

1 YEAR
WARRANTY



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User's Guide

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OS303-Series **Essential Infrared Thermometer**



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1) Introduction

The OS303-Series essential infrared thermometer boasts 12 to 1 field of view, -32 to 530°C temperature range and $\pm 2\%$ accuracy above 0°C. This compact easy to use device is great for non-contact measurement of surfaces that are far away and very high temperatures. Just aim, line up the laser, push the button and read the surface temperature in less than a second. The OS303-Series is great for situations where the temperatures are so hot that being too close can become a hazard or the location that needs measuring is hard to reach.

This unit is great for applications such as asphalt, oil, rubber, concrete and many more. The 12:1 field of view, or distance to spot ratio, allows for precise measurement even from a larger distance.

1.1 How it works

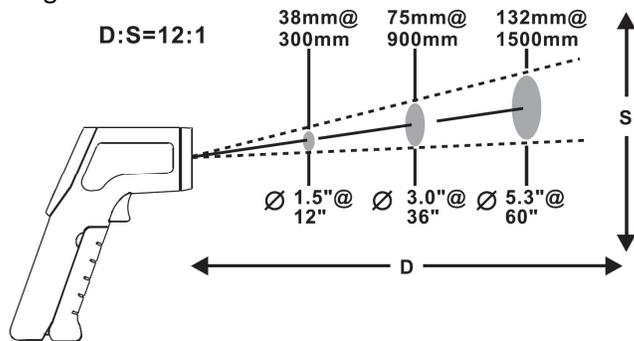
The sensor determines temperature by focusing the infrared energy that is radiated from an object. The focused energy is converted into an electrical signal proportional to the energy emitted. A clean line of sight free of dust or mist is needed between the sensor and the object. For increased ease and accuracy, the laser pointer makes aiming even more precise.

Measurement:

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

Field of View:

Field of view, or distance to spot ratio, is the size of an area that can be measured from a specified distance. As the distance from the object increases, the spot size of the measuring area becomes larger. Make sure the target is larger than the unit's spot size. When accuracy is critical, make sure the target is at least twice as large as the spot size. Please see field of view diagram for the OS303-Series below.



Emissivity:

Most organic materials and painted or oxidized surfaces have an emissivity of 0.95 (fixed for this unit). Inaccurate readings will result from measuring shiny or polished metal surfaces. To compensate, cover the measured surface with masking tape of flat black paint. Measure the tape or painted surface when the tape or painted surface reaches the material temperature.

Emissivity Table:

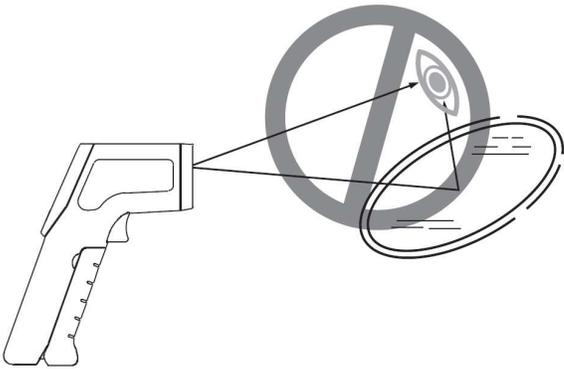
Material	Emissivity	Material	Emissivity
Aluminum	0.30	Iron	0.70
Asbestos	0.95	Lead	0.50
Asphalt	0.95	Limestone	0.98
Basalt	0.70	Oil	0.94
Brass	0.50	Paint	0.93
Brick	0.90	Paper	0.95
Carbon	0.85	Plastic	0.95
Ceramic	0.95	Rubber	0.95
Concrete	0.95	Sand	0.90
Copper	0.95	Skin	0.98
Dirt	0.94	Snow	0.90
Frozen 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

1.2 Caution

Infrared thermometer should be protected for the following:

- EMF (electro-magnetic fields) from arc welders and induction heaters.
- Thermal shock (caused 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.

Warning: Do not point laser directly at eye or indirectly off reflective surfaces!



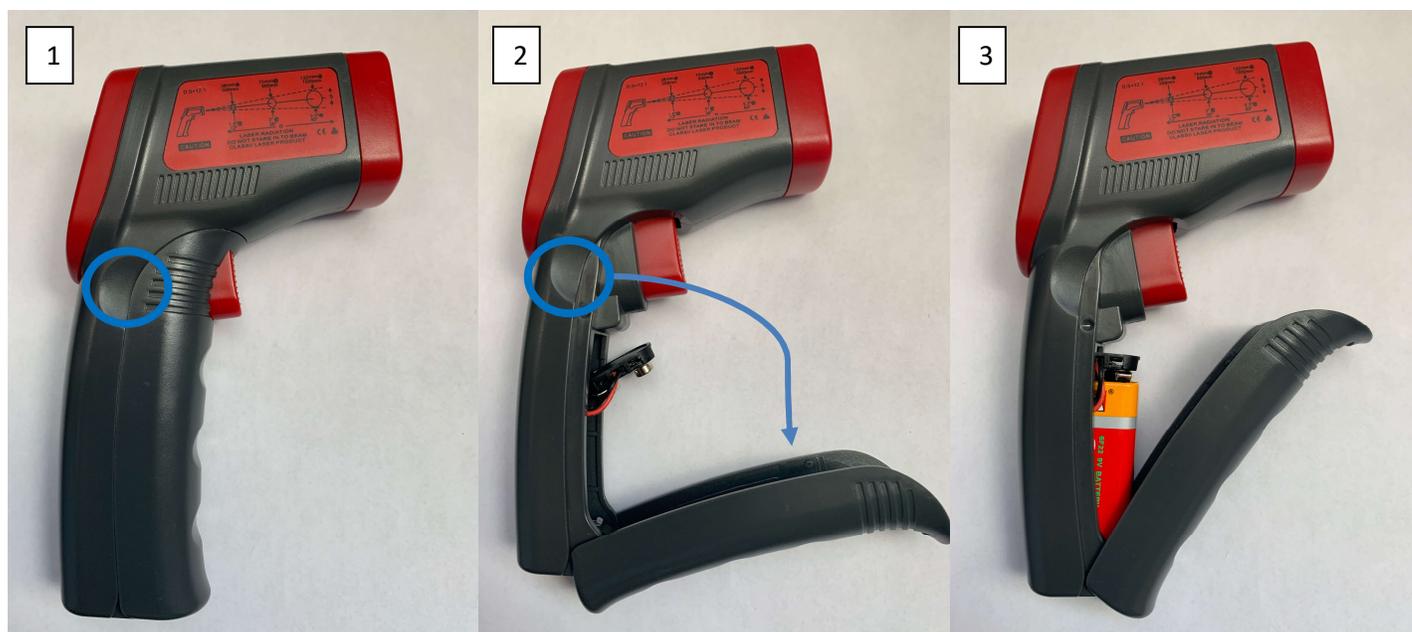
2) Specifications

Temperature Range	-32 - 530°C (-26 - 986°F)
Accuracy	±2°C or 2%, whichever is greater
Field of View	12:1
Repeatability	1% of reading or 1°C
Response Time	500 ms (95% response)
Spectral Response	5 – 14 μm
Emissivity	Fixed 0.95
Operating Temperature Range	0 - 50°C (32 - 120°F)
Relative Humidity	10 -95% RH
Storage Temperature	-20 - 60°C (-4 - 140°F)
Weight	145g
Dimensions	5.98 x 5.12 x 1.50 in (152 x 130 x 38 mm)
Power	9V Battery
Estimated Battery Life	16 Hours

3) Operating Instructions

3.1 Battery Installation:

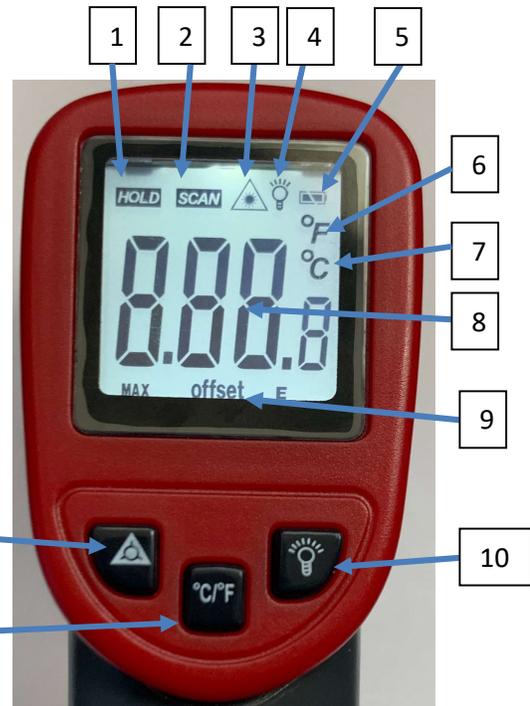
Grab the sides of the battery compartment (1) and pull open (2). Install battery correctly to positive and negative terminals, insert into battery compartment and close compartment door (3). Pull the trigger and LCD display will turn on and display reading and battery icon.



3.2 Display Layout:

LCD Display:

- 1) Data hold icon
- 2) Scanning icon
- 3) Laser on icon
- 4) Backlight icon
- 5) Battery power icon
- 6) (°F) Celsius units
- 7) (°C) Fahrenheit units
- 8) Temperature reading
- 9) Offset icon



3.3 Button Layout:

- 10) Backlight On/Off
- 11) Temperature unit switch
- 12) Laser On/Off

3.4 Operating Instructions:

1) Changing temperature units

Press "Temperature unit switch" button to toggle between Celsius and Fahrenheit.

2) Turning laser On/Off

Press "Laser On/Off" button to toggle laser on and off.

3) Turning backlight On/Off

Press "Backlight On/Off" button to toggle LCD backlight on and off.

4) Changing offset

Press and hold "Temperature unit switch" button for 3 seconds, this will enter the offset menu. Use the "Laser On/Off" button to adjust offset up and use the "Backlight On/Off" button to adjust offset down. Don't press any buttons for 5 seconds to exit offset menu. When out of offset menu the word offset will disappear from the bottom of the screen.

3.5 Locating a Hotspot:

To find 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 for accurate measuring).

4) Maintenance

- 1) Lens cleaning : blow off loose 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.

Note: Do not use solvent to clean lens and do not submerge the unit into water or any other liquid.

WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

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RETURN REQUESTS/INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

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