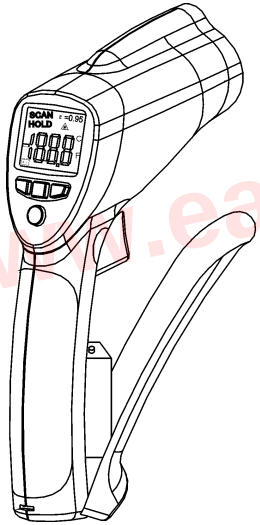
Non-Contact Infrared Thermometers
DT-8818-DT-8829 series
Operation Manual



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INTRODUCTION

Thank you for purchase of the 8818/8819/8828/8829 Series IR Thermometer. The 8818/8819/8828/8829 Series is capable of non-contact (infrared) temperature measurements at the touch of a button. The built-in laser pointer increases target accuracy while the backlit LCD and handy push-buttons combine for convenient, ergonomic operation.

The Non-contact Infrared Thermometers can be used to measure the temperature of objects' surface that is improper to be measured by traditional (contact) thermometer (such as moving object, the surface with electricity current or the objects which are uneasy to be touched.) Proper use and care of this meter will provide years of reliable service.

FEATURES

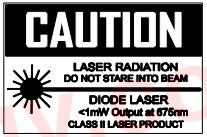
- Precise non-contact measurements
- High distance to target ratio measures smaller surface areas at greater distances
- Widest temperature range
- Unique flat surface, modern housing design
- Built-in laser pointer
- Automatic Data Hold
- ◦C/◦F switch able button
- Fixed emissivity (0.95) covers 90% of surface applications
- Backlit LCD display
- Built-in laser pointer
- Automatic selection range and Resolution to 0.1°or 1°

WIDE RANGE APPLICATION

Food preparation, Safety and Fire inspectors, Plastic molding, Asphalt, Marine and Screen printing, measure ink and Dryer temperature, HVAC/R, Diesel and Fleet maintenance.

1. SAFETY

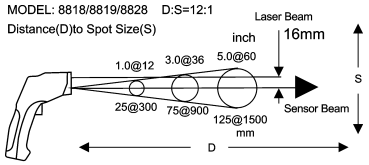
- Use extreme caution when the laser beam is turned on.
- Do not let the beam enter your eye, another person's eye or the eye of an animal.
- Be careful no to let the beam on a reflective surface strike your eye.
- Do not allow the laser light beam impinge on any gas which can explode.

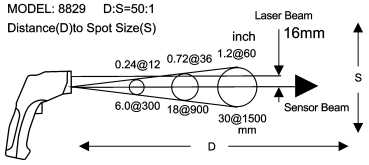


Distance & Spot Size

As the distance (D) from the object increases, the spot size (S) of the area measured by the unit becomes larger. The relationship between distance and spot size for each unit is listed below. The focal point for each unit is 914mm (36").

Fig: 1





2. SPECIFICATIONS

● General specifications

DISPLAY	3-1/2 digit (1999count) LCD with backlighting	
TEMPERATURE RANGE	MODEL: 8818	-50.0°C to 550°C/-58.0°Fto 1022°F
	MODEL: 8819	-50.0°C to 750°C/-58.0°Fto 1382°F
	MODEL: 8828	-50.0°C to 1000°C/-58.0°Fto 1832°F
	MODEL: 8829	-50.0°C to 1000°C/-58.0°Fto 1832°F
FIELD OF VIEW	MODEL: 8818	D/S = Approx. 12:1 ratio (D = distance, S = spot) (Has 90% encircled energy at the focal point)
	MODEL: 8819	
	MODEL: 8828	
	MODEL: 8829	D/S = Approx. 50:1 ratio (D = distance, S = spot) (Has 90% encircled energy at the focal point)
DISPLAY RESOLUTION	0.1° up to 200°,1° over 200°	
EMISSIVITY	0.95 fixed value	
RESPONSE TIME	Less than 1 second	
OVER RANGE INDICATION	LCD will show "1"	
POLARITY	Automatic (no indication for positive polarity); Minus (-) sign for negative polarity.	
DIODE LASER	Output <1mW, Wavelength 630~670nm, class 2 (II) Laser product	
SPECTRAL RESPONSE	8~14um	
POWER OFF	Automatic shut off after 7 seconds, approx.	
OPERATING TEMP.	0°C to 50°C (32°F to 122°F)	
STORAGE TEMP.	-20°C to 60°C(-4°F to 140°F)	
RELATIVE HUMIDITY	10%~90%RH operating, <80%RH storage	
POWER SUPPLY	9V battery, NEDA 1604A or IEC 6LR61, or equivalent	
WEIGHT	290g (10.2 oz.)	
SIZE	100 x 56 x 230mm (3.9 x 2.2 x 9.0")	
Safety	" CE " Comply with EMC	

● Infrared thermometer specifications

MODEL: 8818

Range (Automatic selection 0.1 °C/ 1°C)		Resolution	Accuracy
-50.0°C to 200.0 °C	-50.0°C to -20.0 °C	0.1 °C	± 5 °C;
	-20.0°C to 200.0 °C		±1.5% of reading ± 2°C;
201 °C to 550 °C		1 °C	±2.0% of reading ± 2°C;

Range (Automatic selection 0.1°F / 1°F)		Resolution	Accuracy
-58.0℉ to 200.0℉	-58.0℉ to -4.0℉	0.1℉	± 9℉;
	-4.0℉ to 200.0℉		± 1.5% of reading ± 4℉;
201℉ to 1022℉		1 ℉	± 2.0% of reading ± 4℉

MODEL: 8819

Range(Automatic selection 0.1°C/ 1°C)		Resolution	Accuracy
-50.0°C to 200.0 °C	-50.0°C to -20.0 °C	0.1 °C	± 5 °C;
	-20.0°C to 200.0 °C		± 1.5% of reading ± 2°C;
201 °C to 538 °C		1 °C	± 2.0% of reading ± 2°C ;
539 °C to 750 °C			± 3.5% of reading ± 5°C .

Range (Automatic selection 0.1 ℉/ 1℉)		Resolution	Accuracy
-58.℉ to 200.0℉	-58.0 ℉ to -4.0 ℉	0.1℉	± 9℉;
	-4.0 ℉ to 200.0 ℉		± 1.5% of reading±4℉;
201℉ to 1000℉		1 ℉	± 2.0% of reading ±4℉;
1001℉ to 1382℉			± 3.5% of reading ± 9℉

MODEL: 8828

Range (Automatic selection 0.1 °C/ 1°C)		Resolution	Accuracy
-50.0°C to 200.0°C	-50.0°C to -20.0 °C	0.1 °C	± 5 °C;
	-20.0°C to 200.0 °C		± 1.5% of reading ± 2°C;
201 °C to 538 °C		1 °C	± 2.0% of reading ± 2°C ;
539 °C to 1000 °C			± 3.5% of reading ± 5°C .

Range (Automatic selection 0.1 ℉/ 1℉)		Resolution	Accuracy
-58.0℉ to 200.0 ℉	-58.0℉ to -4.0℉	0.1℉	± 9℉;
	-4.0℉ to 200.0℉		± 1.5% of reading ± 4℉;
201℉ to 1000℉		1 ℉	± 2.0% of reading ±4℉;
1001℉ to 1832℉			± 3.5% of reading ± 9℉

MODEL: 8829

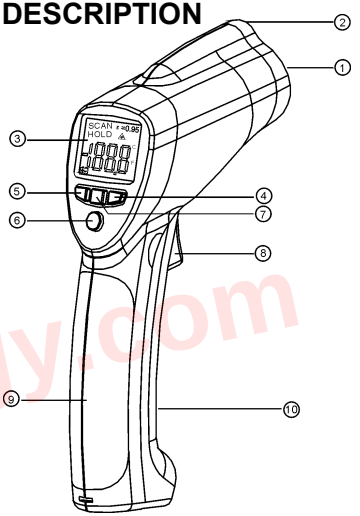
Range (Automatic selection 0.1 °C/ 1°C)		Resolution	Accuracy
-50.0°C to 200.0 °C	-50.0°C to -20.0 °C	0.1 °C	± 5 °C;
	-20.0°C to 200.0 °C		±1.5% of reading±2°C;
201 °C to 538 °C		1°C	±2.0%of reading ± 2°C;
539 °C to 1000°C			± 3% of reading ± 5°C .

Range (Automatic selection 0.1 ℉/ 1℉)		Resolution	Accuracy
-58.0℉ to 200.0℉	-58.0℉ to -4.0℉	0.1℉	± 9℉;
	-4.0℉ to 200.0℉		± 1.5% of reading ± 4℉;
201℉ to 1000℉		1 ℉	± 2.0% of reading ±4℉;
1001℉ to 1832℉			± 3 % of reading ± 9℉ .

Note:

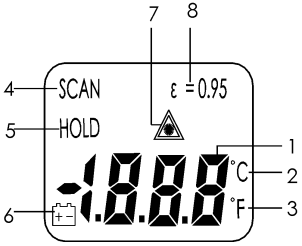
- **Accuracy:** Given at 18℃ to 28℃(64℉ to 82℉), less than 80% RH.
- **Emissivity:** 0.95 fixed value
- **Field of View:** Make sure that the target is larger than the unit's spot size. The smaller the target, the closer you should be to it. When accuracy is critical, make sure the target is at least twice as large as the spot size.

3. FRONT PANEL DESCRIPTION



1. IR sensor
2. Laser pointer beam
3. LCD Display
4. ℉ select key
5. ℃ select key
6. Laser select key
7. Backlight select key
8. Measurement Trigger
9. Handle Grip
10. Battery Cover

4. NDICATOR



1. Digital readout
2. Temperature ℃ (Celsius)
3. Temperature ℉ (Fahrenheit)
4. Measuring indication
5. Data Hold
6. LOW battery indicator
7. Laser Point
8. Fixed emissivity (0.95)

5. MEASURMENT OPERATION

① Hold the meter by its **Handle Grip** and point it toward the surface to be measured.

② Pull and hold the **Trigger** to turn the meter on and begin testing. The display will light if the battery is good. Replace the battery if the display does not light.

③ While measuring, the SCAN display icon will appear in the upper left hand corner of the LCD.

④ While continuing to pull the Trigger:

a. Push the **Laser** button to turn on the laser pointer. When the laser is on the laser icon will appear on the LCD over the temperature. Aim the red beam approximately a half inch above the point of test (pressing the Laser button again turns the laser off).

b. Select the temperature units (°C or °F) using the **°C** and **°F** buttons.

c. Push the **Backlight** key to turn on the LCD backlighting function.

⑤ Release the Trigger and the HOLD display icon will appear on the LCD indicating that the reading is being held.

⑥ The meter will automatically power down after approximately 7 seconds after the trigger is released.

Note: Measurement considerations

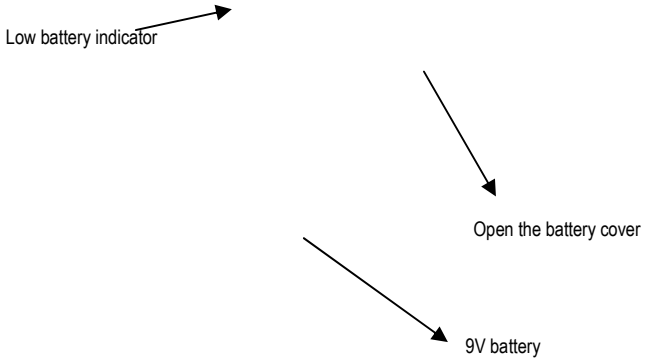
Holding the meter by its handle, point the IR Sensor toward the object whose temperature is to be measured. The meter automatically compensates for temperature deviations from ambient temperature. Keep in mind that it will take up to 30 minutes to adjust to wide ambient temperatures are to be measured followed by high temperature measurements, some time (several minutes) is required after the low (and before the high) temperature measurements are made.

This is a result of the cooling process which must take place for the IR sensor.

6.BATTERY REPLACEMENT

① As battery power is not sufficient, LCD will display " " 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.



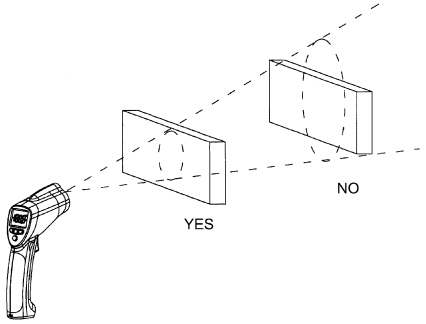
7. **NOTES:**

- ***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, cove 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

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8. MAINTENANCE & CLEARING

- Repairs or serving aren't covered in this manual should only be performed by qualified personnel.
- Periodically wipe the case with a dry cloth. Don't use abrasives or solvents on this instrument.
- When serving, use only specified replacement parts.