EM90
INFRA-RED THERMOMETER & THERMOCOUPLE METER

Supco

Users Manual

■.Introduction

Thank you for purchasing the SUPCO infrared (IR) thermometer and thermocouple meter. Please take a few minutes to browse through this user manual before you begin to operate the meter to ensure that you are fully familiarized with how best to operate the meter as accurately and safely as possible.

This meter combines two precision thermometers in one unit: a noncontact infra-red thermometer and a thermocouple thermometer.

This meter can match standard type K-type thermocouple sensor.

WARNING!

Do not point laser directly at eye or reflective surfaces.

1.1 Precautions safety measures

To get the best performance from this meter, please read this user's manual carefully and observe the detailed safety precautions.

1.1.1 During use

1. After abrupt ambient temperature changes, allow instrument temperature to stabilize for 30 minutes before taking measurements.
2. Do not expose thermometer to excessive ambient temperatures.
3. Keep the thermometer clean.

1.1.2 Maintaining the product

- Do not measure in a high temperature, high humidity locations.
- When not using the instrument for a long time, please remove the battery and avoid storing in high temperature and high humidity.

■ Features

1. Display: 4 digit LCD Display
2. Resolution: 0.1℉/ 0.1℃

   1℉/ 1℃(thermocouple above 1000℃）

3. Range:

Infra-red: -58°F to 572°F (-50°C to 300°C)

Thermocouple: -328 ℉ to 2372 ℉ (-200 ℃ to 1300℃)

4. Accuracy:

Infra-red: ± 5% for -58°F to -4°F (-50°C to -20°C)

± (1.5% reading + 4 °F / 2°C)

for -4°F to 572°F (-20°C to 300°C)

Thermocouple: ±(0.2%reading+2℉/1℃)

for -328℉to -148℉(-200°C to -100°C)

±(0.1% reading +0.7℃/1.4℉) for

-148℉ to 2372℉(-100℃ to 1300℃)

5. Emissivity: 0.95

6. Field of view: 2:1

7. Laser power: Less than 1 mw

8. Response time: 0.5 second

9. Auto power off: 25 seconds (infrared) or
20 minutes (thermocouple)

10. Low battery indicator

11. Operating environment:

32°F to 122°F (0℃ to 50℃); 0 to 90% RH

12. Storage environment:

14°F to 140°F (-10℃ to 60℃， 0 to 80% RH

13. Dimensions:

4.76”(L) x 2.36”(W) x 1.18”(H)

121mm(L) x 60mm(W) x 30mm(H)

14. Weight:

6.35 oz (app.) 180 g (app.)

15. Accessories:

K-type thermocouple wire (1)

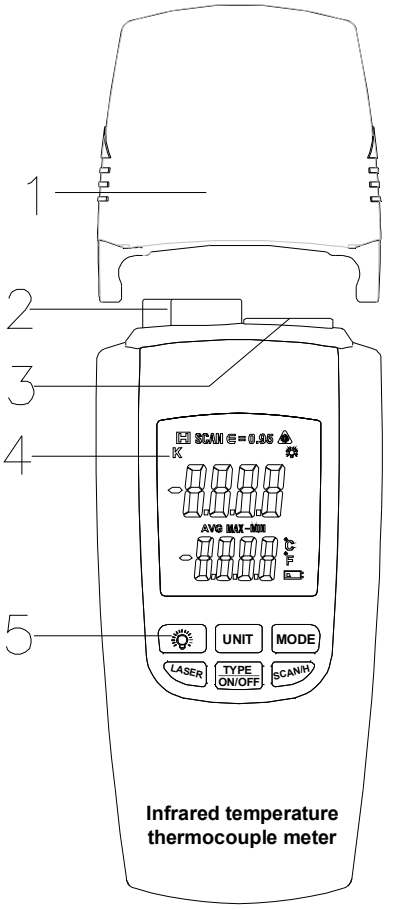
Lanyard (1)

AAA Batteries (3).

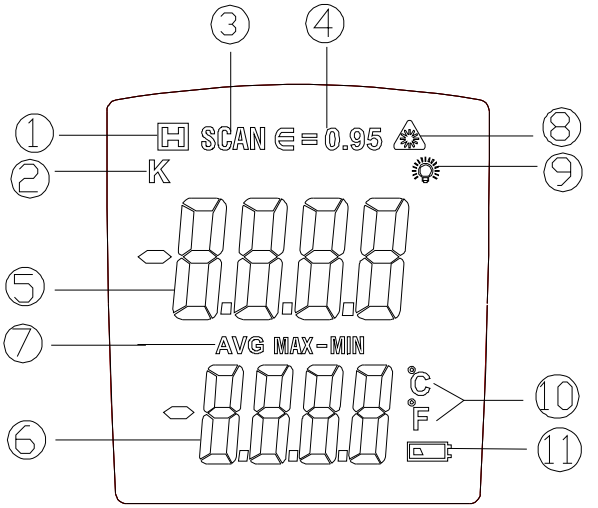
Users manual

■Instrument Description

1. Sensor cover
2. Infra-red sensor
3. Thermocouple jack
4. LCD display
5. Function key



I LCD Display



Symbol Designations:

1. Indicates Data Hold
2. Indicates the type of thermocouple
3. Indicates IR measurement
4. Emissivity
5. Measurement Display area
6. Measurement Display area
7. Average/ Maximum / minimum Indicator
8. Indicates laser pointer use
9. Indication back light ON
10. Temperature units
11. Low battery indicator

■ Operating instructions

1. Press the **TYPE / ON/OFF** key to turn the unit on. Press the key again to shift the measurement mode between infrared or thermocouple.

2. While in Infra-red mode, press the **LASER** key to make IR measurements. Point the laser at the target

object and press the **SCAN/H** key for continuous temperature measurements.

3. In the thermocouple mode, press the **SCAN/H** key for data hold. Press the **SCAN/H** key again to return the measurement mode.

■ Function Keys

1. TYPE/ON/OFF Key

ON/OFF: Press this key to turn the power ON and press the key again for more than 2 seconds to turn the power OFF.

TYPE: Press this key to select infra-red or thermocouple mode.

2.  key

Turns back light on or off.

2. UNIT key

Press this key to select temperature units (°F or ℃)

3. MODE key

Press this key to select AVG, MAX or MIN mode.

4. LASER key

Turns the laser on/ off for IR measurements.

5. SCAN/H key

While in infra-red mode， press this key to take measurements.

While in thermocouple mode，Press this key for Data Hold, a H icon will be displayed on the LCD. Press the key once more to cancel the hold function.

7. Auto power off setting

The instrument is factory set for Auto Power Off. The meter will power itself off after 25 seconds (IR) or 20 minutes (thermocouple) if no key is pressed.

To cancel the auto power off function: press the LASER key whith power on until the LCD displays all icons and the back light is on.

■ Emissivity and Field of View

Emissivity: Emissivity is a term used to describe the energy emitting characteristics of a material. The higher the emissivity value a material has, the more infrared energy it will emit at a particular temperature. Most organic materials range in emissivity between 0.85 and 0.98. This thermometer has a fixed (non-adjustable) emissivity of 0.95. Measuring objects with an emissivity of less than 0.95 will result in a lower than actual temperature reading on the display. Be aware of this characteristic when measuring low emissivity objects (e.g. shiny, reflective metal objects). An effective solution is that using the black adhesive tape to cover the object surface, taking the measurement when the adhesive tape's temperature is the same as the object.

Field of View: The distance to spot ratio for this thermometer is 2:1. The ideal working range of the noncontact thermometer is between 25mm and

250mm(1 and 10 inches). The field of view is a circular measurement area approximately equal to the distance from the target to the unit, divided by 2. To ensure accurate measurements, the measurement target must fill or exceed the field of view.

■Maintenance

1. CLEANING INSTRUCTIONS

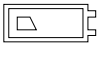
The meter may be wiped down with a wet sponge or cloth using a mild, water based detergent.

NOTE:

This unit is not designed for complete submersion or washing in water.

2. BATTERY REPLACEMENT

Use the following procedure:

When the battery voltage drops below proper operation range the  symbol will appear on

the LCD display and the battery needs to be replaced.

∞ Press the battery cover towards the arrowhead to open the battery cover.

∞ Replace the battery with three new AAA (1.5V) batteries.

∞ Replace the battery cover.

WARRANTY

Sealed Unit Parts Co., Inc. warrants that it will repair or furnish without charge a similar product to replace any product which, within the specified warranty term after the date of sale by the Wholesaler, is proved to the satisfaction of Sealed Unit Parts Co., Inc. , to have been defective at the time it was sold. Said warranty is in effect only when said item is used in accordance with the instructions and recommendations of Sealed Unit Parts Co., Inc.

This warranty applies only to products which after shipment from the factory, have not been altered, changed, repaired, or treated in any manner whatsoever.

This warranty to repair or replace is the only warranty either expressed, implied or statutory and is the only warranty being issued herein; Sealed Unit Parts Co., Inc.'s liability in connection with its products is expressly limited to the repair or replacement of defective parts. All other damages and warranties, statutory or otherwise, are being expressly excluded.

No representative of Sealed Unit Parts Co., Inc. has authority to change this warranty in any manner whatsoever. No attempt to repair or promise to repair or improve any part covered by this warranty by any representative of this company shall be effective unless signed by a properly authorized officer of Sealed Unit Parts Co., Inc.