



Tursdale Technical Services Ltd  
Unit N12B  
Tursdale Business Park  
Co. Durham  
DH6 5PG  
United Kingdom  
Phone: +44 (0) 191 377 3398  
Fax: +44 (0) 191 377 3357  
[info@tursdaletechnicalservices.co.uk](mailto:info@tursdaletechnicalservices.co.uk)  
<http://www.industrial-needs.com/>

## Manual PCE-880 pyrometer



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**Features:**

- Precise non-contact measurements
- Built-in laser pointer
- °C / °F switchable button
- Automatic Data Hold & Auto power off
- The meter at 8 inches away measure 1 inch target
- Backlit LCD display

**Wide range application:**

Food preparation, Safety and Fire inspectors, Plastic molding, Asphalt, Marine and screen printing, measure ink and dryer temperature, Diesel and Fleet maintenance.

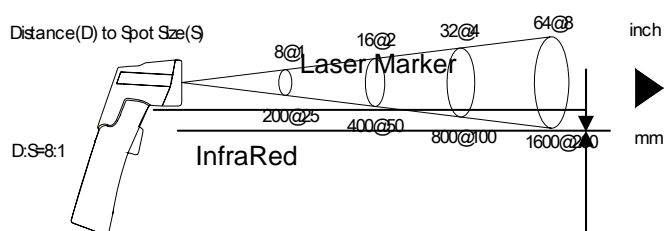


Fig: 1

16mm

**1. SAFETY**

- ! Use extreme caution when the laser beam is turned on.
- ! Do not let the beam enter your eye, another person's eye or the eye of an animal.
- ! Be careful no to let the beam on a reflective surface strike your eye.
- ! Do not allow the laser light beam impinge on any gas which can explode.

**2. GENERAL SPECIFICATIONS**

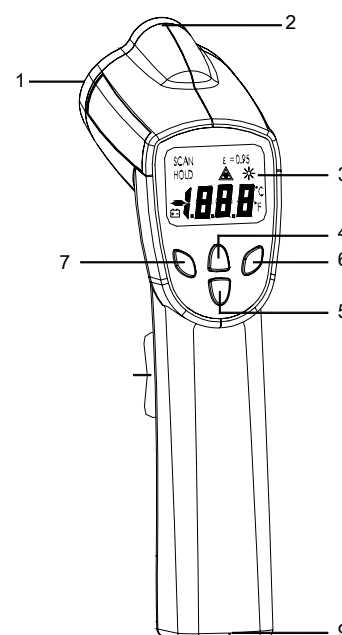
<b>DISPLAY</b>	3-1/2 digit (1999count) LCD with backlighting
<b>MEAS. RANGES</b>	-20°C to 270°C / -4°F to 518°F
<b>SAMPLE RATE</b>	1 sec. Approx
<b>Spectral Response</b>	6~14um
<b>POWER OFF</b>	Automatic shut off after 7 seconds

<b>OPERATING TEMP.</b>	0°C to 50°C (32°F to 122°F)
<b>OPERATING RH%</b>	Max. 80% RH
<b>POWER SUPPLY</b>	9V battery
<b>WEIGHT</b>	180g.
<b>SIZE</b>	159 x 79 x 57.2mm

<b>Resolution</b>	1°C / °F
<b>Ranges</b>	-20°C to 270°C / -4°F to 518°F
<b>Accuracy</b>	±2% of reading or ±2°C / ±4°F
<b>Note</b>	Accuracy is given at 18 oC to 28 oC (64 oF to 82 oF), less than 80 % RH Accuracy specified is for emissivity of 0.95
<b>Emissivity settings</b>	0.95 fixed
<b>Distance Factor</b>	D : S= Approx. 8:1 (D=distance, S=spot)

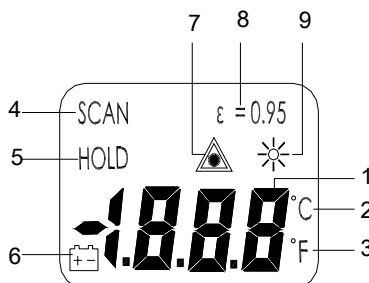
### 3. FRONT PANEL DESCRIPTION

1. IR sensor
2. Laser pointer beam
3. LCD Display
4. °F select key
5. °C select key
6. Backlight select key
7. Laser key
8. On/Hold key (Measuring)
9. Battery compartment



### 4. INDICATOR

1. Digital readout
2. Temperature °C (Celsius)
3. Temperature °F (Fahrenheit)
4. Measuring indication
5. Data Hold
6. LOW battery indicator
7. Laser Point
8. Fixed emissivity (0.95)
9. Backlit

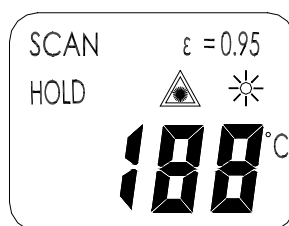


### 5. MEASUREMENT OPERATION

#### A. POWER ON/OFF

The meter automatically powers when the key is pressed. Pull the **ON/HOLD** trigger key to take a reading. Read the measured temperature on the LCD. (Fig. A) The meter powers OFF automatically approximately 7 seconds after the **ON/HOLD** trigger key is released.

Fig.A



### B. SELECTING UNITS(°C/°F)

Select temperature units (degrees Celsius or Fahrenheit) by first pressing the **ON/HOLD** key and then pressing the **UNIT** key. The units will be seen on the LCD. (Fig. B)

Presses the **UNIT** key again to switch the unit (scale) again. See Fig. C.

Fig.B

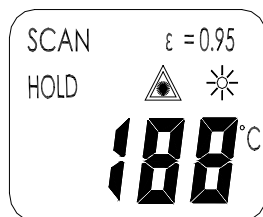
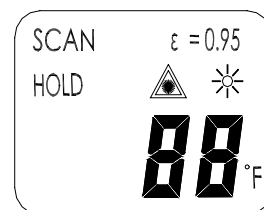


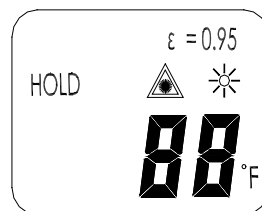
Fig.C



### C. DATA HOLD

This meter automatically holds the last temperature reading on the LCD for seven seconds after the **ON/HOLD** key is released. No extra key presses are necessary to freeze the displayed reading. (Fig. D)

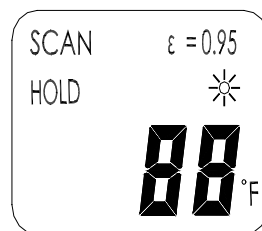
Fig.D



### D. BACKLITE LCD

Select backlight by first pressing the **ON/HOLD** key and then pressing the Backlight key. Repeat the procedure to turn the backlight OFF. (Fig.E)

Fig.E



### E. LASER POINTER

To turn the laser pointer ON, press the **LASER** key while pressing the **ON/HOLD** key. (Fig. F) Press the **LASER** key again to turn the laser OFF. (Fig. G)

Fig.F

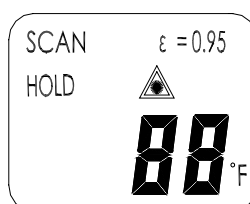
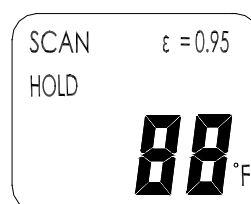


Fig.G



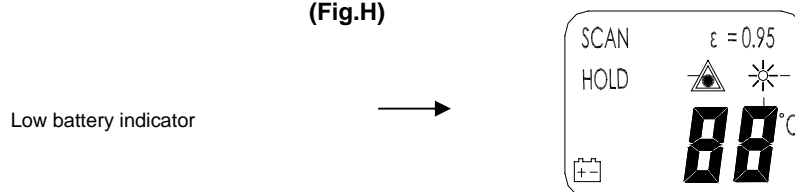
### F. MEASUREMENT CONSIDERATIONS

Holding the meter by its handle, point the IR Sensor toward the object whose temperature is to be measured. The meter automatically compensates for temperature deviations from ambient temperature. Keep in mind that it will take up to 30 minutes to adjust to wide ambient temperatures are to be measured followed by high temperature measurements, some time (several minutes) is required after the low (and before the high) temperature measurements are made. This is a result of the cooling process which must take place for the IR sensor.

## 6. BATTERY REPLACEMENT

1. As battery power is not sufficient, LCD will display "BAT" replacement with one new battery type 9V is required.
2. Open battery cover, then take out the battery from instrument and replace with a new 9-Volt battery and place the battery cover back.

(Fig.H)



## 7. Notes:

- **How it Works**  
Infrared thermometers measure the surface temperature of an object. The unit's optics sense emitted, reflected, and transmitted energy, which is collected and focused onto a detector. The unit's electronics translate the information into a temperature reading which display on the unit is. In units with a laser, the laser is used for aiming purposes only.
- **Field of View**  
Make sure that the target is larger than the unit's spot size. The smaller the target, the closer you should be to it. When accuracy is critical, make sure the target is at least twice as large as the spot size.
- **Distance & Spot Size**  
As the distance (D) from the object increases, the spot size (S) of the area measured by the unit becomes larger. See: **Fig: 1**.
- **Locating a hot Spot**  
To find a hot spot aim the thermometer outside the area of interest, then scan across with an up and down motion until you locate hot spot.
- **Reminders**
  1. Not recommended for use in measuring shiny or polished metal surfaces (stainless steel, aluminium, etc.). See **Emissivity**
  2. The unit cannot measure through transparent surfaces such as glass. It will measure the surface temperature of the glass instead.
  3. Steam, dust, smoke, etc., can prevent accurate measurement by obstructing the unit's optics.
- **Emissivity**  
Most (90% of typical applications) organic materials and painted or oxidized surfaces have an emissivity of 0.95 (pre-set in the unit). Inaccurate readings will result from measuring shiny or polished metal surfaces. To compensate, cover the surface to be measured with masking tape or flat black paint. Allow time for the tape to reach the same temperature as the material underneath it. Measure the temperature of the tape or painted surface.

### Emissivity VALUES

Substance	Thermal emissivity	Substance	Thermal emissivity
Asphalt	0.90 to 0.98	Cloth (black)	0.98
Concrete	0.94	Human skin	0.98
Cement	0.96	Lather	0.75 to 0.80
Sand	0.90	Charcoal (powder)	0.96
Herat	0.92 to 0.96	Lacquer	0.80 to 0.95
Water	0.92 to 0.96	Lacquer (matt)	0.97
Ice	0.96 to 0.98	Rubber (black)	0.94
Snow	0.83	Plastic	0.85 to 0.95
Glass	0.90 to 0.95	Timber	0.90
Ceramic	0.90 to 0.94	Paper	0.70 to 0.94
Marble	0.94	Chromium oxides	0.81
Plaster	0.80 to 0.90	Copper oxides	0.78
Mortar	0.89 to 0.91	Iron oxides	0.78 to 0.82
Brick	0.93 to 0.96	Textiles	0.90

In this direction will find a vision of the measurement technique:  
<http://www.industrial-needs.com/measuring-instruments.htm>

**NOTE:** "This instrument doesn't have ATEX protection, so it should not be used in potentially explosive atmospheres (powder, flammable gases)."