

USER MANUAL

INFRARED THERMOMETER

PCE-770



ENGLISH



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

SAFETY INFORMATION

Thank you for purchasing the Infrared Thermometer PCE-770 (hereby known as the **Thermometer**). Please read this instruction manual carefully before use. Keep for future reference.

The Thermometer complies with the following standard:
EN 60825-1:2014 Laser Standard

WARNING!

To avoid personal injury please adhere to the following guidelines:

- » DO NOT point laser directly at eye or indirectly off reflective surfaces.
- » DO NOT operate around steam, dust, smoke, etc. Measurements may not be accurate in the presence of these conditions.
- » The Thermometer can not accurately measure transparent surfaces such as glass or plastic.
- » KEEP OUT OF REACH OF CHILDREN.



Risk of danger. Important Information. See manual for details.



The product complies with the applicable European directives and an evaluation method of conformity for these directives was done.

CAUTION

To avoid damage to the Thermometer protect from the following:

- » Thermal shock can result from abrupt changes in ambient temperature. Allow 30 minutes for the Thermometer to stabilize to surrounding conditions.
- » Avoid any electromagnetic fields (EMF) caused by electric welders, induction heaters, arc welders, etc.
- » Do not place or leave the Thermometer on or near high temperature objects.
- » Keep the Thermometer clean: See MAINTENANCE.

MAINTENANCE

- » Cleaning the lens: Blow off loose particles using clean compressed air. Gently wipe surface with a moist cotton cloth.
- » Cleaning the case: Use water (soap optional) on a damp sponge or cloth.
- » Remove batteries and store when Thermometer will not be used for an extended period of time.

CAUTION

To avoid damaging the Thermometer:

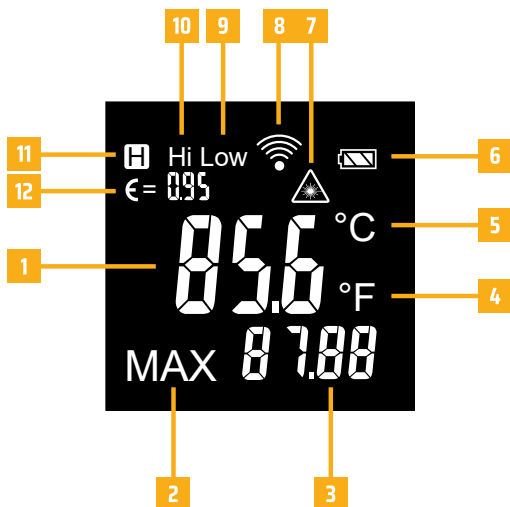
- » DO NOT use solvent to clean lens.
- » DO NOT submerge in water.

FEATURES

- 1 - Alarm Indicator
- 2 - LCD Display
- 3 - Vaule down/ Laser control
- 4 - MODE Button
- 5 - Value up / °C, °F Conversion
- 6 - Infrared Sensor
- 7 - Laser Sight
- 8 - Trigger
- 9 - Battery Cover



- 1 - Primary Temperature Display
- 2 - Function Indicator:
MAX (Maximum Value)
- 3 - MAX Display Value
- 4 - °F (Ifahrenheit) Temp. Unit
- 5 - °C (Celsius) Temp. Unit
- 6 - Low Baltery Indicator
- 7 - Laser Symbol **On**
- 8 - Measurement Indicator
- 9 - Low Limit Alarm
- 10 - High Limit Alarm
- 11 - Data Hold
- 12 - Emissivity Setting



OPERATING INSTRUCTIONS

Insert 2x AAA 1.5V batteries into Thermometer. Pull the Trigger on the Thermometer to measure surface temperature. The unit is equipped with a laser which is used for aiming only.

The MODE Button

The MODE button is used to access the Emissivity, Hold, Laser, Temperature Unit, High Limit and Low Limit Alarm features.

Setting the HIGH LIMIT ALARM

- » Press and Hold MODE for 2 seconds.
- » Press MODE until **Hi** is showing on the LCD screen.
- » Press UP/DOWN to set alarm to desired high temperature value.
- » Press and hold UP/DOWN to quickly increase or decrease the set value.
- » Press Trigger or press and hold MODE to set selection.

Setting the LOW LIMIT ALARM

- » Press and Hold MODE for 2 seconds.
- » Press MODE until **Low** is showing on the LCD screen.
- » Press UP/DOWN to set alarm to desired low temperature value.
- » Press and hold UP/DOWN to quickly increase or decrease the set value.
- » Press Trigger or press and hold MODE to set selection.

Setting the EMISSIVITY

- » Press and Hold MODE for 2 seconds.
- » Press MODE until **Emissivity** is flashing on the LCD screen.
- » Press UP/DOWN to set emissivity to desired value.
- » Press and hold UP/DOWN to quickly increase or decrease the set value.
- » Press Trigger or press and hold MODE to set selection.

Setting TEMPERATURE UNIT

Short Press °C/°F to conversion °C/°F.

EXITING MODE SETTINGS

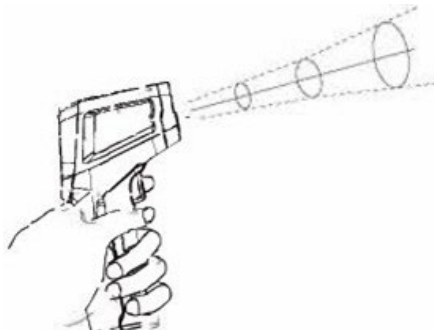
Press Trigger or press and hold MODE.

Turning the laser ON/OFF

Press MODE button to turn laser on or off. The **Laser Symbol** will appear on the LCD screen when it is enabled.

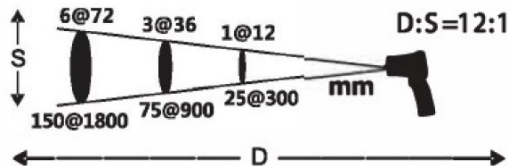
Measuring NON-CONTACT TEMPERATURE

- » Aim Thermometer at the surface of the object and hold in the Trigger to read continuous temperature measurements.
- » Release the Trigger when desired measurement is obtained and result will stay displayed on the LCD screen.
- » Press and hold the Trigger to continuously measure the temperatures of desired surface area. When Trigger is released, the highest measured temperature will be displayed as MAX value on the LCD screen.
- » When the measured surface temperature is greater than the High Limit Alarm temperature setting or less than the Low Limit Alarm setting previously set, the user will be alerted by the illumination of the RED Alarm Indicator on the Thermometer.



Distance and Spot size (D:S Ratio)

- » As the distance (D) from the target surface being measured increases, the spot size (S) of the area being measured becomes larger.
- » The meter's field of view is 12:1. See FIELD OF VIEW below.



Field of view

The device's field of view is 12:1 (Ex. If the Thermometer is 12 in. from the surface (spot), the diameter of the target must be greater than 1 in.). When accuracy is critical, make sure the target is at least twice as large as the spot size. The smaller the target, the closer the Thermometer should be to it when being measured. In general, measurements should be made as close to the target as possible.

EMISSIONITY

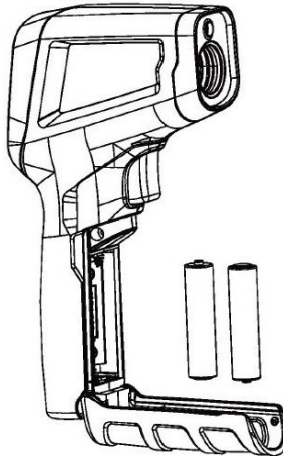
Emissivity is the measurement of a material's ability to radiate heat. The majority of organic materials and painted or oxidized surfaces have an emissivity between 0.85 and 0.98. The Thermometer emissivity is 0.95 by default. While measuring, set the Emissivity on the Thermometer to match the object being measured. Refer to Table below for typical emissivity settings.

Measured Surface	Material	Emissivity
Aluminium	Oxidized	0.2 ... 0.4
	A3003 Alloy (Oxidized)	0.3
	A3003 Alloy (Roughened)	0.1 ... 0.3
Brass	Polished	0.3
	Oxidized	0.5
Copper	Oxidized	0.4 ... 0.8
	Electrical Terminal Blocks	0.6
Hastelloy		0.3 ... 0.8
Ferro-Nickel	Oxidized	0.7 ... 0.95
	Abrasive Blasting	0.3 ... 0.6
	Electro Polishing	0.15
Iron	Oxidized	0.5 ... 0.9
	Rust	0.5 ... 0.7
Iron, Cast	Oxidized	0.6 ... 0.95
	Unoxidized	0.2
	Molten	0.2 ... 0.3
	Passivated	0.9
Lead	Roughened	0.4
	Oxidized	0.2 ... 0.6
Molybdenum	Oxidized	0.2 ... 0.6
Nickel	Oxidized	0.2 ... 0.5
Platinum	Black	0.9
Steel	Cold-Rolled	0.7 ... 0.9
	Ground Sheet	0.4 ... 0.6
	Polished Sheet	0.1
Zinc	Oxidized	0.1

Measured Surface	Material	Emissivity
Asbestos		0.95
Asphalt		0.95
Basalt		0.7
Carbon		0.8 ... 0.9
Graphite	Unoxidized	0.7 ... 0.8
Silicon Carbide		0.9
Ceramics		0.95
Clay		0.95
Concrete		0.95
Cloth		0.95
Glass		0.85
Gravel		0.95
Plaster		0.8 ... 0.95
Ice		0.98
Limestone		0.98
Paper		0.95
Plastics		0.95
Soil		0.9 ... 0.98
Water		0.93
Timber		0.9 ... 0.95

CHANGING THE BATTERY

When the Low Battery Symbol appears on the LCD screen promptly replace the Thermometer's batteries. Carefully open the battery compartment and insert 2x AAA 1.5V batteries as shown below:



CAUTION

All batteries lose their charge over time, and dead batteries will eventually leak if care is not taken. Battery leaks can lead to respiratory, eye, and skin irritation.

To prevent corrosion:

- » DO NOT mix different types (ie. Alkaline, Rechargeable, Zinc-Carbon, etc.) of batteries.
- » DO NOT mix old and new batteries, or batteries of different brands.
- » DO NOT recharge non-rechargeable batteries.
- » Replace entire set of batteries when required.
- » Promptly remove dead batteries from Thermometer. Dispose of batteries properly.
- » Remove batteries from the Thermometer when it is not intended to be used for extended periods of time. Store batteries separately from the device, and periodically check the expiration dates.

SPECIFICATIONS

Infrared Measurement Range	-50°C ... 400°C (-58°F ... 752°F)
	-50°C ... 600°C (-58°F ... 1112°F)
Emissivity	0.1 ... 1.0
Field of View (D:S Ratio)	12:1
Spectral Response	8μ ... 14μ
Laser Pointer	Class 2
	Output < 1mW power
	Wavelength: 620nm ... 690nm
Response Time	<0.5 second
Automatic Power Off	50 seconds
Operating Temperature	0°C ... 40°C / 32°F ... 104°F
Storage Temperature	-10°C ... 60°C / 14°F ... 140°F
Power Supply	2 x AAA 1.5V Batteries
Accuracy	-50°C ... 0°C (-58°F ... 32°F): ± 3°C 0°C ... 400°C (31°F ... 752°F): ± 1.5% of reading + 2°C/4°F
	-50°C ... 0°C (-58°F ... 32°F): ± 3°C 0°C ... 600°C (31°F ... 1112°F): ± 1.5% of reading + 2°C/4°F
Weight	Approx. 108g / 3.8oz
Dimensions	150 x 77 x 40mm / 5.9 x 3.0 x 1.6 in

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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