

UNI-T®



UTi260B Professional Thermal Imager User Manual

P/N:110401112986X

Preface

Thank you for purchasing this brand new product. In order to use this product safely and correctly, please read this manual thoroughly, especially the safety notes.

After reading this manual, it is recommended to keep the manual at an easily accessible place, preferably close to the device, for future reference.

Limited Warranty and Liability

Uni-Trend guarantees that the product is free from any defect in material and workmanship within one year from the purchase date. This warranty does not apply to damages caused by accident, negligence, misuse, modification, contamination or improper handling. The dealer shall not be entitled to give any other warranty on behalf of Uni-Trend. If you need warranty service within the warranty period, please contact your seller directly.

Uni-Trend will not be responsible for any special, indirect, incidental or subsequent damage or loss caused by using this device.

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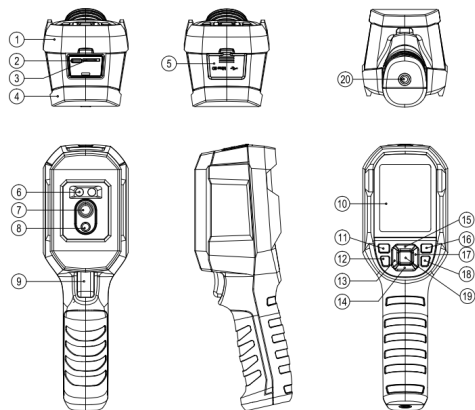
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1. Specifications

Sensor	UFPA
Temperature range	High-gain: -20°C~150°C; low gain: 150°C~550°C
Measurement resolution	0.1°C
Accuracy	±2°C/±2% (whichever is greater)
Response time	≤500ms
IR resolution	49,152 pixels (256 × 192)
Pixel size	12μm
Color palette	Iron, Rainbow, White Hot, Red Hot, Black Hot, Lava, Rainbow HC
Infrared spectral bandwidth	8μm~14μm
Field of view (FOV)	56° (H) × 42° (V)
Spatial resolution (IFOV)	3.8mrad
Thermal sensitivity	<60mK
Frame rate	<25Hz
Temperature measurement display	ROI, center point temperature, high temperature tracking (default)
Image format	BMP
Buttons	10 buttons: Power, Image trigger, Back, direction buttons (left/right/up/down), SET, Replay, Flashlight
Image mode	Thermal, Digital camera (visual light), Fusion, PIP
Temperature measuring point	In addition to the center point, 3 points can be added.
Visual light camera	Yes
Visual light resolution	640 × 480 pixels

Image blending ratio	0% (pure visual light image), 25%, 50%, 75%, and 100% (pure infrared image)
PC software	Yes
Real-time image transmission	Yes (real-time image projection through PC software)
Data transmission	Type-C USB interface
Product size (L x W x H)	236mm x 75.5mm x 86mm
Display type	2.8" TFT LCD
Display resolution	320 × 240 pixels
Battery	Single 3.6V/5000mAh Li-ion battery 26650
Auto power off	5min, 10min, 30min, off (default: 30min)
Battery life	≥6 hours
Charging time	≤5 hours
Charging voltage/current	5V/2A
Image storage	Micro SD card
Transportation/Storage environment	-20°C~60°C (-4°F~140°F), <85% RH (non-condensing)
Operating environment	0°C~50°C (32°F~122°F), 10%~95%RH (non-condensing)
IP Rating	IP65
Drop test	2m
Operating altitude	≤2000m
Standard accessories	User manual, Type-C USB cable, 32GB TF card

2. Structure

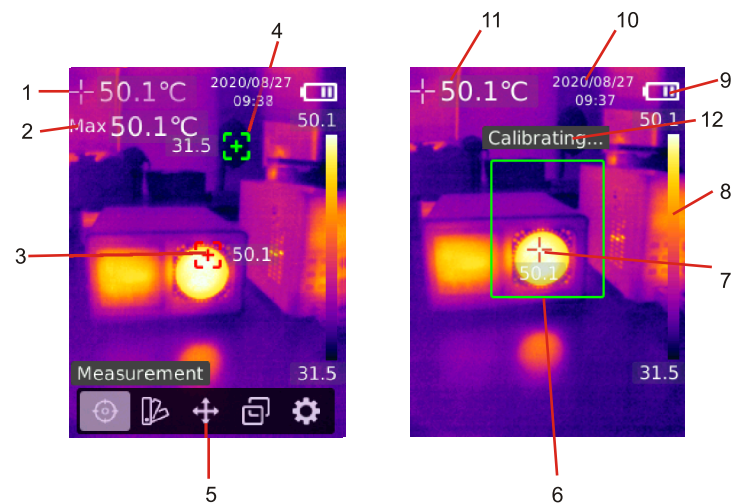


Item	Description	Item	Description
1	Upper casing	11	Power button
2	USB (Type-C) interface	12	Flashlight button
3	SD card slot	13	Left button
4	Lower casing	14	Down button
5	Interface cover	15	Up button
6	LED light	16	Replay button
7	Infrared camera lens	17	Right button
8	Visual light camera lens	18	Back button
9	Trigger	19	SET button
10	LCD display	20	Tripod mounting hole

3. Display

Display size: 2.8"

Display resolution: 320 (vertical) x 240 (horizontal) pixels



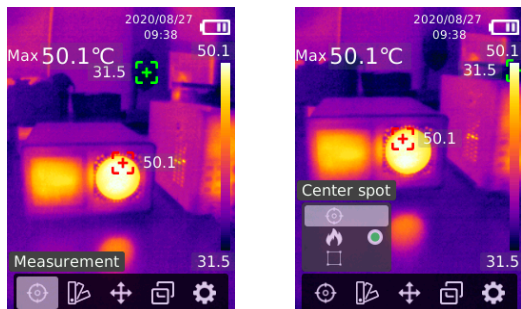
Item	Description	Item	Description
1	Center point temperature	7	Maximum temperature point in ROI
2	Maximum temperature	8	Temperature bar
3	Maximum temperature point	9	Battery status
4	Minimum temperature point	10	Date and time
5	Main menu	11	Maximum temperature in ROI
6	Region of interest (ROI)	12	Calibrating...

4. Power On/Off

- Press and hold the power button for 3s to turn on/off the product. For long-term idle or measuring environment change, please turn on the product and leave it for 20 minutes before measuring.

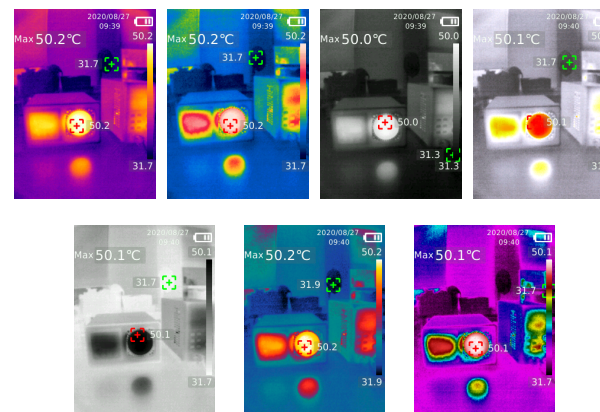
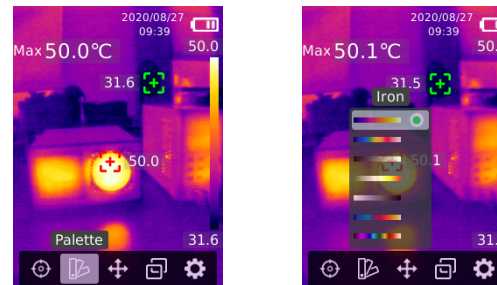
Note: After the product starts the shutdown procedure, it takes 5 to 6 seconds. Please try to avoid turning on and off the product continuously to avoid damage.

5. Measurement



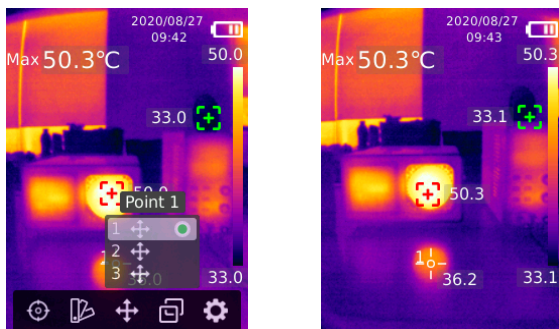
- Press the SET button to open the main menu.
- Press the left/right button to select the option.
- Press the SET button to enter the Measurement menu.
- Press the up/down button to select Center Spot (center point measurement), HiLo Spot (maximum and minimum temperature measurement) or ROI.
- Press the SET button to turn on/off Center Spot, HiLo Spot or ROI.
- Press the back button to exit.

6. Palette



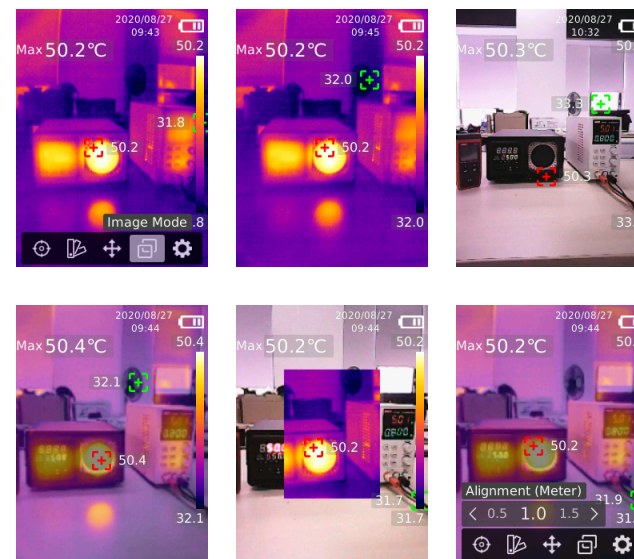
- Press the SET button to open the main menu.
- Press the left/right button to select the option.
- Press the SET button to enter the Palette menu.
- Press the up/down button to select the desired palette.
- Press the SET button to apply the palette.
- Press the back button to exit.

7. Point Temperature



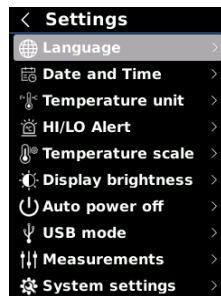
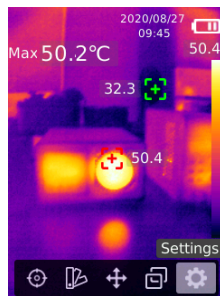
- 1) Press the SET button to open the main menu.
- 2) Press the left/right button to select the option.
- 3) Press the SET button to enter the Point Temperature menu.
- 4) Press the up/down button to select the desired point.
 - A. Press the SET button to turn on the point and enter the thermal imaging page. Press the left/right/up/down button to move the point. Press the SET button to confirm and read the temperature of the current point.
 - B. Press the SET button to turn off the current selecting point. Press the back button to exit.

8. Image Mode



- 1) Press the SET button to open the main menu.
- 2) Press the left/right button to select the option.
- 3) Press the SET button to enter the Image Mode menu.
- 4) Press the up/down button to select the desired mode from Thermal (infrared image), Digital (visual light image), Fusion (image blending), and PIP (picture in picture).
- 5) Press the SET button to apply the current mode.
- 6) Press the back button to exit.
- 7) In Fusion mode, press the left/right button to select the desired blending ratio from 0% (pure visual light image), 25%, 50%, 75%, and 100% (pure infrared image) under the thermal imaging page.
- 8) If Alignment Distance is selected, users can set the alignment distance (meter) of the fusion target to 0.5, 1.0 (default), 1.5, 2.0, 2.5 or >3.0.

9. Settings



To enter Settings menu:

- 1) Press the SET button to open the main menu.
- 2) Press the left/right button to select the  option.
- 3) Press the SET button to enter the Settings menu.
- 4) Press the back button to return to previous menu.

9.1 Language



To set language:

- 1) Press the up/down button to select the Language option in the Settings menu.
- 2) Press the SET button to enter the Language submenu.
- 3) Press the up/down button to select Chinese or English.
- 4) Press the SET button to confirm.
- 5) Press the back button to exit.

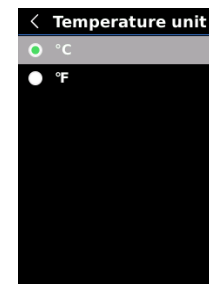
9.2 Date and Time



To set date and time:

- 1) Press the up/down button to select the Date and Time option in the settings menu.
- 2) Press the SET button to enter the Date and Time submenu.
- 3) Press the left/right button to select the parameter to be adjusted.
- 4) Press the SET button to enter the parameter adjustment state.
- 5) Press the up/down button to increase or decrease the value.
- 6) Press the SET button to save the settings and return to set other parameters.
- 7) Press the back button to exit.

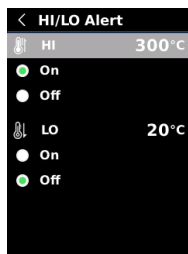
9.3 Temperature Unit



To set temperature unit:

- 1) Press the up/down button to select the Temperature Unit option in the Settings menu.
- 2) Press the SET button to enter the Temperature Unit submenu.
- 3) Press the up/down button to select °C or °F.
- 4) Press the SET button to confirm.
- 5) Press the back button to exit.

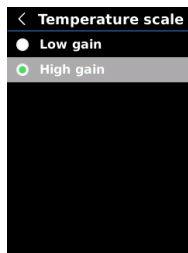
9.4 HI/LO Alert



To set high/low temperature alert:

- 1) Press the up/down button to select the HI/LO Alert option in the Settings menu.
- 2) Press the SET button to enter the HI/LO Alert submenu.
- 3) Press the up/down button to select and set the desired option.
- 4) Select HI or LO to adjust the temperature parameter by the up/down button.
- 5) Select other options to turn the alert on or off.
- 6) Press the back button to exit.

9.5 Temperature Scale

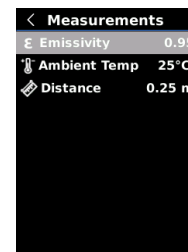


To set scale of temperature:

- 1) Press the up/down button to select the Temperature Scale option in the Settings menu.
 - 2) Press the SET button to enter the Temperature Scale submenu.
 - 3) Press the up/down button to select the desired option.
 - 4) Select High-gain or Low-gain to adjust the scale of temperature.
 - 5) Press the SET button to save the current setting.
 - 6) Press the back button to exit after the temperature scale is switched successful.
- Temperature scale: high-gain -15°C~150°C, low-gain 150°C~550°C

Note: It takes about 30~40s to switch the temperature scale. Please wait until it is stable and take the next action.

9.6 Measurements



To set measurement parameters:

- 1) Press the up/down button to select the Measurements option in the Settings menu.
- 2) Press the SET button to enter the Measurements submenu.
- 3) Press the up/down button to select Emissivity, Ambient Temperature or Distance.
- 4) Press the SET button to enter the parameter adjustment state.
- 5) Press the up/down button to increase or decrease the value.
- 6) Press the SET button to save the current setting.
- 7) Press the back button to exit.

Note: For emissivity values of common materials, please refer to the Common Emissivity .

Emissivity: The ratio of the measured object to the black body with the same temperature, which is an essential indicator to measure the radiant energy of the object. Its value ranges from 0.00 to 1.00.

Ambient Temperature: The ambient temperature at which the thermal camera and the measured object are located.

Measurement Distance: The distance between the thermal camera and the measured object.

Relative Humidity: The percentage of water vapor content in the air during the transmission of radiant energy from the measured object.

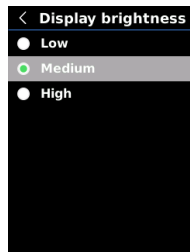
Note:

1. The accurate setting of the above parameters has varying degrees of influence on the final temperature measurement results.

2. Recommended Values: In case of uncertainty regarding these parameter values, the following recommended values are generally suggested:

Emissivity	0.95
Ambient Temp.	25°C
Relative Humidity	55%RH
Distance	0.25m

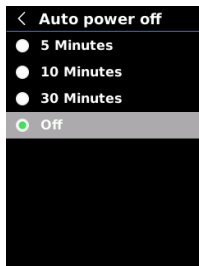
9.7 Display Brightness



To set display brightness:

- 1) Press the up/down button to select the Display Brightness option in the Settings menu.
- 2) Press the SET button to enter the Display Brightness submenu.
- 3) Press the up/down button to select the desired brightness level from Low, Medium, and High.
- 4) Press the SET button to confirm.
- 5) Press the back button to exit.

9.8 Auto Power Off



To set auto power off:

- 1) Press the up/down button to select the Auto Power Off option in the Settings menu.
- 2) Press the SET button to enter the Auto Power Off submenu.
- 3) Press the up/down button to select the desired option from 5 Minutes, 10 Minutes, 30 Minutes, and Off.
- 4) Press the SET button to confirm.
- 5) Press the back button to exit.

9.9 USB Mode

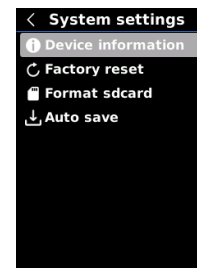


To set USB mode:

- 1) Press the up/down button to select the USB Mode option in the Settings menu.
- 2) Press the SET button to enter the USB Mode submenu.
- 3) Press the up/down button to select USB Disk or USB Camera.
- 4) Press the SET button to confirm.
- 5) Press the back button to exit.

Note: USB disk mode allows users to browse pictures and analyze data on a PC, while USB camera mode allows users to realize real-time image projection after connecting to a PC.

9.10 System Settings



To enter System Settings submenu:

- 1) Press the up/down button to select the System Settings option in the Settings menu.
- 2) Press the SET button to enter the System Settings submenu.
- 3) Press the up/down button to select corresponding setting options.
- 4) Press the SET button to enter submenus.
- 5) Press the back button to return to previous menu.

9.10.1 Device Information



To view the device information:

- 1) Press the up/down button to select the Device Information option in the System Settings submenu.
- 2) Press the SET button to view the detail information of the device.
- 3) Press the back button to exit.

Note: Capacity is the storage capacity of the SD card in use currently.

9.10.2 Factory Reset

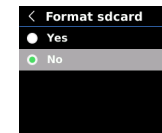


To restore factory settings:

- 1) Press the up/down button to select the Factory Reset option in the System Settings submenu.
- 2) Press the SET button to enter.
- 3) Press the up/down button to select Yes.
- 4) Press the SET button to confirm.
- 5) Press the back button to exit.

Note: During the factory reset process, please do not force other operation to avoid program errors.

9.10.3 Format SD Card

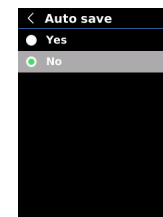


To format SD card:

- 1) Press the up/down button to select the Format SD Card option in the System Settings submenu.
- 2) Press the SET button to enter.
- 3) Press the up/down button to select Yes.
- 4) Press the SET button to confirm.
- 5) Press the back button to exit.

Note: When formatting the SD card, please do not remove it or perform other operation to avoid program errors.

9.10.4 Auto Save



To set auto save:

- 1) Press the up/down button to select the Auto Save option in the Settings menu.
- 2) Press the SET button to enter the Auto Save submenu.
- 3) Press the up/down button to select Yes or No.
- 4) Press the SET button to confirm.
- 5) Press the back button to exit.

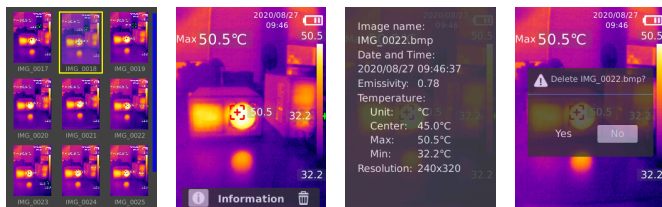
Note: Do not remove or insert the SD card in saving pictures. It is recommended to save no more than 1000 pictures, so as not to affect the response speed of the product. When the number of pictures exceeds 1,000, please clean up the SD card in time.

10. Temperature Compensation and Calibration

To adapt to different environments and places, manual temperature compensation is available. For the specific setting method, please refer to 9.6 Measurements.

To improve the stability of temperature measurement, manual temperature calibration can be performed. Calibration method: Press the back button on the main measurement interface.

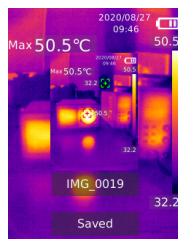
11. Image Viewing



- 1) Press the replay button to enter the gallery interface.
- 2) Use the up/down/left/right button to select the desired image.
- 3) Press the SET button to view the image in full screen mode.
- 4) Press the SET button in full screen mode to delete the image or view its information.

Note: Do not remove or insert the SD card in viewing images.

12. Image Capture



- 1) Pull and release the trigger to capture an image.
- 2) In the manual save mode, press the left/right button to discard or save the image, and press the SET button to confirm or the back button to return.
- 3) In the auto save mode, the image will be saved automatically.

Note: Images can only be saved if an SD card is installed.

13. LED Light

Press and hold the flashlight button for 3 seconds to turn on/off the LED light.

When the temperature alert is on and the measured temperature exceeds the set temperature range, the LED light will flash.

Note: When the LED light is on, please do not point to the eyes of people or animals.

14. USB Communication and Image Projection

- 1) Download and install the upper PC software of UTi Thermal Analyzer and real-time image projection (refer to UNI-T Documents Download Operation Guide).
- 2) Connect the USB cable to the PC.
- 3) Set the USB mode to USB Disk to browse pictures and analyze data through the upper PC software; set the USB mode to USB Camera to realize real-time image projection through the PC software.
- 4) Regarding the usage of the PC software, retrieve the Software User Manual from the Help option of the operation interface.

Note: Please do not unplug the USB cable during image projection; after use, please close the PC software before unplugging the USB cable.

15. SD Card

This device supports Micro SD card (TF card) to store images. To avoid affecting the operating speed of the device, please copy the backup data regularly and clean up the SD card in time. To avoid causing abnormal data on the SD card, do not insert or remove the SD card repeatedly. Try to remove and insert the SD card when the device is turned off.

16. Charging

Please use a safety-certified 5V/1A or 5V/2A power adapter for charging. Do not turn off the product easily during charging. If shutdown or restart is needed, please unplug the Type-C power cord and disconnect the power supply first.

17. Maintenance

Use a wet cloth or weak soap solution to clean the outer shell of the device.

Do not use abrasives, isopropyl alcohol or solvents to clean the outer shell, lens or window.

18. Safety Instructions

To ensure proper use of this product, please read the instructions carefully before using.

Please do not use the product in flammable, explosive, steamy, wet or corrosive environments.

Stop using the product if it was damaged, drop or modified to avoid inaccurate measurement results.

19. Notice for Use

Please use the correct emissivity to obtain accurate temperature readouts.

To ensure accuracy of the product, please warm it up for 20 minutes before measuring if it has not been used for a long time.

When being charged, the internal temperature of the product rises, which will lead to inaccurate temperature measurement. So, it is not recommended to take measurements during or right after charging the product.

The product has a self-calibration function. If the reading jumps quickly, please read the temperature after it gets steady.

20. Appendix

Common Emissivity

Material	Emissivity	Material	Emissivity
Wood	0.85	Black paper	0.86
Water	0.96	Polycarbonate	0.8
Brick	0.75	Concrete	0.97
Stainless steel	0.14	Copper oxide	0.78
Tape	0.96	Cast iron	0.81
Aluminum plate	0.09	Rust	0.8
Copper plate	0.06	Gypsum	0.75
Black aluminum	0.95	Paint	0.9
Human skin	0.98	Rubber	0.95
Asphalt	0.96	Soil	0.93
PVC	0.93		

Note: This manual can be downloaded from the official website of Uni-Trend (refer to UNI-T Documents Download Operation Guide).

21. Certification Standards

CE: Conforms to EU standards (EN 61326-1, EN 61326-2-3)

FCC: CFR 47, FCC Part15B



Conforms to UL STD 61010-1, Certified to CSA STD C22.2 No. 61010-1.



Meet 2m drop test.

UNI-T®**UNI-TREND TECHNOLOGY (CHINA) CO., LTD.**

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Made in China

