PeakTech 4970 3 in 1 Infrared Thermometer Instruction Manual

4970 3 in 1 Infrared Thermometer Instruction Manual

Contents

Safety precautions

This product complies with the requirements of the following directives of the European Union for CE conformity: 2014/30/EU (electromagnetic compatibility), 2011/65/EU (RoHS).
We herewith confirm that this product meets the essential protection standards, which are given in directions of council for adaptation of the administration regulations for UK of Electromagentic Compatibility Regulations 2016 and the Electrical Equipment (safety) regulations 2016.

Pollution degree 2.
Damages resulting from failure to observe these safety precautions are exempt from any legal claims whatever.

- Comply with the warning labels and other info on the equipment.
- Do not subject the equipment to direct sunlight or extreme temperatures, humidity or dampness.
- Do not operate the equipment near strong magnetic fields (motors, transformers etc.).
- Allow the equipment to stabilize at room temperature before taking up measurement (important for exact measurements).
- Do not operate the meter before the cabinet has been closed.
- The measurement instrument is not to be to operated unattended.
- Do not subject the equipment to shocks or strong vibrations.
- Keep hot soldering irons or guns away from the equipment.
- Replace the battery as soon as the battery indicator “BAT” appears. With a low battery, the meter might produce false reading.
- Fetch out the battery when the meter will not be used for long period.
- Periodically wipe the cabinet with a damp cloth and mid detergent.
  Do not use abrasives or solvents.
- The meter is suitable for indoor use only
- Opening the equipment and service – and repair work must only be performed by qualified service personnel
- Do not store the meter in a place of explosive, inflammable substances.

- Do not place the equipment face-down on any table or work bench to prevent damaging the controls at the front.
- Do not modify the equipment in any way
- Measuring instruments don’t belong to children hands.-

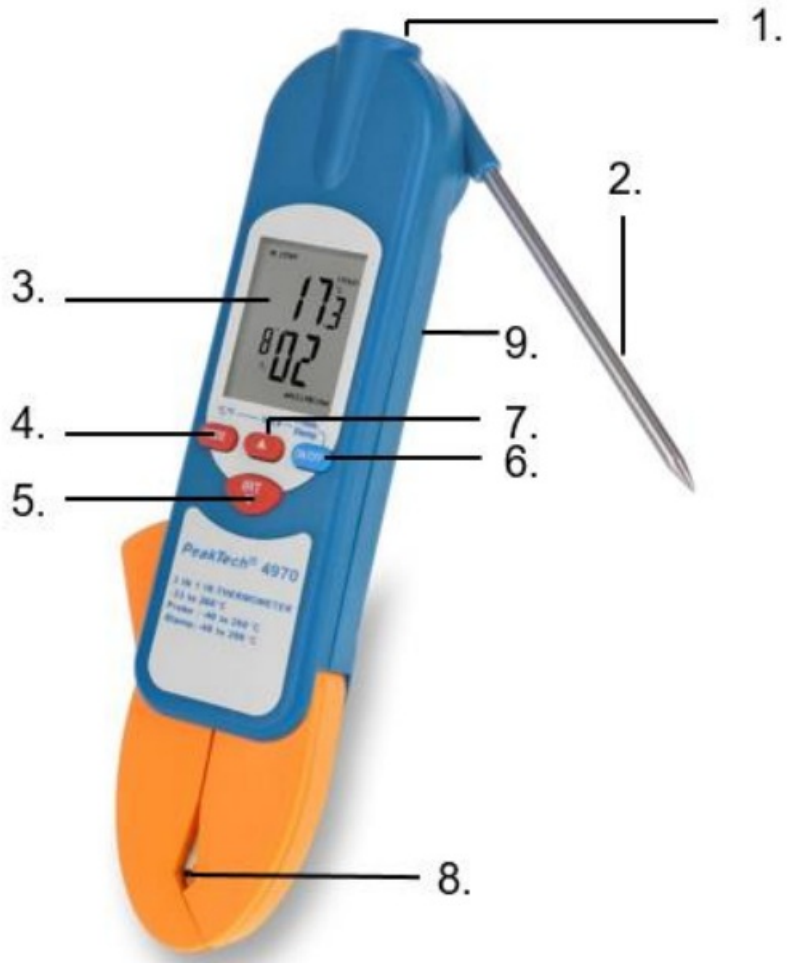
Cleaning the cabinet
Prior to cleaning the cabinet, withdraw the mains plug from the power outlet.
Clean only with a damp, soft cloth and a commercially available mild household cleanser. Ensure that no water gets inside the equipment to prevent possible shorts and damage to the equipment.

Features

- User selectable °C or °F
- Infrared measuring function
- User selectable Probe or Clamp measuring
- Data Hold
- Overrange indication
- Automatic Power Off
- Emissivity Digitally adjustable from 0,10 to 1,00
- MAX,MIN ,LOCK modes
- Resolution 0,1ºC (0,1ºF)

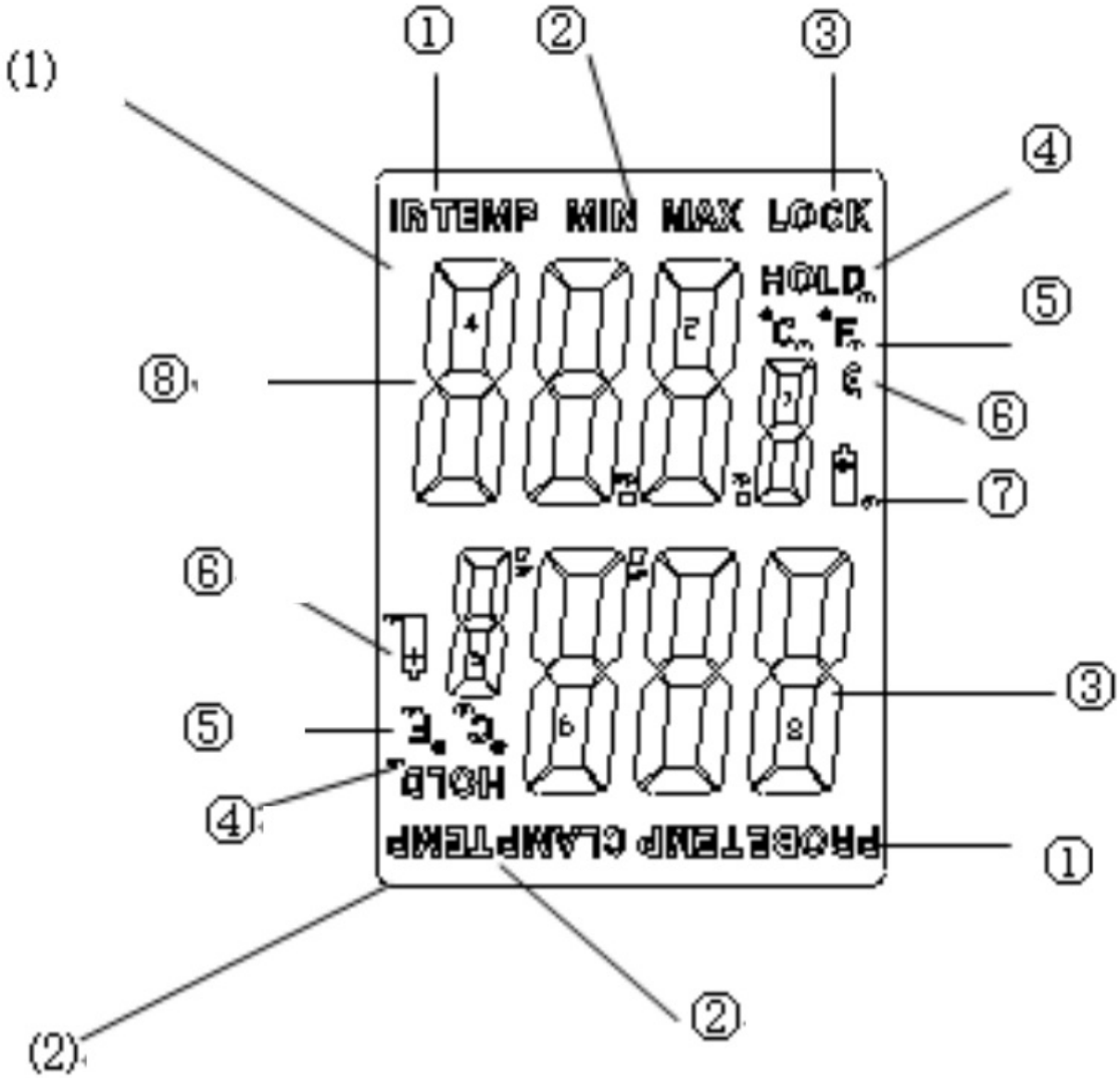
2.1. Wide Range Application
Food preparation, Safety inspectors, Plastic molding, Asphalt, Marine and Screen printing, measure ink and Dryer temperature, HVAC/R, Diesel and Fleet maintenance.

Front Panel description



1. IR-sensor
2. Probe Temperatur-sensor
3. LCD Display
4. MODE/°C/°F button
5. IR-Measurement button
6. Power ON/OFF of Probe/Cla
7. ▲/HOLD button
8. Clamp Temperature-sensor
9. Battery cover

3.1. Indicators



IR Temperature indication

1. IR Measuring indication
2. max/min indication
3. lock symbols
4. Data hold
5. symbol °C/°F
6. Symbols for EMS
7. Low battery indication
8. Current temperature value

Probe/Clamp Temperature indication

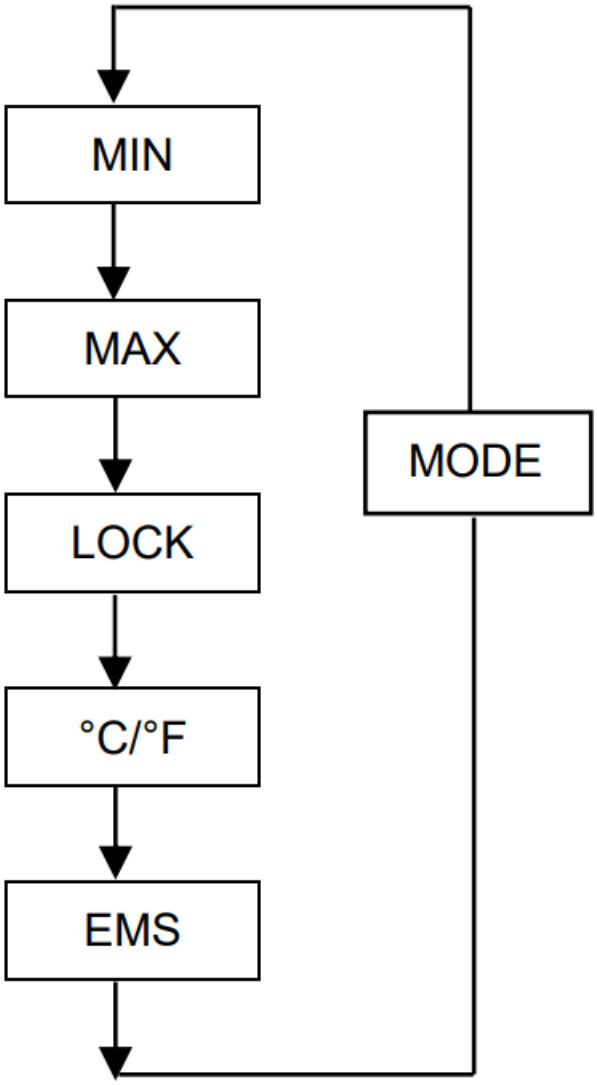
1. Probe Measuring indication
2. Clamp Measuring indication
3. Current temperature value
4. Data hold

5. °C/°F-symbol
6. Low battery indication

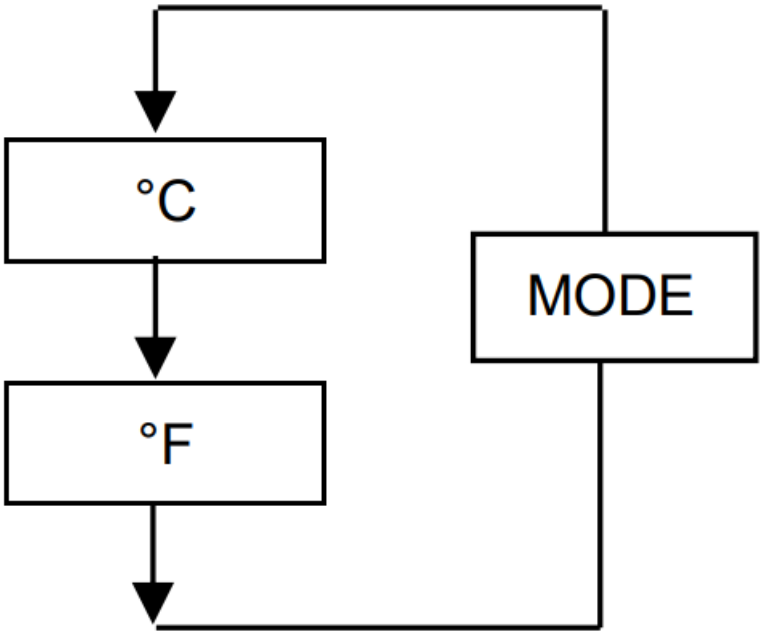
3.3. MODE Button Function

The infrared thermometer measures Maximum (MAX), Minimum (MIN). Each time take a reading. This data is stored and can be recalled with the MODE button until a new measurement is taken.
When the trigger is pulled again, the unit will begin measuring in the last mode selected.
Pressing the MODE button also allows you to access the Emissivity (EMS), Each time you press MODE, you advance through the mode cycle.
The diagram shows the sequence of functions in the MODE cycle.

IR-Temperature measurement



Probe-Clamp-Temperature measurement



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 temperature changes. When low 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.

Non-Contact IR Measurement Operation

5.1. Power ON/OFF

1. Press the IRT key to take a reading. Read the measured temperature on the LCD.
2. The meter powers OFF automatically approximately 15 seconds after the IRT key is released.

5.2. Selecting temperature units (°C/°F)

1. Infrared measuring function
   * press IRT-button
   * press MODE-button until the °C or °F symbol is flashing
   * press IRT-button again and the temperature unit is selected
2. temperature measuring function for probes
   * Press ON/OFF-button to switch on the unit
   * press MODE-button to select the temperature unit

5.3. Data Hold

1. Infrared measuring function
   * Switch-on the meter by pressing the IRT-button
   * This meter holds the last temperature reading on the LCD for approx 15 seconds after the IRT-button is

released.

2. Temperature measuring function for probes

   * press ON/OFF-button to switch-on the meter

   * During measurement press “arrow”-button

   * the reading will be frozen

   * Press “arrow”-button again to exit and resume reading.

5.4. Lock-Mode

The LOCK mode is particularly useful for continuous monitoring of temperatures. To utilize this thermometer’s LOCK mode. firstly turn the instrument on by pressing the “IRT” button, release the “IRT” button to hold measuring data. Then press the “MODE” button three times for the LOCK mode function. The “LOCK” icon will flash, then press “IRT” button to confirm the LOCK measurement mode. The thermometer will continuously display the temperature.

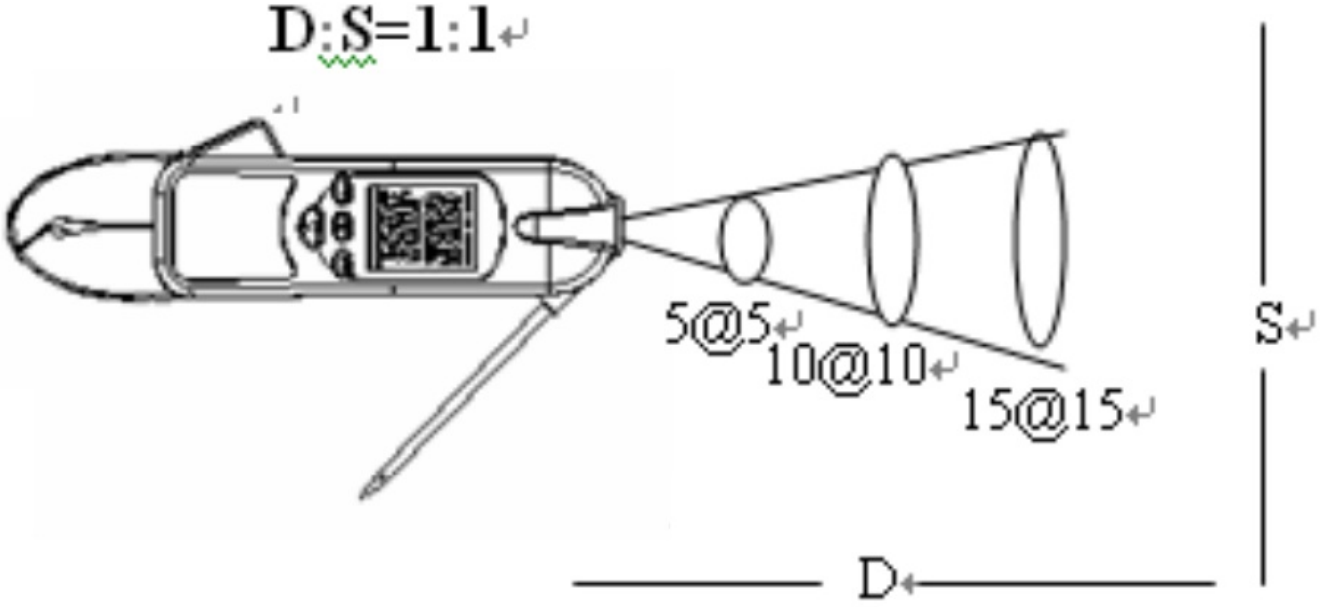
5.5. Emissivity Adjustment Mode

The Emissivity Adjustable Mode useful for adjusting the emissivity.

Firstly turn the instrument on by pressing the “IRT” button, release the “IRT” button to hold measuring data. Then press the “MODE” button five times for the Emissivity Adjustable Mode function. Press the “▲” button or “IRT” button to adjust the 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.

5.6 Description of the distance to spot size



D = Distance (spot size depends on distance to the object) 1 : 1

S = diameter of the spot center

Technical Specifications

IR Temp. range	-35°C … +260°C (-31°F … 500°F)
IR Response Time	< 500 ms
Accuracy	± 2% of ± 2°C (± 4°F)
Optical Resolution	1 : 1 distance to spot size
Emissivity	adjustable 0,1 ~ 1,00
Probe Temp. range	-40°C … 260°C (-40°F … 500°F)
Clamp Temp. range	-40°C … 200°C (-40°F … 392°F)
Accuracy	± 1,5% of reading ± 2°C (± 4°F)
Resolution	0,1°C (0,1°F)
Overrange Indication	Display "—-"
Operating Temperature	0°C … 50°C
size (WxHxD)	52 x 183 x 25 mm
weihgt	103 g

Note!
Accuracy is given at 18°C to 28°C (64°F to 82°F), less than 80% R. H.
Field of view: Make sure, that the target is larger than the unit´s spot size. The smaller the target, the closer your should be to it. When accuracy is critical, make sure, that the arget is at least twice as large as the spot size..

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 is display on the unit.

7.1. 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.

7.2. 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.

7.3. 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.

NOTE!

1. The unit cannot measure through transparent surfaces such as glass. It will measure the surface temperature of the glass instead.
2. Steam, dust, smoke, etc. can prevent accurate measurement by obstructing the unit´s optics.

7.5 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
Earth	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

Battery Replacement

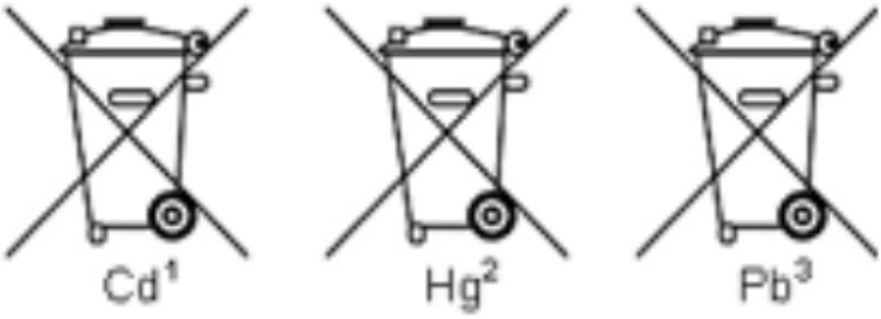
A Bat Symbol in the display is the indication that the battery voltage has fallen into the critical region (6,5 to 7,5 V). Reliable readings can be obtained for several hours after the first appearance of the low battery indication.
Open the battery compartment (see picture below) and remove the battery, then install a new battery and replace the cover.

ATTENTION!

Batteries, which are used up dispose duly. Used up batteries are hazardous and must be given in the for this supposed collective container.

Notification about the Battery Regulation

The delivery of many devices includes batteries, which for example serve to operate the remote control. There also could be batteries or accumulators built into the device itself. In connection with the sale of these batteries or accumulators, we are obliged under the Battery Regulations to notify our customers of the following:
Please dispose of old batteries at a council collection point or return them to a local shop at no cost. The disposal in domestic refuse is strictly forbidden according to the Battery Regulations. You can return used batteries obtained from us at no charge at the address on the last side in this manual or by posting with sufficient stamps.
Contaminated batteries shall be marked with a symbol consisting of a crossed-out refuse bin and the chemical symbol (Cd, Hg or Pb) of the heavy metal which is responsible for the classification as pollutant:



1. “Cd” means cadmium.
2. “Hg” means mercury.
3. “Pb” stands for lead.

PeakTech Prüf- und Messtechnik GmbH
– Gerstenstieg 4 – DE-22926 Ahrensburg / Germany

+49-(0) 4102-97398-80

+49-(0) 4102-97398-99

info@peaktech.de

www.peaktech.de

Documents / Resources

	PeakTech 4970 3 in 1 Infrared Thermometer [pdf] Instruction Manual 4970 3 in 1 Infrared Thermometer, 4970, 3 in 1 Infrared Thermometer, Infrared Thermometer, Thermometer

References

- Home
- Home