

PCE  
Inst.



English

# User Manual

Infrared Thermometer PCE-660



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](http://www.pce-instruments.com)

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## 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.
- The meter must not be immersed in water.
- 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, solvents or volatile liquids.
- 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.
- Do not point the laser beam at yourself or other people / animals. Avoid eye contact with the laser beam, either direct or from a reflective surface.
- 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.

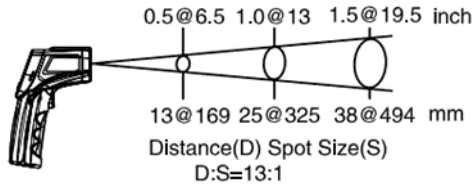
If you have any questions please contact PCE Instruments. The contact details can be found at the end of this manual.

## 2 Features

- Quick and easy measurement
- Precise non-contact measurement
- Built-in laser pointer increases the target accuracy
- Colour LCD
- Adjustable emissivity: 0.1 ... 1.0
- Automatic measurement range selection with resolution 0.1 °C/0.1 °F
- Hold function
- Auto Power Off function
- Selectable units
- D:S = 13:1

### 3 Field of view / distance to spot ratio

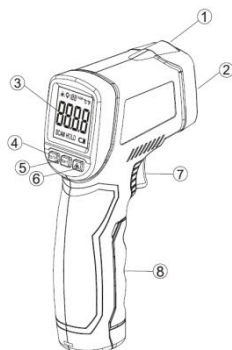
The meter's field of view is 13:1, for example, if the meter is 13 inches from the target spot, the diameter of the target must be at least 1 inch. Other distance ratios are shown below in the field of view diagram.



### 4 Technical specifications

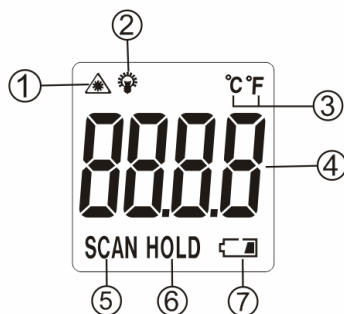
Measurement range	-50 ... 380 °C / -58 ... 716 °F -50 ... 580 °C / -58 ... 1076 °F
Resolution	0.1 °C/°F
Accuracy	-50 ... 0 °C / -58 ... 32 °F: ±4 °C / 7 °F Above 0 °C: ±2 % from reading or ±2 °C / 3.6 °F, whichever is greater
Field of view / distance to spot ratio	D:S = approx. 13:1 (D=distance, S=spot)
Response time	<1 s
Emissivity	Adjustable from 0.1 ... 1.0
Spectral response	8 ... 14 μm
Over-range indication	"HI" indicates that upper temperature limit is exceeded "LO" indicates lower temperature limit is fallen below
Temperature display	Auto display, "-" means negative, positive value shown w/o sign
Diode laser	Output <1mW, 630 ... 670nm, class 2
Automatic Power Off	Meter shuts off automatically after 15 seconds of inactivity
Operating temperature	0 ... 50 °C / 32 ... 122 °F
Storage temperature	-20 ... 60 °C / -4 ... 158 °F
Operating humidity	10 ... 95 % RH
Storage humidity	<80 % RH
Power supply	9 V battery
Weight	121 g
Dimensions (H x W x D)	144.6 x 75.0 x 38.5 mm

## 5 Device description



- ① Laser pointer
- ② IR sensor
- ③ LC display
- ④ Unit key
- ⑤ SET key
- ⑥ Laser/backlight key
- ⑦ Trigger button
- ⑧ Battery compartment cover

### Display



- ① Laser icon
- ② Backlight icon
- ③ Temperature unit (°C/°F)
- ④ Reading
- ⑤ Measurement icon
- ⑥ Hold icon
- ⑦ Battery status indicator

## 6 Delivery contents

- 1 x infrared thermometer PCE-660
- 1 x 9 V battery
- 1 x user manual

## 7 Operation

### 7.1 How to make a measurement

- ① Hold the meter by its handle grip and point it towards the surface to be measured.
- ② Pull and hold the trigger button to turn on the meter. The "SCAN" icon will appear and the measurement will start.
- ③ The surface temperature being tested will be displayed on the LCD screen.
- ④ Release the trigger. The "HOLD" icon will appear and the reading will be held for several seconds. The meter will automatically shut off after 15 seconds.

#### Note:

If the meter is used in an environment with wide temperature changes, allow at least 30 minutes for the meter to adjust.

## 7.2 Settings

Power on the meter, press and hold the SET key until the **emissivity** icon appears on the LCD screen, then release the button. To adjust the emissivity, press the unit key to increase and the laser/backlight key to decrease the emissivity value.

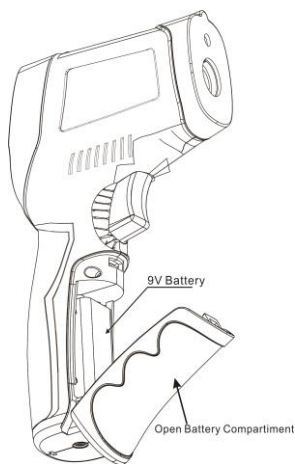
In measurement mode, press the unit key to switch the **temperature unit** from °C to °F or vice versa.

To power on or disable the **laser pointer**, press the laser/backlight key.

## 7.3 Battery replacement

When the low battery icon  appears, replace the battery.

Open the battery compartment, replace the 9 V battery and close the battery compartment cover. Observe correct polarity.



## 8 Further information

### 8.1 Field of view

- The object under test should be larger than the spot size calculated by the field of view diagram.
- The smaller the target object is, the closer the meter should be to it for accurate measuring.
- When accuracy is critical, make sure the target is at least twice as large as the spot size.

### 8.2 Distance and spot size

As distance (D) from the object increases, the spot size (S) of the area measured by the unit should become larger.

### 8.3 Locating a hot spot

To find a hot spot, first aim the thermometer at the area around the target, then scan up and down until the hot spot is located.

### 8.4 Tips

- Not recommend for measuring shiny or polished metal surfaces like stainless steel, aluminium, etc.
- You cannot make measurements through transparent surfaces such as glass.
- If the surface of the object under test is covered with frost, oil, grime, etc., clean it before making a measurement.

## 9 Emissivities

<b>Substance</b>	Asphalt	Concrete	Marble	Human skin	Ice	Cloth(black)	Aluminium
<b>Emissivity</b>	0.95	0.95	0.94	0.98	0.98	0.98	0.30
<b>Substance</b>	Rubber	Frozen food	Timber	Carbon	Brick	Plastic	Lacquer
<b>Emissivity</b>	0.95	0.90	0.94	0.85	0.90	0.85 ... 0.95	0.80 ... 0.95
<b>Substance</b>	Ceramic	Hot food	Fat-lute	Copper	Snow	Plaster	Glass
<b>Emissivity</b>	0.95	0.93	0.94	0.50	0.90	0.80 ... 0.90	0.90 ... 0.95
<b>Substance</b>	Leather	Water	Textiles	Lead	Sand	Paper	Iron oxides
<b>Emissivity</b>	0.95	0.93	0.94	0.50	0.90	0.70 ... 0.94	0.78 ... 0.82



## 10 Warranty

You can read our warranty terms in our General Business Terms which you can find here: <https://www.pce-instruments.com/english/terms>.

## 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.







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