



SF-HANHELD-160T05 (-E)
Body Temperature Scanner System
User Manual

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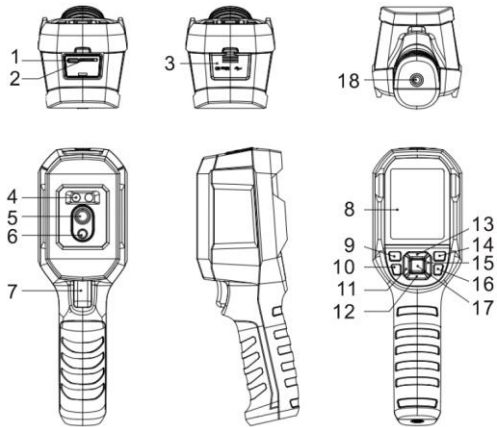
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1. Safety Instructions

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

- The optimal measuring distance for this producto is 1 meter.
- To ensure measurement accuracy, please use the producto in an operating environment of 15°C ~ 30°C, <85% RH (non-condensing).
- Please use the producto indoors without wind.
- When changing to a new environment, please turn on the producto and leave it foor 10 or 15 minutes before measuring.
- The ambient temperatura for measuring must be stable. Do not measure in places with large airflow such as fans and air outlets.
- When the measured objetct comes from a place with a large temperatura difference from the measurement environment, keep it in the measurement environment for 10 to 30 minutes before measuring.
- The producto test the Surface temperatura of the object. If temperatura compensation is needed, please adjust in the Settings menú.
- The producto has a self-calibration function. If the Reading jumps quickly, please read the temperatura after it gets steady.
- Afteer measuring extremely high or low temperatura objects, please leave the producto for 10 minutes before next use.
- Do not use the producto in places with strong sunlight or electromagnetic interference.
- Please do not use the producto in flammable, explosive, steamy, wet or corrosive environmets.
- Please stop using the producto if it is damaged or modified to avoid inaccurate measurement results.
- Please use the correct emissivity to obtain accurate temperatura readouts.
- To ensure accuracy of the producto, please warm it up for 10 min to 15 minutes before measuring if it has not been used for a long time.
- When being charged, the internal temperatura of the producto risees, which Will lead to inaccurate temperatura measurement. So, it is not recommend to take measurements during or right alfter charging the product.

2. Structure

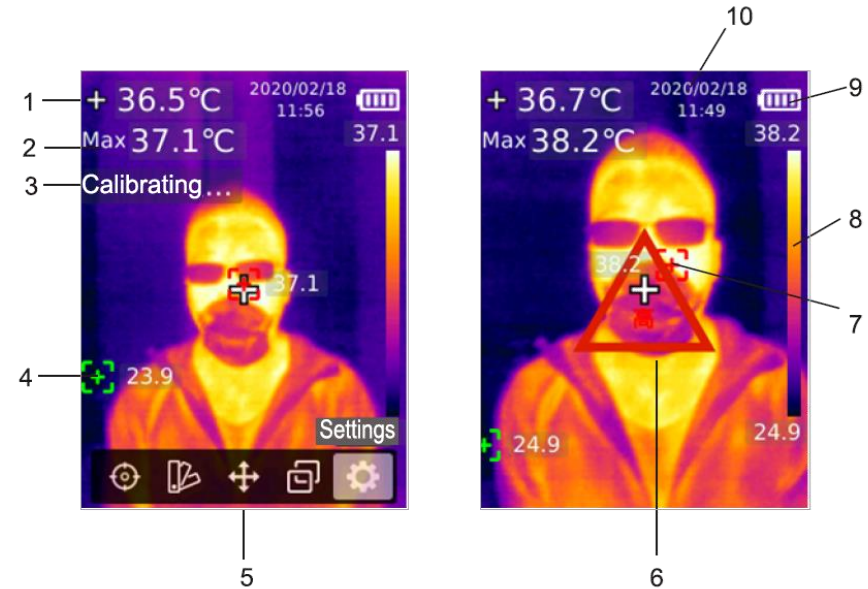


Item	Description	Item	Description
1	USB (Type-C) interface	10	Flashlight button
2	SD card slot	11	Left button
3	Interface cover	12	Down button
4	LED light	13	Up button
5	Infrared camera lens	14	Replay button
6	Visual light camera lens	15	Right button
7	Trigger	16	Back button
8	LCD display	17	SET button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

3. Display

Display size: 2.8"

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



Item	Description	Item	Description
1	Center point temperatura	6	High temperatura alert sign
2	Maximum temperatura	7	Maximum temperatura pint
3	Self-calibration	8	Temperature bar
4	Minimum temperatura point	9	Battery status
5	Main menu	10	Date and time

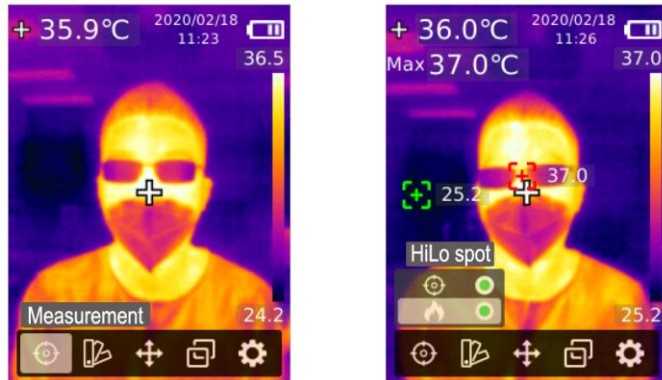
4. Power On/Off


Press and hold the power button for 3 seconds to turn on/off the product.

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.

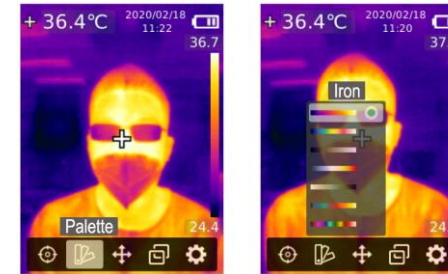
5. Menu Introduction


5.1. Measurement



1. Press the SET button to open the main menú.
2. Press the left/right button to select the  option.
3. Press the SET button to enter the Measurement menú.
4. Press the up/down button to select Center Spot (Center point measurement) or Hi/Lo Spot (Maximum and minimum temperatura measurement).
5. Press the SET button to turn on/off Center Spot or Hi/Lo Spot.
6. Press the back button to exit.


5.2. Palette



1. Press the SET button to open the main menú
2. Press the left/right button to select the  option.
3. Press the SET button to enter the Palett menú.
4. Press the up/down button to select the desired palette.
5. Press the SET button to apply the palette.
6. Press the back button to exit.


5.3. Point Temperature



1. Press the SET button to open the main menú
2. Press the left/right button to select the  option
3. Press the SET button to enter the Point Temperature menú
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 temperatura of the current point.
 - b. Press the SET button to turn off the point. Press the back button to exit.

5.4. Image Mode




1. Press the SET button to open the main menú
2. Press the left/right button to select the  option
3. Press the SET button to enter the Image Mode menú
4. Press the up/down button to select the desired mode from Thermal (infrared image), Digital (visual light image), and Fusion (image blending)
5. Press the SET button to apply the current mode.
6. Press the back button to exit.

NOTE: If Fusion is selected, users can 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.

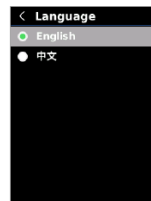
5.5. Settings



To enter to Settings menú:

1. Press the SET button to open the main menu
2. Press the left/right button to select the 
3. Press the SET button to enter the Settings menú

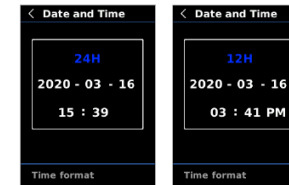
5.5.1. Language



To set language:

1. Press the up/down button to select the Language option in the Settings menú
2. Press the SET button to enter the Language submenú
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

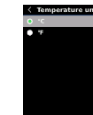
5.5.2. Date and Time



To set date and time:

1. Press the up/down button to select the Date and Time option in the settings menú
2. Press the SET button to enter the Date and Time submenú
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

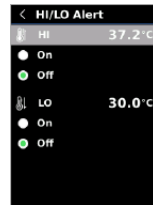
5.5.3. Temperature Unit



To set temperatura unit:

1. Press the up/down button to select the Date and Time option in the settings menú
2. Press the SET button to enter the Temperature Unit submenú
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

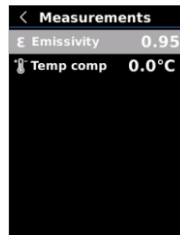
5.5.4. HI / LO Alert



To set HI/LO temperature alert:

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

5.5.5. Measurements

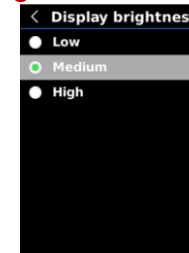


To set measurements parameters:

1. Press the up/down button to select the Measurements option in the Settings menú
2. Press the SET button to enter the Measurements submenú
3. Press the up/down button to select the Emissivity or Temperature Comp (Temperature Compensation)
4. Press the SET button to enter the parameters adjustment state temperature parameter
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

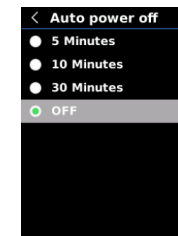
5.5.6. Display Brightness



To set Display Brightness:

1. Press the up/down button to select the Display Brightness option in the Settings menú
2. Press the SET button to enter the Display Brightness submenú
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

5.5.7. Auto Power Off



To set Auto power off:

1. Press the up/down button to select the Auto power off option in the Settings menú
2. Press the SET button to enter the Auto power off submenú
3. Press the up/down button to select the desired option from 5, 10, 30 minutes or Off
4. Press the SET button to confirm
5. Press the back button to exit

5.5.8. USB Mode



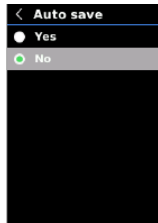
To set USB mode:

1. Press the up/down button to select the USB mode option in the Settings menú
2. Press the SET button to enter the USB mode submenú
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 connection to a PC.

Only SF-HANDHELD-160T05 device support this function.

5.5.9. Auto Save



1. Press the up/down button to select the Auto save option in the Settings menú
2. Press the SET button to enter the Auto save submenú
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 1000, please clean up the SD card in time.

5.5.10. System Settings



To set System Settings submenu:

1. Press the up/down button to select the System Settings option in the Settings menú
2. Press the SET button to enter the System Settings submenú

Device Information

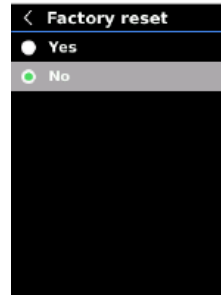


To view the device information:

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.

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 avoid program errors

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

6. Operating Instructions

6.1. 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.

6.2. 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

6.3. Temperature Compensation

To adapt to different environments and places, manual temperature compensation is available. For the specific settings method, please refer to 5.5.5. measurements.

6.4. Flashlight/Warning 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 flashlight is on, please do not point the eyes of people or animals.

6.5. USB Communication and Image Projection

1. Download and install the PC software (refer to: https://athena-visiotech.s3-eu-west-1.amazonaws.com/nx9xDHEBlrFzs_pSrxzY/)
2. Connect the USB cable to the PC
3. Set the USB mode to USB disk to browse pictures and analyze data through the 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.

6.6. 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.

6.7. 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.

7. Specifications

Sensor	UFPA
Temperature Range	30°C ~ 45°C
Measurement resolution	0.1°C
Accuracy	±0.5°C (at 25°C ambient temperature)
Optimal measuring distance	1 meter
Response time	≤ 500 ms
IR Solution	19200 pixels (160 x 120)
Pixel size	12µm
Color Palette	Iron, Rainbow, White Hot, Red Hot, Black Hot, Lava, Rainbow HC
Infrared spectral band	8µm ~ 14µm
Field of View (FOV)	56°(V) x 42°(H)
Spatial resolution (IFOV)	6mrad
Thermal sensitivity (NETD)	<50 mK
Frame rate	<9 Hz
Temperature measurement display	Center point temperatura, high temperatura tracking (default)
Image format	BMP
Image mode	Thermal, Digital (visual light image), Fusion
Point temperatura measurement	In addition to the center point, 3 points can be added
Certifications	-CE (EN 61326-1:2013, EN 61326-2-2:2013, EN 61326-2-3) -RoHS
Visual Light camera	Yes
Visual light resolution	640 x 480 pixels

Image blending ratio	0% (pure visual light image), 25%, 50%, 75% and 100% (pure infrared image)
PC Software	Yes
Real-time image transmisión	Yes (real-time image projection through PC software)
Data transmisión	Type-C USB interface
Product size (L x W x H)	236 x 45.5 x 86 mm
Display type	3. TFT LCD
Display resolution	320 x 240
Battery	3.7V/5000mAh rechargeable Li-ion Battery
Auto power off	5 min, 10 min, 30 min, OFF (default: 30 minutes)
Battery life	≥ 6 hours
Charging time	≤ 5 hours
Charging voltaje/current	5V / 2 ^a
Image storage	Micro SD card
Transportation / Storage environment	-20°C ~ 60 °C (-4°F ~ 140°F), <85% RH (non-condensing)
Operating environment	15°C ~ 30 °C (59°F ~ 86°F), <85% RH (non-condensing)
Operating altitude	≤ 2000m
Estándar accessories	User manual, USB cable, 16GB Micro SD Card

8. 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.

9. 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		