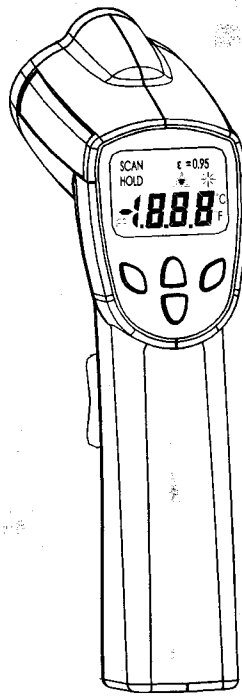


OPERATION MANUAL INFRARED THERMOMETER

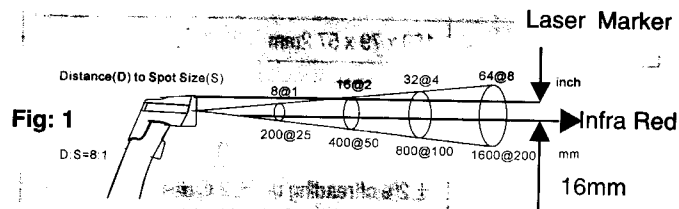


Features:

- Precise non-contact measurements
- Built-in laser pointer
- °C/°F switch able 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.



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.

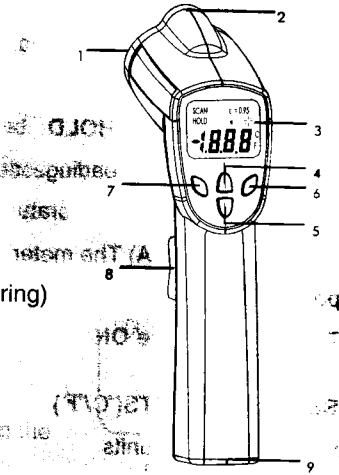
2. GENERAL SPECIFICATIONS

DISPLAY	3-1/2 digit (1999count) LCD with backlighting
MEAS. RANGES	-20°C to 270°C/ - 4°F to 518°F
SAMPLE RATE	1 sec. Approx
Spectral Response	6~14um
POWER OFF	Automatic shut off after 7 seconds
OPERATING TEMP.	0°C to 50°C (32°F to 122°F)
OPERATING RH%	MAX. 80% RH
POWER SUPPLY	9V battery
WEIGHT	180g.
SIZE	159 x 79 x 57.2mm

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

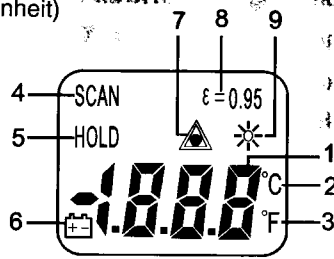
3. FRONT PANEL DESCRIPTION

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.

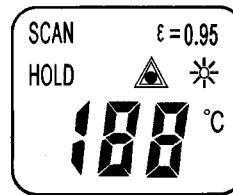


Fig.A

B. SELECTING UNITS (°C/°F)

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

Presses the °C or °F key again to switch the unit (scale) again.

See Fig. C.

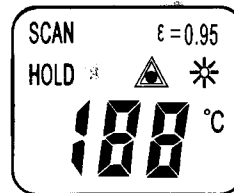


Fig.B

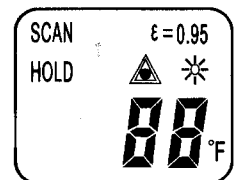


Fig.C

C. DATA HOLD

This meter automatically holds the last temperature reading on the LCD for seven seconds after the **ON/HOLD** key is released.

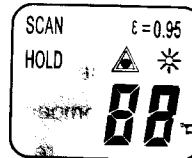


Fig.D

No extra key presses are necessary to freeze the displayed reading. (Fig. D)

D. BACKLIT 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)

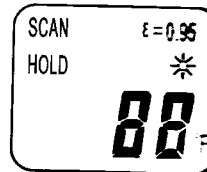


Fig.E

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)

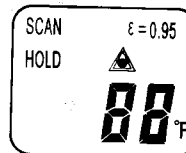


Fig.F

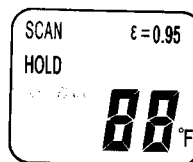


Fig. G

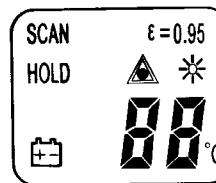
F. MEASUREMENT CONSIDERATIONS

The meter automatically compensates for temperature deviations from the ambient temperature. However, when measuring dissimilar temperatures, allow up to 30 minutes between the high temperature and low temperature measurements. In such cases, the IR sensor must adjust to the change in order to obtain an accurate reading.

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



Low battery indicator

7. Notes: VALUES

- **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. 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, aluminum, 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
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