



Figure 1



Figure 2

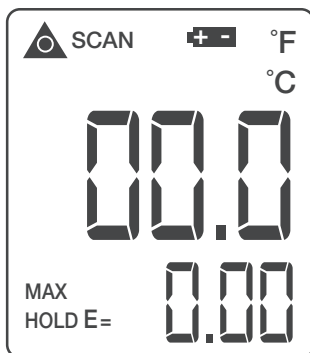


Figure 3

NUMBER	DESCRIPTION	NUMBER	DESCRIPTION
1	Laser	5	C° / F°, Adjust Down
2	Trigger	6	Set (Changes Menu Functions)
3	Battery Door	7	Laser, Backlit display, Adjust Up
4	Emissivity	8	Screen

1. FEATURES AND MEASUREMENT FUNCTIONS

Altitude	2000 meters
Display (LCD)	27mm x 28mm
Automatic Power Off	10 sec
Operating Temperature	(0~50°C) 32~122°F
Storage Temperature	(-20~60°C) -4~140°F
Measurement Range & Accuracy	-32°C to 0°C ± 2.5°C + .05°C / degree 0°C to 100°C ± 2.5°C 100°C to 380°C ± 2.5% -25.6°F to 32°F ± 4.5°F + .09°F / degree 32°F to 212°F ± 4.5°F 212°F to 716°F ± 2.5%
Repeatability	±0.5%~±1°C(2°F)
Emissivity	0.1-1.0 (adjustable)
Resolution	0.1°C(0.1°F)
Response Time	500ms
Spectral Response	6.5 - 18μM
Distance : Spot	12:1
Laser Type	Class 2(II)
Laser Power	<1mW
Laser Wavelength	630nm~670nm
Power	9v Battery
Dimensions	168 x 133 x 47mm
Weight	155g (without battery)
** The thermometer will automatically shut off if left idle for more than 10sec.	

1.2 EMS (Emissivity)


The IR-thermometer senses emitted, reflected, and transmitted energy. It has internal electronics that translate this information into a temperature reading. The energy emitted by an object is proportional to the object's temperature and its ability to emit energy. This is emissivity and is based on the material of the object and its surface. Emissivity values range from 0.1 for a reflective object to 1.00 for a flat or black finish.

The majority of materials, painted or oxidized surfaces have an emissivity of 0.95. If the value is not listed on the table below, set the emissivity to 0.95.

MATERIAL UNDER TEST	EMISSIVITY	MATERIAL UNDER TEST	EMISSIVITY
Asphalt	0.90 to 0.98	Marble	0.94
Cloth (black)	0.98	Textiles	0.90
Concrete	0.94	Cement	0.96
Skin (human)	0.98	Leather	0.75 to 0.80
Copper Oxides	0.78	Iron Oxides	0.78 to 0.82
Rubber (black)	0.94	Plastic	0.85 to 0.95
Sand	0.90	Glass	0.90 to 0.95
Charcoal (powder)	0.96	Chromium Oxides	0.81
Soil	0.92 to 0.96	Snow	0.83
Lacquer	0.80 to 0.95	Lacquer (matt)	0.97
Water	0.92 to 0.96	Ice	0.96 to 0.98
Timber	0.9	Paper	0.70 to 0.94
Ceramic	0.90 to 0.94	Plaster	0.80 to 0.90
Mortar	0.89 to 0.91	Brick	0.93 to 0.96

2. SAFETY WARNINGS

- This instruction manual contains warnings and safety rules which must be observed by the user to ensure safe operation of the instrument and retain it in safe condition.
- Read through and understand the instructions contained in this manual before using the instrument.
- Keep the manual at hand to enable quick reference whenever necessary.
- The instrument is to be used only in its intended applications.
- Understand and follow all the safety instructions contained in the manual.
- It is essential that all safety instructions are adhered to.
- Failure to follow the safety instructions may cause injury or instrument damage.

The symbol  indicated on the instrument means that the user must refer to the related parts in the manual for safe operation of the instrument. It is essential to read the instructions wherever the symbol appears in the manual.



DANGER is reserved for conditions and actions that are likely to cause serious or fatal injury.



WARNING is reserved for conditions and actions that can cause serious or fatal injury.



CAUTION is reserved for conditions and actions that can cause injury or instrument damage.



DANGER

- Never use the instrument if its surface or your hand is wet.
- Never open the battery cover during a measurement.
- When the device is in use, do not look directly into the laser. Permanent eye damage may result.
- Use extreme caution when operating the laser.
- Never point the device towards anyone's eyes



WARNING

- Do not try to replace the batteries if the surface of the instrument is wet.
- The instrument is to be used only in its intended applications or conditions.
- Use in other than as intended may cause instrument damage or serious personal injury.



CAUTION


- Keep out of reach of children.
- Do not expose the instrument to the direct sun, high temperature and humidity or dewfall.
- Use only a soft cloth dampened with water or neutral detergent for cleaning the meter.
Do not use abrasives, solvents or harsh chemicals. Allow to dry thoroughly before use.

3. PREPARATION FOR MEASUREMENT

3.1. Check the condition of the meter

Do not use with visible signs of damage. Examine the housing before you use the product. Look for cracks, missing plastic or exposed metal.

3.2. Check the battery voltage

Press the trigger to make sure the unit turns on. Confirm that the low battery symbol  is not displayed on the LCD screen. If the low battery symbol is displayed follow the instructions in Section 6, Battery Replacement.

3.3. Check the battery door

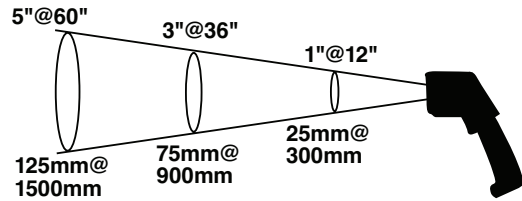
The battery door must be closed prior to operating the device. See Section 6, Battery Replacement.

4. MEASUREMENT

4.1. Temperature

1. Point the thermometer toward the object to be measured and hold the trigger.
2. Distance & Spot Size: As the distance from the object increases, the spot size of the measuring area becomes larger.
3. Make sure the target is larger than the unit's spot size. The smaller the target, the closer the measuring distance will need to be. (NOTE: When accuracy is critical, make sure the target is as close as possible.)

Distance (D) to Spot Size (S) D:S = 12:1



5. OTHER FEATURES

5.1. Emissivity Adjustment

1. Press the "EMS" button
2. To increase "EMS" press the button to the right with the up ▲ arrow.
3. To decrease "EMS" press the button on the left with the down ▼ arrow.

5.2. Laser Pointer

1. To turn the laser on / off, press the button on the right side. You'll see the laser icon appear on the screen when it's been turned on.

5.3. C° / F°

1. To change between C° / F°, press the button on the left and the screen will change to display either C° or F°.

5.4. Backlit LCD

1. To turn the Backlit function on / off, pull the trigger while pressing the button on the right side.

5.5. Data Hold

1. Measurements will continue to be displayed for 9 seconds after the trigger has been released.

5.6. Data Max

1. The maximum temperature measurement while the trigger is held will be displayed at the bottom of the screen.

6. BATTERY REPLACEMENT

1. Make sure the display is blank
2. Open the handle as shown in the picture to the right
3. Replace the battery observing correct polarity
4. Use a new 9v battery
5. Close the battery door and make sure the door is secure

Replace the batteries when a low battery symbol is displayed on the LCD screen.

When the battery is completely exhausted, the display will appear blank and no symbol will be shown.

7. MAINTENANCE

- Cleaning: Use only a soft cloth dampened with water or neutral detergent for cleaning the device. Do not use abrasives, solvents or harsh chemicals. Allow to dry thoroughly before use.



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- Product will be replaced

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No warranty will be honored unless an invoice or other proof of purchase date is provided to Sperry Instruments. Hand written receipts or invoices will not be honored.

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