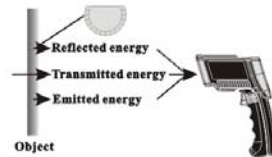


Non-contact infrared thermometer Instruction manual



1. Introduction

Compact, rugged and easy to use. Just aim and push the button, read current surface temperature in less than a second. Safely measure surface temperatures of hot, hazardous or hard-to-reach objects without contact.



2. How it works

Infrared thermometer measures the surface temperature of an object. The unit's optics sense emitted, reflected, and transmitted energy which is collect and focused onto a detector. The unit's electronics translate the information into a temperature reading which is displayed on the unit. For increased ease and accuracy the laser pointer makes aiming even more precise.

3. Cautions

Infrared thermometer should be protected for the following:
 --EMF (electro-magnetic fields) from arc welders, induction heaters.
 --Thermal shock (cause by large or abrupt ambient temperature changes allow 30 minutes for unit to stabilize before use).
 --Do not leave the unit on or near objects of high temperature.
 --Static electricity.

4. Warning

4.1 Do not point laser directly at eye or indirectly off reflective surfaces.

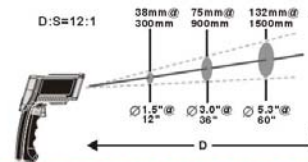


4.2 The unit cannot measure through transparent surfaces such as glass or plastic. It will measure the surface temperature of these materials instead.

4.3 Steam, dust, smoke, or other particles can prevent accurate measurement by obstructing by the units optics.

4.4 When take measurement, point thermometer toward the object to be measured and hold the yellow trigger. The object under test should be larger than the spot size calculated by the field of view diagram.

4.3 Distance & spot size: As the distance from the object increase, the spot size of measuring area becomes larger.



5. Quick start instruction



5.1 LCD display:

A measuring reading B measuring unit
 C laser on icon D back light on icon
 E battery power icon F scanning icon
 G data hold icon
 H mode/emissivity indicator
 I data store / read icon
 J low temperature alarm icon
 K high temperature alarm icon

5.2 Locating a hot/cold spot: To find a hot/cold spot, aim the thermometer outside the area of interest, then scan across with up and down motion until you locate the hot/cold spot.



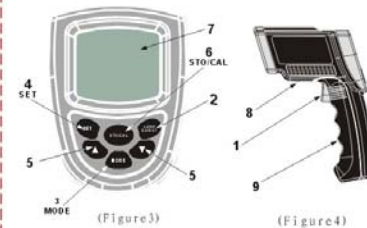
(Figure2)

5.3 Diagram description

(1) Trigger: When turn on LCD display VER

XX software version for 1 sec. And turn to display reading with SCAN icon. Release the trigger, display reading with HOLD icon. Built in auto power off in 30sec.

(2) Laser / back light button: when back light turn on , any operations will remain back light for 10 sec. LCD indicate on/off status.



(3)---(6) key functions: press 3 key, LCD subdisplay blinks MAX-MIN-DIF-AVG-HAL-LAL-STO segment(only main display means normal measuring mode) press 4 key to enter.

a. MAX: measuring maximum temperature
 b. MIN: measuring minimum temperature
 c. DIF: Basic on the reading before press 4 key, compute the difference of current reading.
 d. AVG: measuring average temperature
 e. HAL: high temperature alarm--when selected HAL, press 5 keys to set high temperature alarm trigger and confirmed by pressing 4 key. When reading over trigger, LCD display HI icon with BiBi audio sounds.
 f. LAL: low temperature alarm--when selected LAL, press 5 keys to set low temperature alarm

trigger and confirmed by pressing 4 key. When reading over trigger, LCD display LOW icon with BiBi audio sounds
 g. STO: data storage--when selected STO, lock & DATA & 1---indicator will shown when press 4 key. After temperature read out press 6 key to store, then 2---memory unit will be shown. There 12 groups memory unit available. To recall the stored data in normal measuring mode by pressing 6 key, remove all data by pressing 6 keys for 3 seconds.

H. EMS: Emissivity setup-- press 5 keys for emissivity settings, press 4 key to save setup and back to normal status.

(7) LCD(see 5.1)

(8) Battery door clip

(9) Battery door: When replace battery, please press battery door clip, pull down and forward the battery door. Then install 9v battery correctly.

(10) Celsius / Fahrenheit switch: Please open battery and push the slide switch for conversion

6. Maintenance

6.1 Lens cleaning: Blow off loose particles using clean compressed air. Gently brush remaining debris away with a moist cotton cloth.
 6.2 Case cleaning: Clean the case with a damp sponge/cloth and mild soap.

7. Note:

7.1 Do not use solvent to clean lens.
 7.2 Do not submerge the unit in water.
 7.3 Do not use/place the unit in high temperature or moist environment, that might inflect the units performance.

4.3. Field of view: Make sure the target is larger than the unit's spot size. The smaller the target the closer measure distance. When accuracy is critical, make sure the target is at least twice as large as the spot size.

4.4. Emissivity: Most 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 for this, adjust the units emissivity reading (see table below and 5.3 settings) or cover the surface to be measured with masking tape or flat black paint. Measure the tape or painted surface when the tape or painted reach the same temperature as the material underneath.

4.5 Table of approximate emissivity

Material	Emissivity	Material	Emissivity
Aluminum	0.30	Iron	0.70
Asbestos	0.95	Lead	0.50
Asphalt	0.95	Limestone	0.98
Basalt	0.70	Oil	0.94
Brass	0.50	Paint	0.93
Brick	0.90	Paper	0.95
Carbon	0.85	Plastic	0.95
Ceramic	0.95	Rubber	0.95
Concrete	0.95	Sand	0.90
Copper	0.95	Skin	0.98
Dirt	0.94	Snow	0.90
Frozen food	0.90	Steel	0.80
Hot food	0.93	Textiles	0.94
Glass(plate)	0.85	Water	0.93
Ice	0.98	Wood	0.94

7.4 Do not change circuitry of the unit, that possibly will destruct the unit / endanger.

7.5 When icon display, means low battery power. Please replace new battery to prevent inaccurate measuring.

7.6 If unit not being use for long period, please unload the battery.

Specifications	
Temperature range	-50 to 1050°C (58 to 1922°F)
Accuracy	100°C(212°F) to 1050°C(1922°F) ±2°C or ±2% 0°C(32°F) to 100°C(212°F) ±2°C or ±2% -50°C(58°F) to 0°C(32°F) ±3°C or ±3% whichever is greater
Repeatability	1% of reading or 1°C
Response time	500 mSec, 95% response
Spectral response	8-14 um
Emissivity	0.10 to 1.00 adjustable (pre-set 0.95)
Ambient operating range	0 to 40°C (32 to 104°F)
Relative humidity	10-95% RH(noncondensing, @ upto 30°C (86°F))
Storage temperature	-20 to 60°C, ≤95%RH, without battery
Weight/Dimensions	480g, 110*114*60mm
Power	9v Alkaline or NiCd battery
Battery life (Alkaline)	Laser Models: 12 hrs
Distance to Spot Size	12:1

