INTRODUCTION
This instrument is a infrared thermometer. Main(upper) display shows the measurement of IR thermometer. Lower-left display shows the temperature of air surrounding the meter. Lower-right display show the difference between IR measurement and air temperature.(ΔT).

SAFETY INFORMATION
It is recommended that users read the safety and operation instructions before using the infrared thermometer.

When ▲ sign appears, press “▲” to turn the laser beam on and off. Be very cautious with the laser beam, not aiming your eyes or those of any other person or animal.
• Do not look directly into the laser light from the optical system.
• When measuring the temperature of an object which has a mirror finish, be careful not to allow the laser light beam to be reflected off the surface into your eyes or those of another person.
• Do not allow the laser light beam to impinge upon any gas which can explode.

CAUTION
• Do not use the unit near any device which generates strong electromagnetic radiation or near a static electrical charge, as these may cause errors.
• Do not use the unit where it may be exposed to corrosive or explosive gases. The unit may be damaged, or explosion may occur.
• Do not keep or use this unit in an environment where it will be directly illuminated by sunshine, or where it condensation. If you do, it may be deformed, its insulation may be damaged, or it may no longer function according to specification.
• Do not place the meter on or around hot objects (70°C/158°F). It may cause damage to the case.
• If the meter is exposed to significant changes in ambient temperature (hot to cold or cold to hot). Allow 30 minutes for temperature stabilization, before taking measurement.
• Condensation may form on the sensor when going from a cold to hot environment-wait 10 minutes for condensation to dissipate before taking measurements.
• This unit is not constructed to be waterproof or dustproof, so do not use it in a very dusty environment or in one where it will get wet.
• Do not point the lens at the sun or at any other source of strong light. Doing so may damage sensor.
• Do not contact the lens against the object whose temperature is to be measured, or get it dirty, allow it to be scratched, or allow any foreign material to adhere to it. Doing so may cause errors.
• Do not touch or hold by the front case. Temperature reading can be affected by heat from hand.
• Readings may be affected if the unit is operated within a radio frequency electromagnetic field strength of approximately 3 volts per meter, but the performance of the instrument will not be permanently affected.

SPECIFICATIONS

IR TEMPERATURE
Temperature Range: -30°C to 550°C, -22°F to 1022°F
Display Resolution: 0.1°C, 0.1°F
Accuracy: 
±(2°C/4°F) for -30°C to 100°C, (-22°F to 212°F)
±(2% reading) for 101°C to 550°C,
(213°F to 1022°F)
Response Time: 0.5 second
Detection Element: Thermopile
Spectral Response: 6 to 14μm
Optical Lens: Fresnel Lens
Adjustable emissivity (ε): 0.1 to 1.0
Field of View: 100mmø at 600mm(2.4"ø at 24.0")

Note:
1. The distance between Laser marker and center of spot is 16mm.
2. Spot size increases with distance from the probe tip as shown (Spot Diameter measured at 90% Energy).
3. To ensure accurate measurement, the size of the object needs to be 1.5 to 2 times of the spot size, so to provide adequate margin.

AIR TEMPERATURE
Sensor: Thermistor temperature sensor
Range: -20°C to 60°C, (-4°F to 140°F)
Resolution: 0.1°C, 0.1°F
Accuracy:
±0.5°C for 0°C to 45°C
±1.0°C for -20°C to 0°C, 45°C to 60°C
±1.0°F for 32°F to 113°F
±2.0°F for -4°F to 32°F, 113°F to 140°F

LASER SPECIFICATIONS
Laser safety classification of Class 2
Wave Length: Red (630–671nm)
Power out: <1mW.
Sighting: 1-beam laser marker.
Operating Environment: -20°C to 60°C, (-4°F to 140°F) at <70% R.H.
Storage Temperature: -20°C to 60°C (-4°F to 140°F), 0 to 80% R.H. with battery removed from meter.

Temperature Coefficient: 0.1 times the applicable accuracy specification per °C out of 23°C±5°C, (73.4°F±9°F)
Auto power off: 10 minutes
Standby consuming current: <5μA

Battery: 1.5Vx2pcs AAA size
Battery Life: 40 hours (continuity) typical
(contain Laser)
Low battery indication: The “Ω” is displayed when the battery voltage drops below the operating level
Dimensions: 24.7mm(T) x 50.9mm(W) x 132.9 mm(H)
Weight: Approx. 120g. (including battery)

OPERATIONS
There are 3 operation modes, namely Measurement Mode, Set Mode and Hold Mode.
1. Turning on and off the meter:
When power is off, a short push on “Ω” key turns on the meter and enter Measurement Mode.
When power is on, press and hold “Ο” key for 2 seconds turns the power off.
Right after power on, all the indicators on the LCD display lights up for one second.
2. Measurement Mode:
Press “▲” key, to start measuring and activate the Laser pointer.
While “▲” key is pressed, measurement reading refreshed every 0.5 second.
When “▲” key is released the display freezes with reading of last measurement and indicator “HOLD” shows in middle of display.

Backlight:
In measurement mode, a short push on “Ω” key turns on the backlight for dark environment, it goes off automatically after 15 seconds if without further operation.

3. Set Mode:
In set mode, user can select unit of temperature(°C/°F) , turn on/off differential temperature(ΔT), adjust emissivity(ε) and turn on/off APO function.
(APO = Auto Power Off, when APO is ON, the meter power off automatically if no operation in 10 minutes).
When power is off, press and hold “Ω” key for 2 seconds to enter Set Mode.
Measurement Considerations

1. Theory of Measurement
   Every object emits infrared energy in accordance with its temperature. By measuring the amount of this radiant energy, it is possible to determine the temperature of the emitting object.

2. About Infrared
   Infrared radiation is a form of light (electromagnetic radiation), and has the property that it passes easily through air while it is easily absorbed by solid matter. With an emission thermometer which operates by detecting infrared radiation accurate measurement is possible, irrespective of the air temperature or the measurement distance.

3. Emission Thermometer Structure
   Infrared radiation which has been emitted from the object is focused upon an infrared radiation sensor, via an optical system. This includes a lens which is transparent to infrared radiation. And 5.3μm cut off filter. The output signal from the infrared radiation sensor is input to an electronic circuit along with the output signal from a standard temperature sensor (Thermopile).

4. Emissivity
   All objects emit invisible infrared energy. The amount of energy emitted is proportional to the object’s temperature and its ability to emit IR energy. This ability, called emissivity, is based upon the material that the object is made of and its surface finish. Emissivity values range from 0.10 for a very reflective object to 1.00 for a black body.

FACTORY SET EMISSIVITY 0.95, WHICH COVER 95% OF TYPICAL APPLICATIONS.

Maintenance

A. Battery Cover
   1. Power is supplied by 2pcs 1.5V (AA SIZE).
   2. The “-” appears in the display when battery replacement is needed.
   3. Push the Battery Cover and lift it in the direction as shown in the figure.
   4. Remove the batteries from battery compartment.
   5. Replace with 2 new AAA batteries with polarity as indicated on the bottom of Battery Compartment.
   6. Replace the Battery Cover.

Cleaning
   Periodically wipe the case with a damp cloth and detergent, do not use abrasives or solvents.

Warranty/Disclaimer

Omega Engineering, Inc. warrants this product to be free of defects in materials and workmanship for a period of 12 months from the date of purchase. Omega's Warranty does not apply to defects resulting from any action of the purchaser, including but not limited to misapplication, misuse, operating outside of design limits, improper repair, or unauthorized modifications. This Warranty is void if the unit shows evidence of having been tampered with or otherwise damaged as a result of excessive corrosion or current, heat, moisture or vibration. Any implied warranties are hereby disclaimed.

Usages & Conditions

1. This handheld infrared thermometer is designed for industrial or other uses. DO NOT EXCEEDING the conditions as set forth in our basic WARRANTY DISCLAIMER language. For example, Omega assumes no responsibility for damage or liability that may occur due to the use of the Product in a manner that is not within the specification limitations.

2. RETURN REQUESTS/INQUIRIES
   Direct all warranty and repair requests/inquiries to the Omega Customer Service Department. To contact Omega, please have the following information available before contacting Omega:
   - Product Description
   - Order Number
   - Serial Number
   - Date of Purchase
   - Description of Problem
   - Contact Information

3. For warranty repairs, contact Omega for current repair changes. Please have the following information available before contacting Omega:
   - Warranty Number
   - Order Number
   - Serial Number
   - Date of Purchase
   - Description of Problem
   - Contact Information

For non-warranty repairs, contact Omega for current repair changes. Please have the following information available before contacting Omega:
   - Warranty Number
   - Order Number
   - Serial Number
   - Date of Purchase
   - Description of Problem
   - Contact Information

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