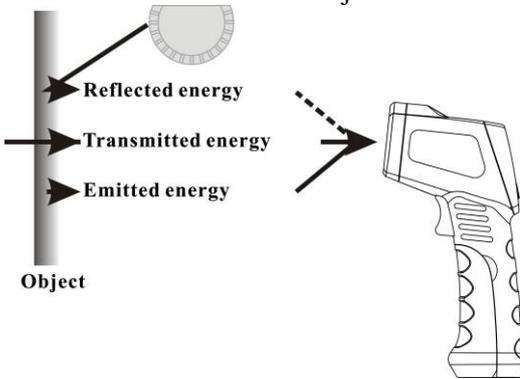


Non-contact infrared thermometer 981C Instruction manual



1. Introduction

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



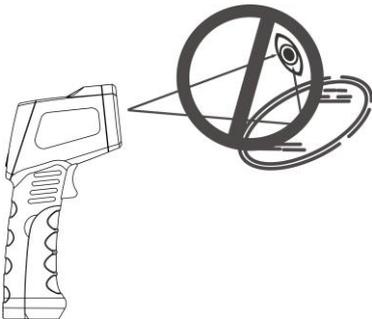
How it works

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 transmitted energy which is display on the unit. For increased ease and accuracy the laser pointer makes aiming even more precise.

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 1 hours for unit to stabilize before use).
- Do not leave the unit on or near objects of high temperature.



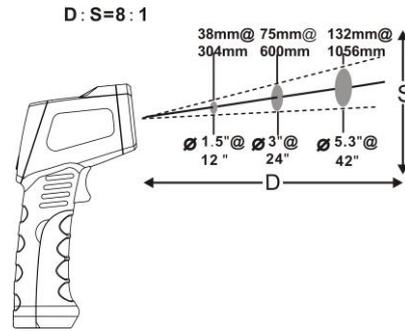
Warning

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

1. When take measurement, point thermometer toward

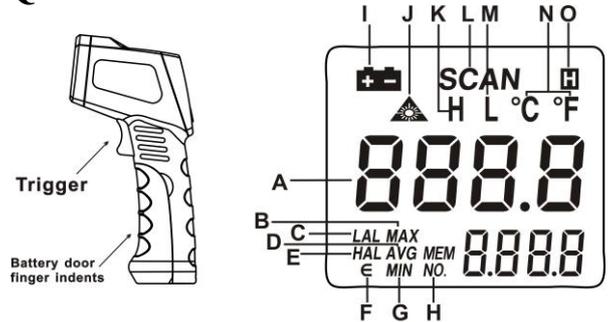
the object to be measured and hold the yellow trigger. The object under test should be large than the spot size calculated by the field of view diagram.

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



3. Field of view: Make sure the target is larger than the unit's spot size. The smaller the target the close measure distance. When accuracy is critical, make sure the target is at least twice as large as the spot size.
4. Emissivity: Most organic materials and painted or oxidized surfaces have an emissivity of 0.95. 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. Measure the tape or painted surface when the tape or painted reach the same temperature as the material underneath.

2. Quick start instruction



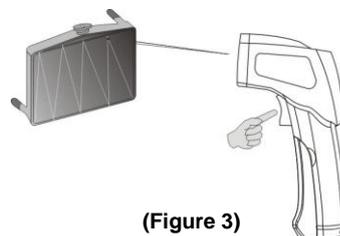
(Figure 1)

(Figure 2)

1. Press battery door clip, install battery correctly. Pull the trigger, LCD display reading & battery icon. Release the trigger and the reading will hold for 7 seconds

LCD display:

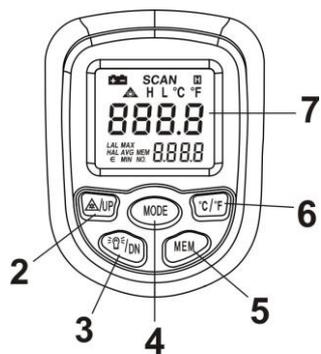
- | | |
|------------------------------------|--------------------|
| A LCD display | B MAX |
| C Low temperature warning setting | D Average |
| E High temperature warning setting | F Emissivity |
| G MIN | H Storage date NO. |
| I Low battery indication | J Laser Light |
| K High temperature warning | L Measure data |
| M Low temperature warning | |
| N Temperature Unit | O Date HOLD |



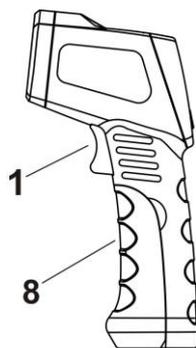
(Figure 3)

2. Locating a hot spot aim the thermometer outside the

area of interest, then scan across with up and down motions until you locate the hot spot.(please turn on the laser to for accurate measuring)



(Figure 4)



(Figure 5)

3. Diagram description

- (1) Trigger: Press once, Power on. Press one more time , Reading shows on the screen and Turn to Date HOLD model while release the trigger, auto data hold will keep for 10 seconds. 10 sencond without any operation, will auto power off.
- (2) Laser Light&Up bottom: Press once, turn on laser light, press one more time, turn off laser light. While setting on “warning temperature setting” ,” emissivity setting” and “Date storage Reading” this bottom work as UP bottom.
- (3) Back Light/Down bottom: Press once, turn on back light , press one more time, turn off backlight. While setting on “warning temperature setting” ,” emissivity setting” and “Date storage Reading” this bottom work as DOWN bottom.
- (4) MODE Bottom: Press this bottom to chose mode E-MAX-AVG-MIN-LAL-HAL circularly.
 - A、 MAX: Measure current max reading ;
 - B、 MIN: Measure current min reading;
 - C、 AVG: Average of all the reading data ;
 - D、 HAL: High Temperature Warning , Chose mode HAL to set the warning temperature(HIGH), press “UP/DN” to select temperature. while measure date is higher than setting temperature, “H” will display on the screen
 - E、 LAL: Low Temperature Warning , Chose mode HAL to set the warning temperature(LOW), press “UP/DN” to select temperature. while measure date is lower than setting temperature, “L” will display on the screen
- (5) MEM Bottom: For reading the storage data. Press once to read the date. Press “UP/DN” to select date. It can store only 12 data, while over 12 date, the new one will cover the old one. Once take out battery, all the date will be gone.
- (6) °C /°F: °C /°F Change, If you want to change the temperature unit, Please press this bottom.
- (7) LED Screen.
- (8) Battery door: When replace battery door, please using the finger indents to pull open the battery door.

3、 Maintenance

- 1) Lens cleaning: Blow off lose particles using clean compressed air. Gently brush remaining debris away with a moist cotton cloth.

- 2) Case cleaning: Clean the case with a damp sponge/cloth and mild soap.
- 3) Please take out the battery when not using for a long time.

Note:

- 1) Do not use solvent to clean lens.
- 2) Do not submerge the unit in water.

4、 specifications

Temperature range	-30°C to 550°C (-22to1022°F)
Accuracy	±3°C or ±3% of rdg., -30°C to 0°C (-22 to 32°F) ±2°C or ±2% of rdg., 0°C to 100°C (32 to 212°F) ±3°C or ±3% of rdg., ≥100°C (212°F)
Repeatability	1% of reading or 1°C
Response time	500msec, 95% response
Spectral response	8-14um
Emissivity	0.1~1.0 adjustable
Ambient operating range	0°C to ~60°C (32 to 140°F)
Relative humidity	10-95% RH noncondensing
Storage temperature	-20~60°C (-4~140°F) without battery
Ambient temp range of guarantee for accuracy	23°C~28°C
Weight/dimensions	155g; 165×72×41mm
Power	9V battery ,6F22 or NEDA 1604
Battery life	Laser models:12hrs
distance spot ratio	8:1

Attached list : Applicable Emissivity for Different Material (For reference only)

Material	Emissivity	Material	Emissivity
Asphaltum	0.90 to 0.98	Textile (Black)	0.98
Beton	0.94	Human Skin	0.98
Cement	0.96	Soap bubble	0.75 to 0.80
Sand	0.90	Charcoal (powder)	0.96
Soil	0.92 to 0.96	Lacquer	0.80-0.95
Water	0.92 to 0.96	Lacquer (reluster)	0.97
Ice	0.96 to 0.98	Rubber (Black)	0.94
Snow	0.83	Plastic	0.85-0.95
Glass	0.90 to 0.95	Timber	0.90
Ceramic	0.90 to 0.94	Paper	0.70-0.94
Marble	0.94	Chromic oxide	0.81
Gypsum	0.80 to 0.90	Copper Oxide	0.78
Compo	0.89 to 0.91	Iron Oxide	0.78 to 0.82
Brick	0.93 to 0.96	Stainless steel and Aluminum	0.2-0.3

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