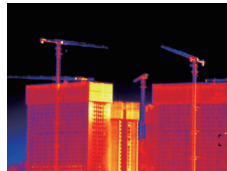
Click the “” palette icon to set as rainbow, iron red, cool color, white hot, black hot five color palettes, as shown in the figure below.



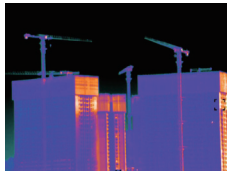
The palette work best with high thermal contrast and provide additional color contrast between high and low temperatures. Suitable selection of color palette displays the details of the target objective better. Rainbow, iron oxide red and cold color palettes focus on display of color. Such color palettes are very suitable for high heat contrast and are used to improve the color contrast between high temperature and low temperature. But the black & white and white & black color palettes provide even linear color. The following are the image effects of the same object and five color palettes.



Rainbow



Iron Red




Cool Color

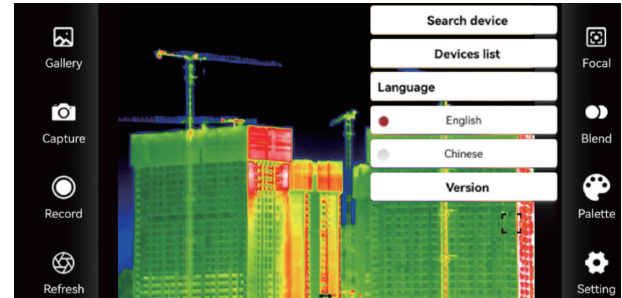


White Hot



Black Hot

Click the “” setting icon to search for devices, view the device list, switch between Chinese and English languages, as shown in the figure below.



Search device: Search for the current device and connect automatically.

Device list: Enter the device list, click Search, when multiple devices are found, select the device to be connected in the list.

Version Information: View version information.

Select the connection mode: enter the device list and click Settings, you can choose AP (hotspot) mode or STA (station) mode (the default AP mode of the device);

After selecting the mode, enter the name and password below, and click OK.

Note: When using the default hotspot for the first time, just connect to the default hotspot without entering a password. If you need to set a password, you can select AP mode in the settings and set a password.