USER MANUAL

THERMAL IMAGER

PCE-TC 5N

ENGLISH



User manuals in various languages (français, italiano, español, português, nederlands, türk, polski) can be found via our product search on:
www.pce-instruments.com

SAFETY NOTICE

- Use this instrument do not tear or damage the warning label on the instrument
- Do not operate the instrument around children, or let children operate by themselves.
- Do not use this instrument in flammable and explosive, steam, wet or corrosive environment.
- Place the instrument out of the reach of children.
- Please refer to the radiation coefficient information to obtain the actual temperature, otherwise it will lead to inaccurate measured temperature, the internal temperature will rise when the instrument is charged, which may lead to inaccurate temperature measurement, the instrument is not recommended to use when charging.
- Please use the instrument correctly according to the instructions, otherwise the company will not be responsible for the accident.
- **Warning!** Please use a safety charger with Type-C interface and 5V output current ≥500mA to charge. The company will not be responsible for any accident caused by the charger.

TECHNICAL PARAMETER

Temperature	
Temperature measuring range	-20°C ... +1000°C
Accuracy	±3K / ±3%, take the maximum value (this accuracy only applies to the ambient temperature of 15 ... 40°C, the temperature of the measured object 40 ... 600°C
Emissivity	Default 0.95 (0.01 ... 1 adjustable)
Radiation coefficient correction	Yes

Imaging performance	
Thermal sensitivity	200mk
Frame frequency	9Hz
Infrared frequency band	8μm ... 14μm
Visible light lens	300,000 pixels
Focusing mode	fixed
Infrared image resolution	1024 pixels (32x32)
Field Angle	33 °
Image display	
Color palette	Iron red, rainbow, gray
Infrared visible fusion	0% (Full thermal imaging), 12%, 25%, 50%, 75%, 100% (Full visible light).
Display type	2.0"TFT LCD
Display resolution	240x320 pixels
Image capture and data storage	
Image capture	Freeze the image to allow viewing before saving
Storage medium	Built-in storage 8M (available 7.8M, can store 52 photos), support up to 32G Micro SD card expansion, only support FAT32 file format SD card.
Picture format	.bmp format
General parameter	
Battery	3.7V 1000mAh lithium battery
Instrument current, voltage	The current is about 160mA, and the voltage is 3.6~4.2V
Overall dimension	185x56x53mm
Net weight of instrument	165g
Operating temperature and humidity	-10°C ... 40°C <85%RH
Storage temperature and humidity	-20°C ... 60°C <85%RH

PRODUCT DESCRIPTION



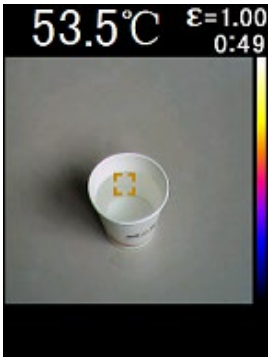
1 - USB and SD card slot soft rubber plug
2 - 2.0 inch color screen
3 - Switch on/off/Back/Album button
4 - Menu/Scroll forward key
5 - Confirm/image mix key
6 - Lighting LED lamp
7 - Visible light camera
8 - Thermal imaging camera
9 - Trigger (take picture in measurement mode, roll back in set mode and album mode).
10 - 1/4 copper nut

FUNCTIONAL OPERATION

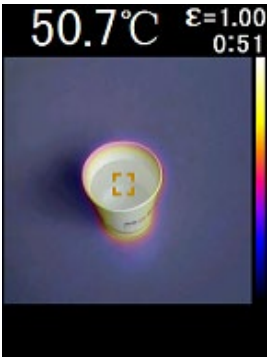
Power on and power off
Short press power key to power on the device and enter the main interface, long press power key to power off the device.

Image photography
In the main interface, pull the trigger to take a photo, press confirme key to save the photo, press power key to cancel the save and return to the main interface.
Note: When the photo storage is slow (normal storage time is about 5 seconds), it means that the storage bit file is more fragmented, please format the memory operation, the storage time will return to normal.

Image mixing
In the main interface, press confirm key to mix the visible image and infrared thermal imaging image, as follows:



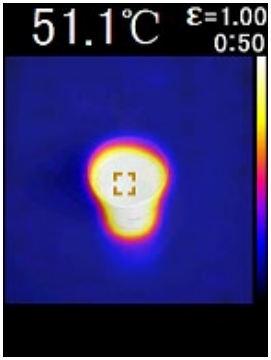
100 % (full visible light)



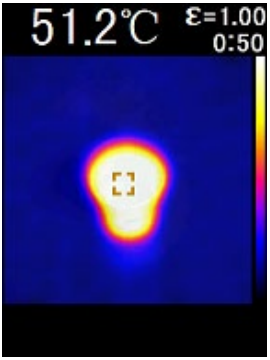
75%



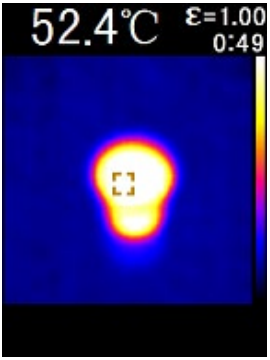
50%



25%



12%



0% (full thermal imaging)

View and delete album photos
In the main interface short press power key to enter the album, Press menu key or trigger to scroll forward or backward to view the photo.
In the album interface, press confirm key to delete to enter the delete interface, press confirm key to confirm the deletion or press power key to cancel the deletion as prompted, then the instrument returns to view the album mode, and press power key again to return to the main interface.

MENU SETTING

In the main interface, press menu key to enter the menu Settings, press menu key or trigger to scroll forward or back, press confirm key to enter the submenu Settings, and press power key to return to the upper menu.

Units

- Press menu key to enter the menu setting screen. The current screen is Temperature unit Setting.
- Press menu key or trigger to go forward or back and scroll to the other Settings menu interface.
- Press confirm key again to enter the Temperature Unit Setting submenu.
- Press menu key or trigger button to select a unit (°C or °F).
- Press confirm key to select an option (Single option only).
- Press power key to return to the upper-level menu.

Emissivity

- Short press menu key to enter the menu setting, press menu key or trigger to forward or back operation scroll to the emissivity setting menu interface
- Press the confirm key again to enter the object emissivity setting submenu.
- Press the menu key or trigger to add or subtract the emissivity value (0.01 ... 1 adjustable).
- Press power key to return to the upper-level menu.

Some common material emissivity table

Note: The emissivity of the actual object is related to the surface state of the object, including the surface temperature of the object, the surface roughness, and the presence of surface oxides, surface impurities, or coatings. The emissivity of metals increases with the increase of surface temperature, while the emissivity of non-metals generally decreases with the increase of surface temperature. The emissivity of metals is much smaller than that of non-metals. Therefore, the following emissivity data is for reference only.
The emissivity is subject to the actual situation.

Material	Emissivity	Material	Emissivity
pitch	0.9 ... 0.98	marble	0.94
concrete	0.94	black cloth	0.98
cement	0.96	human skin	0.98
sand	0.9	froth	0.75 ... 0.8
snow	0.83	charcoal powder	0.96
glass	0.9 ... 0.95	plastic	0.85 ... 0.95
ceramic	0.9 ... 0.94	timber	0.9

Material	Emissivity	Material	Emissivity
paper	0.7 ... 0.94	brick	0.93 ... 0.98
chromic oxide	0.81	paint	0.8 ... 0.95
soil	0.92 ... 0.96	matte paint	0.97
water	0.92 ... 0.96	black rubber	0.94
ice	0.96 ... 0.98	cupric oxide	0.78
gesso	0.8 ... 0.9	iron oxide	0.78 ... 0.82
mortar	0.89 ... 0.91	textile	0.9

Palette

» Short press menu key to enter the menu setting, press menu key or trigger to forward or back to scroll to the tone setting menu interface.

» Press the confirm key again to enter the tone setting submenu.

» Press menu key or trigger to select up and down colors (iron red, rainbow, black and white).

» Press confirm key to select (single option only).

» Press power key to return to the upper-level menu.

Signs

» Short press menu keys to enter the menu setting, press menu key or trigger to forward or back and scroll to the menu interface of indicating frame setting (**Note:** Brown frame indicates the middle position, green frame indicates the lowest temperature, and red frame indicates the highest temperature. When the temperature difference in this range is very small, the red frame and the green frame will bounce on the screen).

» Press the confirm key again to enter the indicator setting submenu.

» Press the menu key or trigger to select the up and down units (brown frame, blue frame, red frame).

» Press confirm key to select (can be multiple).

» Press power key to return to the upper-level menu.

Far/Near

» Short press menu keys to enter the menu setting, press menu key or trigger for forward or back operation scroll to the near and far mode setting menu interface (**Note:** 0 ... 50cm use near mode for image mixing, > 50cm use far mode for image mixing).

» Press the confirm key again to enter the Near and Far mode setting submenu.

» Press menu key or trigger to select up or down the far or near mode.

» Press confirm key to select (single option only).

» Press power key to return to the upper-level menu.

Language

» Short press menu keys to enter the menu setting, press menu key or trigger to forward or back to scroll to the language setting menu interface.

» Press the confirm key again to enter the language setting submenu.

» Press menu key or trigger to select the language (Chinese or English).

» Press confirm key to select (single option only).

» Press power key to return to the upper-level menu.

Time/Date

» Short press menu key to enter the menu setting, press menu key or trigger to forward or back operation scroll to the time/date setting menu interface.

» Press the confirm key again to enter the time/Date setting submenu. The clock is selected by default. Press menu key or trigger to adjust the clock. After setting the clock, press confirm key to select the date and time you want to set.

» Press power key to return to the upper-level menu.

Brightness

» Short press menu key to enter the menu setting, press menu key or trigger to forward or back operation scroll to the screen brightness setting menu interface.

» Press the confirm key again to enter the screen brightness setting submenu.

» Press menu key or trigger to add or subtract screen brightness.

» Press power key to return to the upper-level menu.

Auto shut off

» Short press menu key to enter the menu setting, press menu key or trigger for forward or back operation scroll to the automatic shutdown time setting menu interface (**Note:** no operation for a period of time, the instrument will automatically shut down. Except for the close option).

» Press the confirm key again to enter the automatic shutdown time setting submenu.

» Press the menu key or trigger to select the automatic shutdown time.

» Press confirm keys to select (single option only).

» Press power key to return to the upper-level menu.

Storage

» Short press menu key to enter the menu setting, press menu key or trigger to forward or back operation to scroll to the storage location setting menu interface (Note: when the storage is SD card, if no SD card is inserted, the data is stored in the internal storage by default, when the internal storage is full, continue to keep the photo will automatically overwrite the first photo).

» Press the confirm key again to enter the storage location setting submenu.

» Press the menu key or trigger to select the storage location.

» Press confirm keys to select (single option only).

» Press power key to return to the upper-level menu.

Format

- Short press menu key to enter the menu setting, press menu key or trigger to forward or back operation scroll to the format setting menu interface (**Note:** when it is confirmed that formatting will delete all data in the current storage, please reserve the required data to other storage locations before formatting).
- Press the confirm key again to enter the Format Settings submenu.
- Press the menu key or trigger to select the format Settings.
- Press the confirm key to select. At this time, press 3 keys again to cancel the format selection; Or short press confirm key to determine the formatting operation, the instrument enters the formatting operation, the instrument shows formatting, wait for formatting to be completed (**Note:** formatting needs to wait for a few minutes, do not power off when not completed, otherwise please re-format the operation).
- Press power key to return to the upper-level menu.

Alarm

- Short press menu key to enter the menu setting, press menu key or trigger to move forward or back to scroll to the high and low temperature alarm setting menu interface.
- Press the confirm key again to enter the sub-menu of high and low temperature alarm Settings.
- Press menu key or trigger to select up and down to set high temperature alarm or low temperature alarm.
- Press confirm key to select, then press menu key or trigger to adjust to the required alarm temperature.
- Press power key to return to the upper-level menu.

Flashlight

- Short press menu key to enter the menu setting, press menu key or trigger to forward or back operation scroll to the switch LED lighting setting menu interface.
- Press menu key again to enter the LED lighting setting submenu.
- Press confirm key to turn on or off LED lighting.
- Press power key to return to the upper-level menu.

Color Mixing

- Short press menu key to enter the menu setting, press menu key or trigger to forward or back to scroll to the mixed color setting menu interface.
- Press the confirm key again to enter the tone setting submenu.
- Press menu key or trigger to select the hue up and down (full color image, black and white image, outline image).
- Press confirm key to select (single option only).
- Press power key to return to the upper-level menu.

SD CARD

Note: Please insert or remove the SD card in the off state to avoid damage to the SD card!
When all the following conditions are met, the SD card symbol will be displayed next to the battery symbol on the display. Otherwise, the SD card icon is not displayed on the display, indicating that the current storage location is internal storage:

- Insert the SD card correctly, and the SD card is in FAT32 file format, the SD card is in good contact with the card slot, and the SD card is not damaged.
- The storage location of the instrument is set to SD card

USB DATA CABLE

When connecting the computer, the instrument will prompt you to select Store only, Store and charge, and charge only. Press menu key or trigger to select as needed, and press confirm key to confirm.
Note: The computer is slow to read the SD card through this instrument, please wait patiently. It is recommended to pull out the SD card and directly insert the card reader into the computer to read.

MAINTENANCE

Clean the structural housing with a damp cloth or weakly alkaline soap. Do not use abrasive, isopropyl alcohol or solvents to clean the lens and window of the instrument housing.

DISPOSAL

For the disposal of batteries in the EU, the (EU) 2023/1542 directive of the European Parliament applies. Due to the contained pollutants, batteries must not be disposed of as household waste. They must be given to collection points designed for that purpose. In order to comply with the EU directive 2012/19/EU we take our devices back. We either re-use them or give them to a recycling company which disposes of the devices in line with law. For countries outside the EU, batteries and devices should be disposed of in accordance with your local waste regulations. If you have any questions, please contact PCE Instruments.

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