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TR120 Handheld Infrared Thermal Imager

User's Guide

Product Overview

Thank you for purchasing the handheld infrared thermal imager of Mileseey. Please read the user guide carefully before using it.
TR120 is a handheld dual-camera infrared thermal imager. TR120 has 3.5 inch large screen, can show larger display range, more helpful to check the fault area.
With infrared and visible light dual camera mode, TR120 can help users to find out the fault point and problem area more accurately.
Personalized setting of emissivity makes the detection data more accurate.
TR120 can capture pictures and save them, it is also very convenient and fast to export pictures through a USB cable or SD card, which can be used as a basis for maintenance. TR120 is an ideal choice for maintenance and testing.
TR120 has a built-in 5000mA 26650 lithium battery and TYPE-C charging interface, which is very convenient to use and environmental protection.
TR120 can automatically track cold and hot spots, and automatically lock the lowest and highest temperature points, also can set high and low temperature alarm points individually. Detect and provide more accurate temperature data in real time, and assist various temperature detection work effectively.
Besides, TR120 is equipped with a 3W white LED light to help users see the detection area clearly in dark environment, which is convenient for night work and ensures personnel safety.
It's IP65 protection level can protect the device from dust and humid environment, and prolong its service life.

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Safety Instructions

● To ensure accurate measurement results and safety, please use this product in accordance with the user manual, otherwise free warranty will not be provided if the product is damaged.

● Please use the damp cloth or weak soap liquid to clean the housing. Do not use abrasives, isopropyl alcohol or solvents to clean the instrument shell, lens and windows.

● Please do not use this product in flammable, explosive, steamy, humid or corrosive environments.

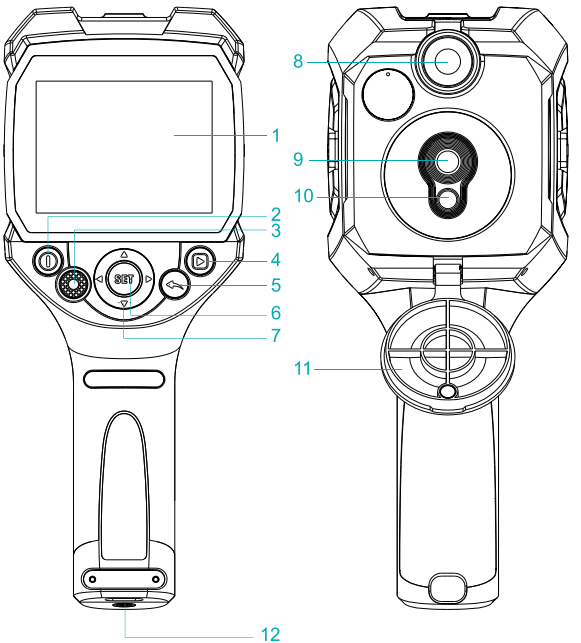
● Please stop using the product if it is damaged, dropped or modified to avoid inaccurate measurement results.

● Please use the correct emissivity to obtain accurate temperature readouts.

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

● Because the power consumption may cause the internal temperature of product rise. To ensure the measurement accuracy, please warm it up for 10 minutes before measuring if the product has not been used for a long time.

Appearance



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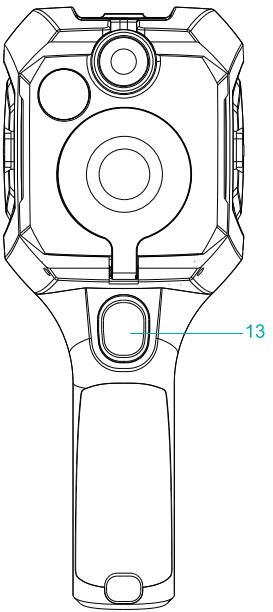


1、3.5 inch large screen

2、On/off button

Long press to power on/off

3、LED light button

Short press to turn on, short press again to switch 1 gear / 2 gears / off.

4、Picture memory records

Short press to picture memory mode, press the SET button to delete all/one picture.

5、Return

Short press to return.

6、Set button

Short press to the setting menu or data setting.

7、Up/down/left/right button

To switch the options and view the picture records.

8、LED Light

9、Infrared camera.

10、Visible light camera.

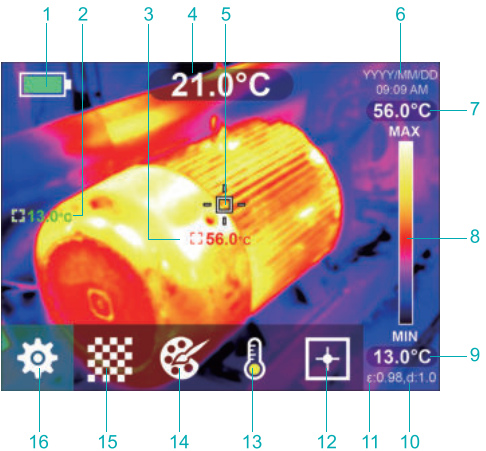
11、Camera cover

12、Tripod Screw Hole

13、Picture taking button

Short press to take picture and save.

Display icon



1、Battey Status
2、Minimum temperature and position in current screen.
3、Maximum temperature and position in current screen.
4、Center point temperature
5、Center point
6、Current date & time
7、Maximum temperature of color bar
8、Color bar
9、Minimum temperature of color bar
10、Currently set detection distance
11、Currently set emissivity

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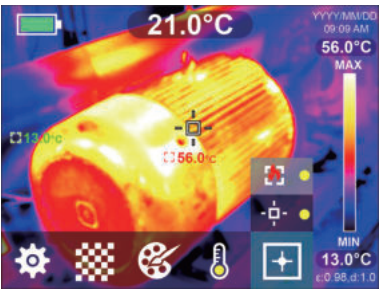
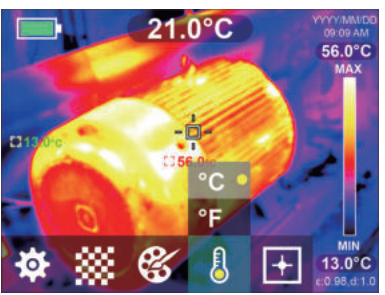
12、Cursor options

Press ▲ / ▼ button to switch, press **SET** button to turn on/off.



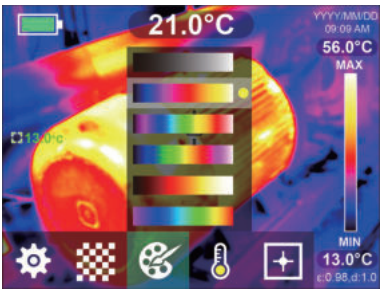
13、Temperature unit options

Press ▲ / ▼ button to switch °C and °F.



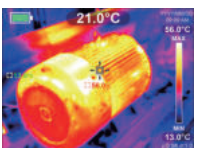
14、Palette options

Press ▲/▼ button to switch six colors and imaging modes.

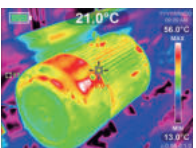


Six colors and imaging modes

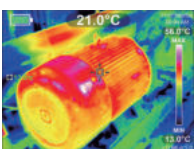
White hot mode



Iron mode

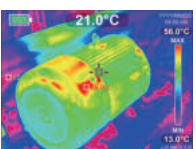


Medical treatment



Arctic

Lava



Rainbow mode

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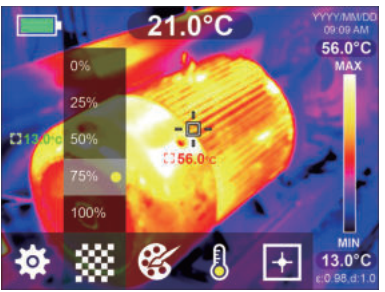
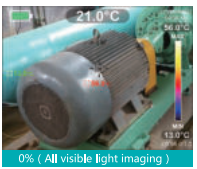
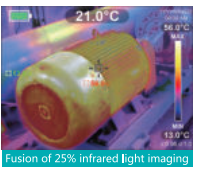
15、Infrared and visible light display ratio options

Press ▲ / ▼ button to choose between 0% (all visible light imaging), 25% (fusion of 25% infrared light imaging), 50% (fusion of 50% infrared light imaging), 75% (fusion of 75% infrared light imaging), 100%(all infrared light imaging).

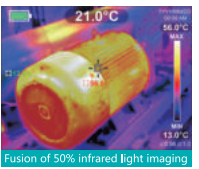




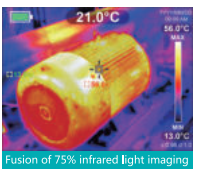
0% (All visible light imaging)



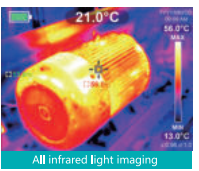
Fusion of 25% infrared light imaging



Fusion of 50% infrared light imaging



Fusion of 75% infrared light imaging



All infrared light imaging

16、Setting Menu
Short press **SET** button to the setting menu.

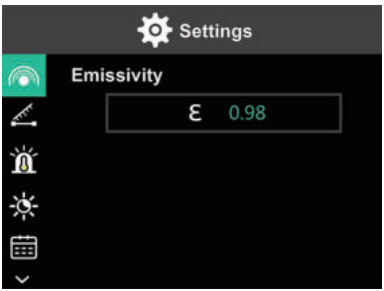
Setting menu instruction

Instructions:

① Press **SET** button to enter the setting menu, can switch the setting area and value.
②Press ▲/▼ button to switch the menu options, press **SET** button to enter the setting interface, press ▲/▼ button to set the value.
③Press **SET**/▶ button to enter the setting interface, and switch the setting area.
④Press ↩ button to return to the main menu of setting.

Emissivity

Selecting correct emissivity is very important for accuracy of temperature measurement, as emissivity has a significant impact on the measured surface temperature.
Press **SET**/▶ button to set emissivity value, the value in the emissivity setting box turns blue, press the ▲/▼ button to adjust the emissivity value, after setting is completed, press the ↩ button to return to the left setting main menu.



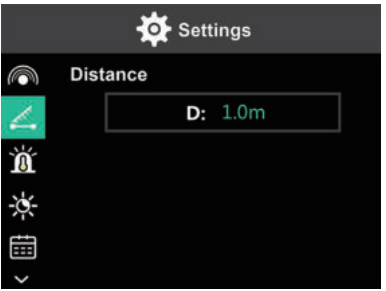
Tip: The emissivity can be set in the range of 0.01-0.99. For the emissivity of common objects, please refer to the table in the appendix.

Emissivity of common objects

Materials	Emissivity	Materials	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
Adhesive tape	0.96	Cast iron	0.81
Aluminium 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 plastic	0.93		

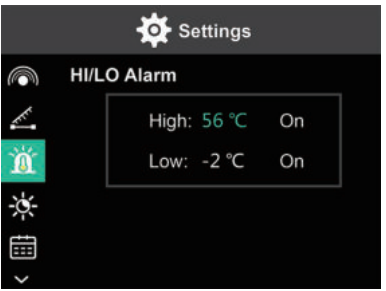
Distance setting

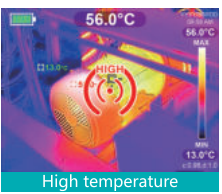
Setting the distance information before detecting can ensure more accurate temperature detection.
Select the distance option, press the **SET**/▶ button to enter the value setting interface. Press the ▲/▼ button to set the distance value (0~3m). After setting is completed, press the button to the left main setting menu.



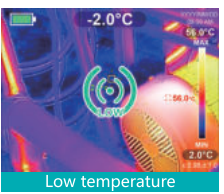
Alarm temperature setting

Select the high/low temperature setting option, press the **SET** / ▶ button to enter the value setting interface. Press the **SET** / ▶ button again to switch the setting items, press the ▲/▼ button to set the temperature value and “on/off ”. After setting is completed, press the button to the left main setting menu.
High temperature setting range: 40°C~ 400°C
Low temperature setting range: -20°C~ 40°C





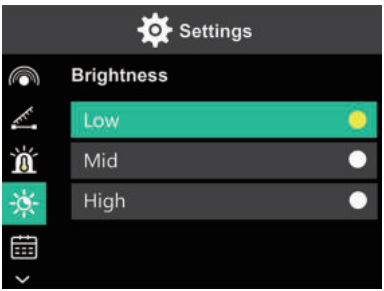
High temperature



Low temperature

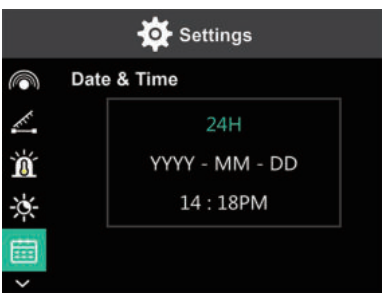
Display brightness

Select the display brightness option, press the **SET**/ ▶ button to enter the setting, press the ▲ / ▼ button to switch the low/middle/high options, press the **SET** button to confirm, then press the ↩ button to the left main setting menu.



Date and time setting

Select the date & time option, press the **SET**/ ▶ button to enter the setting, press the **SET**/ ▶ button again to switch the setting items, press the ▲ /▼ button to set the value. Then press the ↩ button to the left main setting menu.



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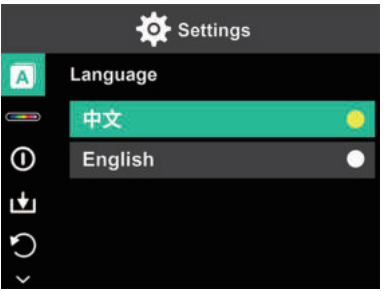
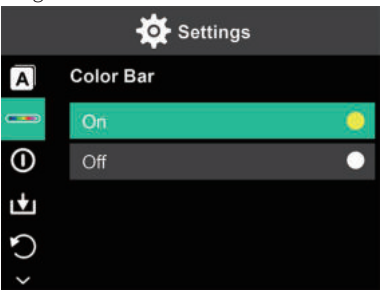
Language setting

Select the language option, press the **SET**/ ▶ button to enter the setting, press the ▲/▼ button to switch the options, press the **SET** button to confirm. Then press the ↩ button to the left main setting menu.



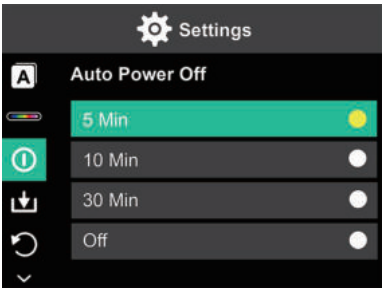
Color bar setting

Select the color bar option, press the **SET**/ ▶ button to enter the setting, press the ▲/▼ button to switch “on/off”, press the **SET** button to confirm. Then press the ↩ button to the left main setting menu.



Auto power off

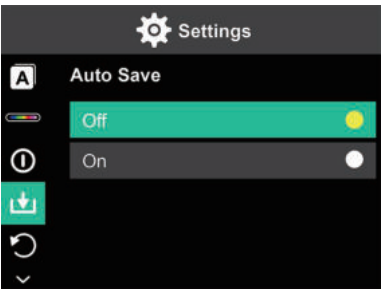
Select the auto power off option, press the **SET**/ ▶ button to enter the setting, press the ▲ / ▼ button to switch the time options, press the **SET** button to confirm, then press the ↩ button to the left main setting menu.



Auto save

Select the auto save option, press the **SET**/ ▶ button to enter the setting, press the ▲ / ▼ button to switch the "on/off" options, press the **SET** button to confirm, then press the ↩ button to the left main setting menu.
Select the "on" option, means device will save every picture automatically that users take .
Select the "off" option, means users need to confirm whether to save after taking the pictures.

Note: It is recommended to save no more than 2000 pictures, avoid to affect the reaction speed of the device. When the number of pictures exceeds 2000, please clean up the SD card in time.



Factory reset

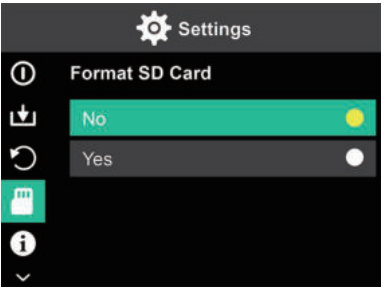
Select the factory reset option, press the **SET**/ ▶ button to enter the setting, press the ▲ /▼ button to switch the " Yes/No " options, press the **SET** button to confirm, then press the ↩ button to the left main setting menu.

Note: please use the Factory Reset function prudently, once reset confirmed, all information in the device will be lost.

Format SD card

Select the Format SD card option, press the **SET**/ ▶ button to enter the setting, press the ▲/▼ button to switch the " Yes/No " options, press the **SET** button to confirm, then press the ↩ button to the left main setting menu.

Note: Please use the Format SD card function prudently, once format confirmed, all the information in SD card will be lost.



LED light

To avoid the long-time LED lighting causing the temperature of the device increase and affect the measurement accuracy, the LED light will turn off automatically after 5 minutes of continuous lighting, If you need to use it, please turn it on again.

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Specifications

Thermal imaging pixels	10800 (120*90)
Spectral response band	8～14um
Field of view	50°*63.4°
Pixel size	17um
Output frame rate	≤20Hz
Thermal sensitivity	＜60mK
Working environment temperature	0°C～35°C
Temperature range	-20°C~400°C
Accuracy	1) -20°C～0°C：±5°C；
	2) 0°C～100°C：±3°C；
	3) 100°C～400°C：±5%
Measurable distance range	0.5m~1.2m
Color palette	Six
High/low temperature alarm	√
SENSOR non-uniformity	＜5%
Size	3.5 inch
Display resolution	320*240
Visible light resolution	640*480
Storage	External 8G MicroSD card
Storage memory	SDRAM:256Mbit+SPI NOR FLASH:64Mbit
Communication Interface	USB2.0(FS)
Video output	Can be chosen
Power	26650 lithium battery/ 5000mAh/3.7V
Light	High-power white LED
Protection class	IP65
Operating temperature	-10°C~50°C
Storage temperature	-40°C~70°C
Drop resistance	1.5m
Dimension	238*95*85.5mm
Weight(W/I battery)	540g