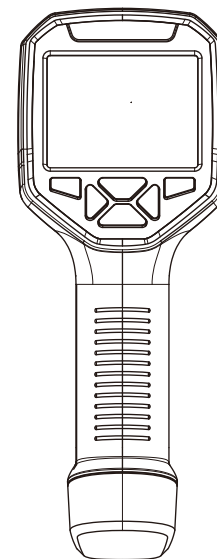




Thermal Imaging Camera Instruction Manual



Dongguan Xintai Instrument Co.,Ltd.

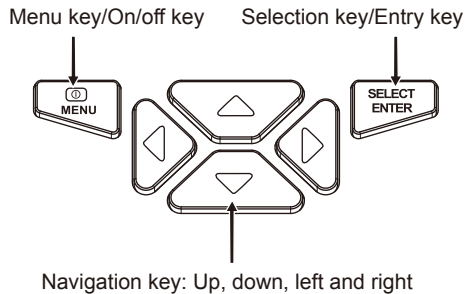
- ④ Add: Building F, No. 22 Yuhua Street, Hongye Industrial Zone,
Tangxia Town, Dongguan City, Guangdong Province
Postcode:523710
- ☎ Tel: +86-769-82612006
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HT-A8 HT-A9

The lowest temperature cursor: used to indicate the lowest temperature position in the screen area. It will move with the movement of the lowest temperature. The cursor displays red. The temperature value is displayed at the central position of the screen.

3. Key description



Initial Operation

- Product boot/shutdown

Press and hold the “ ⏻ / MENU ” button for more than 3 seconds to turn the Thermal Imaging on or off.

- LCD screen display

After turning on the power, the screen shows the thermal imaging status.

Note:

Time adjustment may be required when you move the camera between environments with widely varying ambient temperatures.

- Switching between infrared thermal image and visible image

press “ ◀ ” or “ ▶ ” key to switch the degree of fusion between inferred thermal images and visible images (the degree of fusion is 0%, 25%, 50%, 75% and 100%).

- Image capture

Press the image capture key. When the capture is successful, the screen will display “save photo?” prompt. Select “Yes” or “No” to delete the image, press the “ ◀ ” “ ▶ ” button to Switch the selection, then press the “SELECT/ENTER” button to confirm. Yes, you can press the capture button again if you are sure to save the image.

- The function to hide highest/lowest temperature column at the screen bottom
under the operation after normal start up, press “ ▲ ” key and the screen bottom will display highest/lowest temperature column. Press “ ▲ ” can also hide it.

- Image output

The saved images through capture may be checked and output by connecting with a computer through Micro USB.

- Read images

Open the USB protective cover as shown in ② . Use USB line to connect the USB port and then computer to read the images or save it into computers.images or save it into computers.

The supported operating system through verification includes: winxp, win7, win 8, win10, Apple system.

It is suggested to use the attached USB line or USB line with higher quality.

Note:

When connecting with a computer, pull off the data line after selecting “pop out device safely” to avoid causing file system damage and other problems. If “unable to save” and other problems occur, you may find the hard disc in the computer and fix it.

Introduction to the Menu


Press the left of “ ⏻ /MENU” key and the menu bar appears. They are “Image overlapping”, “Image”, “Color palette”, “Emissivity” and “Setting” submenus.

1.“Image Overlapping” Submenu

1.1. Description of Image Overlapping

Image overlapping makes it easier for users to understand the infrared images by using aligned visible images and infrared images. The use of image overlapping can capture the visible image of every infrared image so as to display the temperature distribution in the target region correctly and share with other people more effectively.

1.2. Application of Image Overlapping

Press the “ ⏻ / MENU” button to enter the main menu, and select “  ” (Image registration) in the main menu.

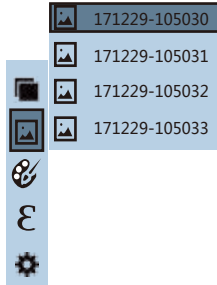
Press the “ SELECT/ENTER ” button to enter the image overlap adjustment mode.Press the navigation keys (up, down, left and right buttons) to perform the visible image shift operation.

Press the “SELECT/ENTER” button to exit the image blending mode (Note: If there is no operation for more than 6 seconds, the image blending mode will be automatically exited).

2. Introduction to “Image” Sub-menu

2.1. View Image

Press the “ ⏻ / MENU ” button to enter the main menu, and select “ 🖼️ ” (image) in the main menu.



As shown in the figure, Then press “ ▶ ” key to enter image list.

Press “ ▲ ” or “ ▼ ” key in navigation to select the image. Then press “ SELECT/ENTER ” key to view image.

When viewing the images, press “ ◀ ” key to view the previous image, Press “ ▶ ” to view the next image.

Press “ SELECT/ENTER ” key to return. Press “ ⏻ / MENU ” key to exit from the menu.

2.2. Delete Images

While viewing the image, press the “ ▲ ” button, the screen will display “Delete photo?” Select “Yes” or “No” to delete the image, press the “ ◀ ” “ ▶ ” button to Switch the selection, then press the “ SELECT/ENTER ” button to confirm. When the image is deleted, “No Image” will be displayed. Press “ SELECT/ENTER ” to return to the menu and press “ ⏻ / MENU ” to exit the menu.

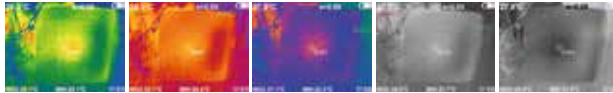
3. Introduction to “Color Palette” Sub-menu

3.1. Color Palette Description

The palette can be used to change the pseudo-color display of the infrared image on the display. Some tune Swatches are better suited for specific applications and can be set up as needed. The palette is divided into: rainbow, iron red, cool, white hot, black hot, five palettes. These palettes work best with high thermal contrast and provide additional color contrast between high and low temperatures.

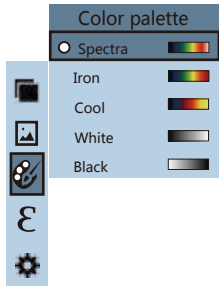
Suitable selection of color palette displays the details of the target objective better. Rainbow, iron oxide red and cold color palettes focus on display of color. Such color palettes are very suitable for high heat contrast and are used to improve the color contrast between high temperature and low temperature. But the black & white and white & black color palettes provide even linear color.

The following is the image of the same object with selection of different color palettes.



Rainbow Iron oxide red Cold color White heat Black heat

3.2. Application of Color Palette



As shown in the figure, press “ \mathcal{O} /MENU” key to enter the main menu and select “ \mathcal{C} ” (color palette) option and press “ \blacktriangleright ” key to enter the color palette list. Press “ \blacktriangle ” and “ \blacktriangledown ” keys in navigation to select the color palette. Then press “SELECT/ENTER” key to select the color palette. Press “ \blacktriangleleft ” to return. Press “ \mathcal{O} /MENU” key to exit from the menu.

4. Introduction to “Emissivity” Sub-menu

4.1. Emissivity Description

The emissivity of the product can be adjusted from 0.01 to 1.00 with the default value of 0.95. Many common objects and materials (such as timber, water, skin and textile fabric) can reflect the heat energy effectively. So it is easy to obtain relatively correct measurement value. The emissivity is usually set as 0.95 when the coarse objects that are easy to give out energy. For semi-matte objects that give out less energy, the emissivity is usually about 0.85 and the emissivity of semi-gloss objects is 0.6. The shiny objects are divided into materials with low radiation coefficient. The emissivity is usually set as 0.3 at the time of measurement. Correct setting of the value of emissivity is very important for you to carry out the most correct temperature measurement. The surface emissivity will produce giant impact on surface temperature measured by the product. Understanding the surface emissivity will enable you to obtain correct temperature measurement result.

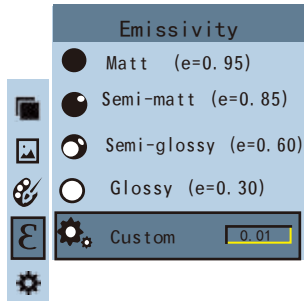
4.2. Emissivity Setting

The product is provided with four types of object measurement modes:

- Coarse object (0.95)
- Semi-matte object (0.85)
- Semi-shiny object (0.60)
- Shiny object (0.30)

According to the characteristics of the measured objects, users may set the emissivity value through the “self-define” option (please refer to the table of “emissivity of common materials”).

The operating step is as the following:



As shown in the figure, press “ ⏏ / MENU ” key to enter the main menu and select “ Ⓔ ”(emissivity) option and press “ ▶ ” key to enter the emissivity list.




Press “ ▲ ” and “ ▼ ” keys in navigation key to select the emissivity. Then press “ SELECT/ENTER ” key to determine selection of the emissivity. Press “ ◀ ” key again to return.









If you select "self-defined" emissivity, press the " SELECT/ENTER " button to enter the editing state. Press “ ◀ ” / “ ▶ ” keys to select the number to be changed, press “ ▲ ” “ ▼ ” keys to change the value. After the modification is completed, press “ SELECT/ENTER ” to confirm, then press “ ◀ ” to return. The “ ⏏ / MENU ” button exits the menu.

4.3. The Emissivity Value of Common Materials

| Substance | Thermal radiation | Substance | Thermal radiation |
|-----------|-------------------|-----------------------|-------------------|
| Bitumen | 0.90~0.98 | Black cloth | 0.98 |
| Concrete | 0.94 | Human skin | 0.98 |
| Cement | 0.96 | Foam | 0.75~0.80 |
| Sand | 0.90 | Charcoal dust | 0.96 |
| Earth | 0.92~0.96 | Paint | 0.80~0.95 |
| Water | 0.92~0.96 | Matte paint | 0.97 |
| Ice | 0.96~0.98 | Black rubber | 0.94 |
| Snow | 0.83 | Plastic | 0.85~0.95 |
| Glass | 0.90~0.95 | Timber | 0.90 |
| Ceramics | 0.90~0.94 | Paper | 0.70~0.94 |
| Marble | 0.94 | Chromium hemitrioxide | 0.81 |
| Gypsum | 0.80~0.90 | Copper oxide | 0.78 |
| Mortar | 0.89~0.91 | Ferric oxide | 0.78~0.82 |
| Brick | 0.93~0.96 | Textile | 0.90 |

5. Introduction to “Setting” Sub-menu

Press “  /MENU” key to select the “  ”(setting) option in the main menu. Press “  ” key again to enter the “setting” sub-menu.

| Settings | | |
|---|-----------------|--|
|  | Auto shutdown ▶ | Auto shutdown NO 5min 20min |
|  | Intensity ▶ | Intensity Low Medium High |
|  | Language ▶ | Language English Chinese Italian German |
|  | Unit ▶ | Unit Celsius Fahrenheit |
|  | Time format ▶ | Time Format 24 hour AM/PM |
|  | Set time ▶ | Set time Year 2019 Month 09 Day 18 Hour 15 Minute 15 Second 15 |
|  | Spot ▶ | Spot Off On |
|  | WiFi ▶ | WiFi Off On |

5.1. Auto Shutdown Setting

After entering the "Settings" sub-menu, select " ⏻ / MENU" (automatic shutdown), press navigationThe " ▶ " button in the button enters the auto power off setting. Can be set to not automatically shut down or 5 points The clock is turned off or turned off in 20 minutes.

5.2. Intensity Settings

After selecting " 🌞 " (brightness), press the " ▶ " button in the navigation key to enter the brightness setting. Can be set to low or medium or bright.

5.3. Language Settings

After selecting " 🌐 " (language), press the " ▶ " button in the navigation key to enter the language setting.

Available in 4 languages: English, Chinese, Italian, German.

5.4. Unit Setting

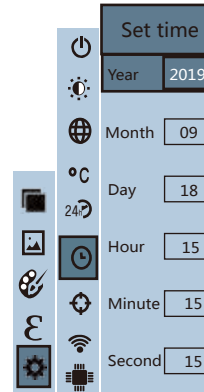
After selecting " °C " (unit), press the " ▶ " button in the navigation key to enter the temperature unit setting. Can be set to Celsius or Fahrenheit.

5.5. Time Format Setting

After you select " 24🕒 " (time format), press the " ▶ " key in the navigation key to enter the time format setting. Can be set to 24 hours or 12 hours.



5.6. Time Setting

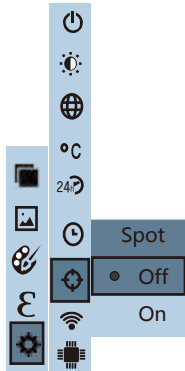
As shown in the figure, after selecting " ⌚ " (set time), press " ▶ " in the navigation key to enter the setting time.







- Press " ▲ " / " ▼ " to select year/month/day/hour/minute.
- After selecting, press "SELECT/ENTER" key to enter the edit state.
- Press " ◀ " and " ▶ " keys to select the figure to be changed. Press " ▲ " / " ▼ " key to change the value. After completing the change, press " SELECT/ENTER" to enter.
- After the time setting is completed, press " ◀ " key to return. Press " ⏻ / MENU " exit from the menu.



5.7. Enable/Disable of the Highest and Lowest Temperature Cursor

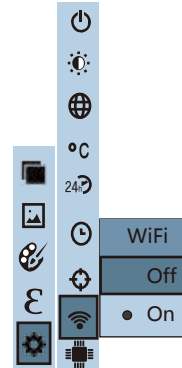
As shown in the figure, after selecting “” (cold hotspot), press the “” button in the navigation key to enter the cold hotspot setting.







- Press “” / “” key to select “enable” or “disable” the option.
- Then press “SELECT/ENTER” key to determine selection.
- After the setting is completed, press “” key to return. Press “ / MENU” key to exit from the menu.

5.8. Wireless WIFI on and off

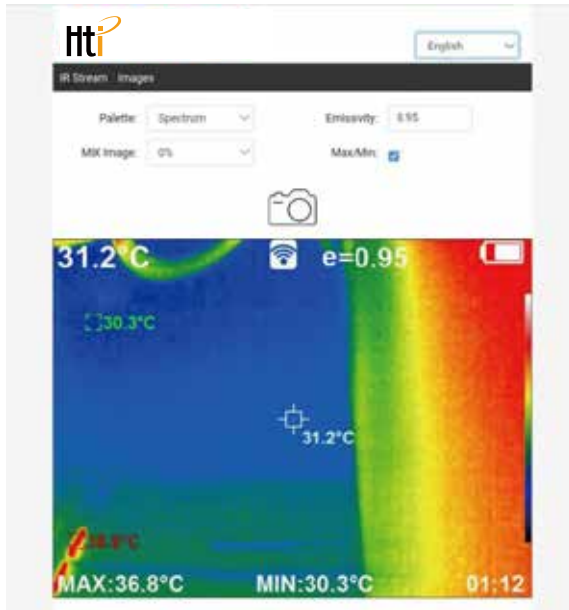
As shown in the figure, after selecting “” (WiFi), press the “” button in the navigation key to enter the WIFI setting.



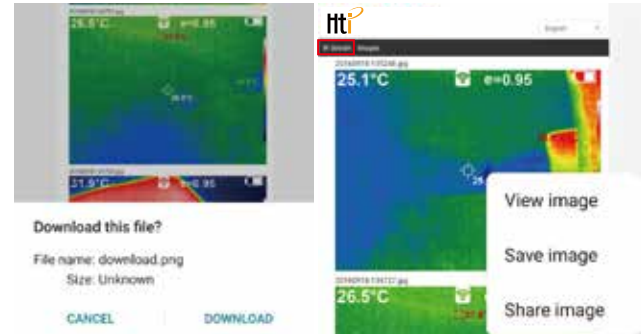
- Press “” / “” key to select “ON” or “OFF” the option.
- Then press “SELECT/ENTER” key to determine selection.
- After the setting is completed, press “” key to return. Press “ / MENU” key to exit from the menu.

After enabling WIFI, use the mobile device to search for WIFI. The hotspot name is ThermalCamera-xxxxxx (xxxxxx is the last six digits of the MAC); access the device through the IP address 192.168.230.1.

In the mobile device, you can set the color palette, blending degree, emissivity, maximum/minimum value, language conversion, and synchronize to the machine. The settings on the machine can also be synchronized to the mobile device (Note: if not converted, on the mobile Refresh on the device). Click on the photo on the mobile device and the image is saved on the machine as shown below.



Click "Image" in the mobile device to enter the image view, press the image to download the image, long press the image to save to the mobile device, click "Infrared Video Stream" to return to the video stream webpage, as shown below.



Troubleshooting

If you encounter with any problem when using the thermal image device, please use the following table for repair. If the problems are not solved, please cut off the power supply and contact with the manufacturer.

| Failure phenomenon | Failure cause | Solution |
|---|---|--|
| The thermal imaging device cannot start | The battery is not installed | Install the battery |
| | The power of the battery is used up | Replace with new battery or charge it |
| The thermal imaging device powers off automatically | The power of the battery is used up | Replace with new battery or charge it |
| | The time set for automatic power off is due | Restart or change the time for automatic power off after restarting (refer to 5.1) |

After-sale Service of the Product

Respected customers:

Thank you for purchasing the product of our company. The product carries a warranty period from the date of sale.

During the warranty period of the product, if installation and use is made according to the user manual at normal environment and conditions, users may enjoy free repair service by warranty voucher for faulty product caused by raw materials and manufacturing process. The warranty voucher should be kept properly by the users and will not be reissued if lost.

In order to avoid problems during the use process, our company suggests that you familiarize with the user manual of the product first before the product is used.

The following conditions are not within the warranty scope:

1. Unable to show the original of effective warranty voucher.
2. The product installation does not comply with product requirements and relevant specification, which causes damage;
3. The damage is caused due to that users use and store it improperly or dismantle and repair it without permission and other reasons;
4. Damage caused by natural disasters (earthquake, flood and lightning stroke) and external disasters;
5. Exceed the warranty period.

Considerations:

1. If the product malfunction, repair or replacement with new or good product is made according to the condition after the product is inspected.
2. For product exceeding the warranty period, determine whether to repair or replace the part after inspection for the product is performed. Relevant expense will be charged for all types of repair and replacement of parts and components according to actual condition.

1. The product enjoys warranty service within one year from the purchase date if it is used normally and not dismantled and is confirmed by warranty personnel for product quality problem. Repair will be provided at any condition.
2. The warranty voucher should be filled at the time of purchase. It should be carried for product maintenance.

| Customer's name | Purchase date | Product type | Distributor |
|------------------|---------------|--------------|-------------|
| | | | |
| Warranty record: | | | |