

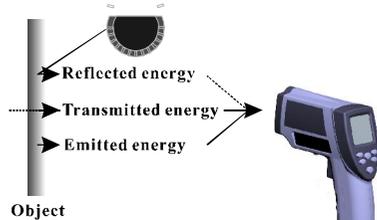
Non-contact infrared thermometer Instruction manual



MODEL: 200°C TO 2150°C (392 TO 3902 °F)

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 temperature of hot, hazardous or hard-to-reach objects without contact.

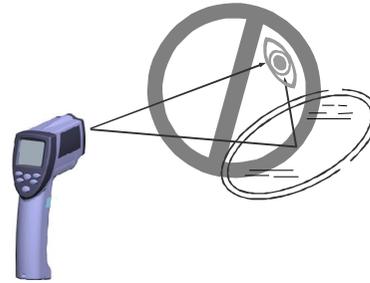


2.How it works:

Infrared thermometer measures the surface temperature of an object. The unit's optics sense emitted, reflected, and transmitted energy which is collected 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(care 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.

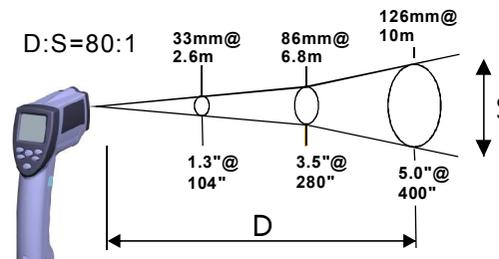


4.Warning:

- Do not point laser directly at eye or indirectly off reflective surfaces.
- The unit cannot measure through transparent surfaces such as glass or plastic. It will measure the surface temperature of these materials instead.
- Steam, dust, smoke, or other particles can prevent accurate measurement by obstructing the unit's optics.

5.Operation Instruction:

- 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.
- Distance & spot size: As the distance from the object increase, the spot size of measuring area becomes larger.
- Field of view: Make sure the target is larger than the unit's spot size. The smaller target the closer measure distance. When accuracy is critical, make sure the target is at least twice as large as the spot size.



-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 unit's 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.

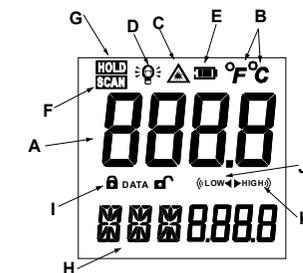
Table of approximate emissivity:

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

6. Quick start instruction:

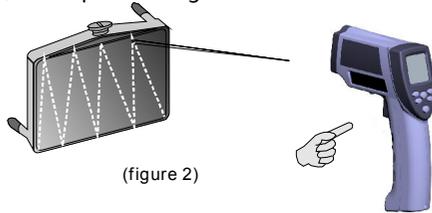
6.1 LCD display

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



(figure1)

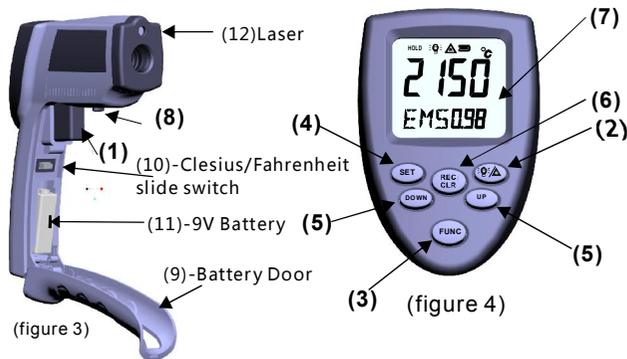
6.2 Locating a hot/cold spot: To find a hot/cold spot, aim the thermometer outside the area of interest, then scan across with up and down motion until you locate the hot/cold spot. See figure 2.



(figure 2)

7. Diagram description: (See figure 3 and figure 4)

(1) Trigger: When turn on LCD display VERXX 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 30 sec.



(2)-(6) key functions:
 press **FUNC** key, LCD subdisplay blinks MAX - MIN - DIF - AVG - HAL - LAL - STOSGN - EMS - PLY - CLR segment (only main display means normal measuring mode) press **SET** key to enter.
 MAX: measuring maximum temperature
 MIN: measuring minimum temperature
 DIF: Basic on the reading before press 4 key, compute the difference of current reading
 AVG: measuring average temperature
 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.
 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

STO: data storage—when selected STO, lock & DATA & 1--- indicator will shown when press key once, one data stored memory. Press **REC CLR** key 1 second, it continue store the data.

SGN: single data mode.
 PLY: Data replay out **LOG**
 EMS: Emissivity setup—press **LOG** key for emissivity settings press **UP** key or **DOWN** key to adjust emissivity and press **SET** key save setup and back to normal status.

CLR: Data clear mode, press **REC CLR** key 2 seconds to clear all data in the memory.

Data recall:
 a. In "PLY" mode: press **UP** **DOWN** key to replay data in the memory.
 b. Press **SET** key and **UP** **DOWN** key for quick look the memories data. And then output the data to PC.
 Lock & unlock: IN measure mode, Press the (1) key (Trigger) and press **SET** key once that lock & unlock function convert. LCD display "🔒 -lock; 🔓 -unlock".

- (2) Laser/back light button: when back light turn on, any operations will remain back light for 10 sec. LCD indicate on/off status.
- (7) LCD (see 6.1)
- (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
- (11) 9V battery.
- (12) Laser modul.

8. RS-232 & DC IN PUT interface:

When connected this unit with PC, DATA will display on LCD. During taking real time measurement, AUT will blink on LCD.



--For software installation and instructions, please read the User Guide on CD.
 --DC input: For saving battery consumption, please use 9V 200mA adapter on long period measurement. (Polarity show on socket label)

9. Maintenance:

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

10. Note:

--Do not use solvent to clean lens.
 --Do not submerge the unit in water.
 --Do not use/place the unit in high temperature or moist environment, that might affect the unit's performance.
 --Do not change circuitry of the unit, that possibly will destruct the unit/endanger.
 --When icon display, means low battery power. Please replace new battery to prevent inaccurate measuring.
 --If unit not being use for long period, please unload the battery.

11. Specifications:

Model	HP2150
Measure ranges:	200 to 2150°C (392 to 3902 °F)
Measure accuracy	200°C (392°F) to 450°C (842°F) ±2°C or ±2% 450°C (842°F) to 1100°C (2012°F) ±3°C or ±3% 1100°C (2012°F) to 2150°C (3902°F) ±4°C or ±3% whichever is greater
Repeatability	1% of reading or 1°C
Response time	150mSec, 95% response
Spectral response	900-1700nm
Emissivity	0.1 to 1.00 adjustable (pre-set 0.95)
Ambient operating range	0 to 40°C (32 to 104°F)
Relative humidity	10-80% RH noncondensing
Storage temperature	-20 to 60°C, ≤85%RH, without battery
Weight/Dimensions	480g; 220*134*60mm
Power	9v Alkaline or NiCd battery or 9v 500mA adapter
Battery life (Alkaline)	Laser Models: 10hrs
Distance to Spot Size	80:1



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