User Manual

PCE-TC 34N Infrared Thermometer

User manuals in various languages (français, italiano, español, português, nederlands, türk, polski, русский, 中文) can be found by using our

product search on: www.pce-instruments.com

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Contents

1   Safety notes

Please read this manual carefully and completely before you use the device for the first time. The device may only be used by qualified personnel and repaired by PCE Instruments personnel. Damage or injuries caused by non-observance of the manual are excluded from our liability and not covered by our warranty.

- The device must only be used as described in this instruction manual. If used otherwise, this can cause dangerous situations for the user and damage to the meter.
- The instrument may only be used if the environmental conditions (temperature, relative humidity, …) are within the ranges stated in the technical specifications. Do not expose the device to extreme temperatures, direct sunlight, extreme humidity or moisture.
- Do not expose the device to shocks or strong vibrations.
- The case should only be opened by qualified PCE Instruments personnel.
- Never use the instrument when your hands are wet.
- You must not make any technical changes to the device.
- The appliance should only be cleaned with a damp cloth. Use only pH-neutral cleaner, no abrasives or solvents.
- The device must only be used with accessories from PCE Instruments or equivalent.
- Before each use, inspect the case for visible damage. If any damage is visible, do not use the device.
- Do not use the instrument in explosive atmospheres.
- The measurement range as stated in the specifications must not be exceeded under any circumstances.
- Non-observance of the safety notes can cause damage to the device and injuries to the user.

We do not assume liability for printing errors or any other mistakes in this manual.

We expressly point to our general guarantee terms which can be found in our general terms of business.

2   Specifications

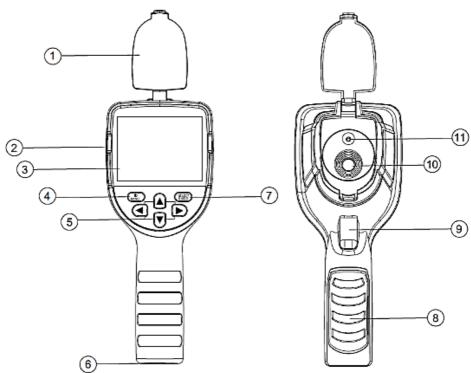|	
Measurement range	-20 ... 300 °C / -4 ... 572 °F
Resolution	0.1 °C / 0.1 °F
Measurement accuracy	±2 % of rdg. or ±2 °C / ±3.6 °F The higher value applies.
Infrared and real image resolution	320 x 240 pixels
Picture in picture	5 levels
Field of view (FOV)	35° x 26°
Depth of field of view	>0.15 m
Emissivity range	0.01 ... 1.00 ε
Frame rate	9 Hz
Wavelength	8 ... 14 µm
Focus	fixed
Colour palette	rainbow, iron, cold colours, white-black (+inverted)
Display	3.5" TFT colour display
Memory	3 GB for approx. 20,000 images
Image format	JPG
Interface	USB-C for charging and data transfer
Automatic power off	off / 5 minutes / 20 minutes
Power supply (battery)	3.7 V, 2600 mAh, type 18650
Power supply (mains adaptor)	primary: 100 ... 240 VAC, 50 / 60 Hz secondary: 5 VDC, 2 A
Operating time with battery	min. 2 hours
Menu languages	English, German Chinese, Italian
Storage conditions	-20 ... 60 °C / -4 ... 140 °F, <85 % RH, non-condensing
Environmental conditions	0 ... 45 °C / 32 ... 113 °F, <85 % RH, non-condensing
Tripod mount	1/4"
Dimensions	221 x 96 x 88 mm / 8.7 x 3.7 x 3.4"
Weight	372 g / 13 oz

*Before measuring, the meter must be acclimatised in order to maintain accuracy.

3   Delivery scope

1 x infrared thermometer PCE-TC 34N
1 x USB-C cable
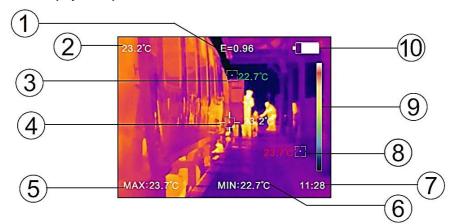1 x USB charging plug
1 x carrying case
1 x user manual

4 Device description

No.	Description
1	Protective cap
2	USB-C interface for charging and transferring the recorded measurement data
3	Display
4	On/off switch, menu key
5	Navigation keys (arrow keys)
6	Tripod connection
7	"Enter" key to select or confirm the entry
8	Battery compartment cover
9	Trigger button to take images
10	Infrared camera
11	Real camera

4.1 Display description

No.	Description
1	Set emissivity
2	Display of the temperature in the centre of the thermal image
3	Lowest temperature on the thermal image
4	Temperature in the centre of the thermal image
5	Highest temperature on the thermal image
6	Lowest temperature on the thermal image
7	Current time
8	Highest temperature on the thermal image
9	Colour scale
10	Battery status display

5 Switching the meter on and off

To switch the meter on and off, press and hold the MENU key for about three seconds. After switching on, the measurement starts immediately.
Note: After the meter has been switched on, the protective cap must be opened. Close the protective cap as soon as you switch off the meter. Before the measurement, the meter must have acclimatised.

5.1 Thermal image

The colours shown in the thermal image are not specific to a temperature. They are relative to the coldest and hottest temperature measured. The coldest and hottest spot are indicated by a red and a green dot on the display. The position for the temperature measurement in the centre of the thermal image cannot be changed.

5.2 Picture-in-picture function

To use the picture-in-picture function, use the ◄ and ► keys during the measurement. 5 levels are available.

5.3 Take a picture

To take a picture, use the trigger key. You will then be asked if you want to save the image. Select "Yes" or "No" with the navigation keys and confirm your entry with the ENTER key.

5.3.1 Transferring images to a computer

To transfer the saved images to a computer, connect the measuring device to a computer via the USB-C interface and switch it on. The meter is recognised as a mass data storage device. After the meter has been recognised by the computer, the images can be transferred directly without any software.

5.4 Lowest / highest measured value and time

To additionally display the lowest and highest measured value and the time, press the ▲ key during the measurement. The highest and lowest readings are shown with the time at the bottom of the display. Press the ▲ key again to hide this view.

6 Menu

To make settings, press the MENU key. Use the navigation keys to select functions and change parameters. Use the ENTER key to open menu items and save settings.

6.1 Picture in-picture adjustment

If the real image and the thermal image are not on top of each other, this can be changed via the item "Image registration" in the menu. The image can now be moved with the navigation keys. Confirm the entry with the ENTER key.
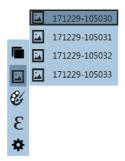
When a setting is made, it is automatically closed after six seconds.
Note: Set the picture-in-picture function in advance so that you can see both pictures equally well.

6.2 View images

To view the saved images, go to the icon in the menu. From there, the individual images can be accessed.

If an image is opened, you can use the and keys to jump to the next and previous image. Press the key to return to the menu. Press the key to resume the measurement.

The currently opened image can be deleted with the image. Before deleting, you will be asked whether you really want to delete the image. Select "Yes" or "No" with the navigation keys and confirm your entry with the key.

6.3   Change colour palette
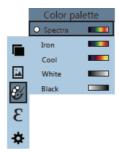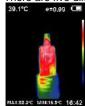
To change the colour palette, enter the menu and click on the [icon] icon. From there, any colour palette can be selected.
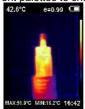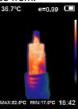
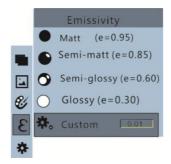

There are five different palettes to choose from:

6.4   Set emissivity

To set the emissivity, enter the menu and click on the ε icon. From there, different emissivities can be set. For faster setting, four fixed emissivities are pre-set. If necessary, a specific value can also be set.

6.4.1 Example emissivities chart

The emissivity describes the energy emission behaviour of materials. Most (90 % of typical applications) organic materials and painted or oxidised surfaces have an emissivity of 0.95 (default setting in the meter).

If you measure shiny or polished metallic surfaces, this will result in a loss of accuracy. If possible, cover the surface to be measured with temperature-resistant black tape or a thin layer of black paint. Wait a little while until the tape or paint layer has reached the same temperature as the material underneath. Now measure the temperature on the tape or painted surface.

Material	Heat emissivity	Material	Heat emissivity
Asphalt	0.90 ... 0.98	Fabric (black)	0.98
Concrete	0.94	Human skin	0.98
Cement	0.96	Leather	0.75 ... 0.80
Sand	0.90	Charcoal (powder)	0.96
Soil	0.92 ... 0.96	Lacquer	0.80 ... 0.95
Water	0.92 ... 0.96	Lacquer (matt)	0.97
Ice cream	0.96 ... 0.98	Rubber (black)	0.94
Snow	0.83	Plastics	0.85 ... 0.95
Glass	0.90 ... 0.95	Wood	0.90
Ceramics	0.90 ... 0.94	Paper	0.70 ... 0.94
Marble	0.94	Chromium oxides	0.81
Plaster	0.80 ... 0.90	Copper oxides	0.78
Mortar	0.89 ... 0.91	Iron oxides	0.78 ... 0.82

Note: This chart is for guidance only.

7 More settings

Under the item Settings in the menu

Menu item	Setting option
Automatic power off	Setting of the automatic power off. Here you can select when the meter switches itself off. A time between 5 and 20 minutes is possible. If required, this function can also be switched off.
Intensity (illuminance of the display)	Adjustment of the illuminance of the display in three steps
Language	The menu language can be set here. You can choose between English, Chinese, Italian and German.
Unit	The temperature unit can be set here. You can choose between °C and °F.
Time format	The time format can be set here. 12 hours / 24 hours are possible
Time setting	The date and time can be set here.
Spot	Here, the measurement of the temperature in the middle of the thermal image can be switched on and off.
Version	The version number of the meter can be read out here.

8 Charging the battery

As soon as the battery indicator shows a flat battery ![battery icon], it must be charged so that the meter can continue to be used.

To charge the battery, connect the meter to a USB charging station via the USB-C interface. As soon as the meter is connected, this is indicated by the battery status display ![battery icon]. A 5 V DC, 2 A power supply is recommended here. After charging, the battery lasts approx. 3 hours.

As soon as the display shows that the battery is fully charged ![battery icon], charging must be stopped.
Note: The battery must not be continuously connected to the charging station. This could damage the battery. If the meter will not be used for a longer period of time, the battery should be charged in between. At the latest after three months of inactivity, the battery should be charged for approx. 2 hours.

9   Troubleshooting

Error	Cause	Solution
The meter cannot be switched on.	The battery is not inserted.	Insert a rechargeable battery. Use an 18650 type battery.
	The battery is discharged.	Charge the battery. For more information, see 8 Charging the battery .
The meter switches off automatically.	The battery is discharged.	Charge the battery. For more information, see 8 Charging the battery .
	An automatic power off has been set	Disable automatic power off.
No image	The protective cap is not opened.	Open the protective cap.

10   Contact

If you have any questions, suggestions or technical problems, please do not hesitate to contact us. You will find the relevant contact information at the end of this user manual.

11   Disposal

For the disposal of batteries in the EU, the 2006/66/EC 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.

www.pce-instruments.com

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