

ME3025

Digital Infrared Thermometer

-50 to 480°C with 13-Point Circular Laser Targeting

Fast, non-contact surface temperature measurement for science, laboratory, trade and maintenance applications. The ME3025 combines a wide measurement range, 12:1 optical ratio, adjustable emissivity and circular laser targeting in a compact handheld instrument.

TASI



Key Features

- Wide -50°C to 480°C temperature range for a broad range of surface-temperature applications.
- Non-contact infrared measurement for hot, moving or difficult-to-reach surfaces.
- Fast response time of less than 500ms for quick readings.
- 12:1 distance-to-spot ratio for convenient measurement from a distance.
- 13-point circular laser targeting helps identify the measurement area.
- Adjustable emissivity from 0.10 to 1.00 in 0.01 steps for different surface materials.

Suitable for: Science and laboratory experiments, Trade/TAFE, HVAC, automotive, electrical maintenance, industrial servicing and general temperature measurement.

Technical Specifications

Temperature range	-50°C to 480°C (-58°F to 896°F)
Accuracy	Above 0°C: $\pm(1.5\% \text{ of reading} + 1^\circ\text{C})$; 0°C and below: $\pm 3^\circ\text{C}$
Accuracy reference conditions	Manufacturer calibration geometry at ambient temperature 21°C to 25°C
Repeatability	$\pm 1.0\%$ of reading or $\pm 1.0^\circ\text{C}$ ($\pm 2.0^\circ\text{F}$), whichever is greater
Resolution	0.1°C / 0.1°F
Distance-to-spot ratio	12:1 (calculated at 90% energy)
Response time	<500ms (95% of reading)
Spectral range	8 to 14 μm
Emissivity	Adjustable 0.10 to 1.00; 0.01 steps; default 0.95
Laser targeting	13-point circular laser
Laser specification	650nm; output <1mW; Class 2

Functions & General Specifications

Functions	Data Hold; Maximum Value; High/Low Alarm; °C/°F selection; Laser On/Off; Beep On/Off; Low Battery indication
Auto power off	Display off after 15 seconds; automatic shutdown after 1 minute
Operating conditions	0°C to 50°C; ≤80% RH, non-condensing
Storage conditions	-20°C to 60°C; ≤80% RH, non-condensing; remove batteries for storage
Display size	29 x 27mm
Power supply	2 x 1.5V AAA (R03/LR03) batteries
Dimensions	155 x 92 x 42mm
Weight	Approx. 180g, excluding batteries
Wiltronics SKU	ME3025
Manufacturer model	TASI TA601A
Display	4-digit VA colour display; maximum display 9999

Understanding the 12:1 Distance-to-Spot Ratio

The infrared sensor measures the average temperature of a circular target area, not only the point indicated by the laser. A 12:1 ratio means the approximate spot diameter is one-twelfth of the measuring distance. For best results, keep the target larger than the measurement spot.

Distance from target	Approx. spot diameter
120mm	10mm
300mm	25mm
600mm	50mm
1200mm	100mm

Emissivity

Infrared thermometers calculate temperature from infrared energy emitted by a surface. Different materials emit infrared energy at different efficiencies, described by emissivity. The ME3025 allows emissivity to be adjusted from 0.10 to 1.00, with a default setting of 0.95.

- For many painted, oxidised, plastic, rubber, wood and other non-reflective surfaces, the default setting is often suitable.
- Shiny or polished metal surfaces can give misleading infrared readings because their emissivity is low and reflected infrared energy can influence the measurement.
- For comparative classroom investigations, keep distance, target size and measurement angle consistent when comparing materials.

Basic Operation

1. Point the thermometer at the target surface and squeeze the trigger to take a reading.
2. Use the circular laser target as a positioning aid; ensure the actual target is larger than the infrared measurement spot.
3. Allow the reading to stabilise. The instrument responds in less than 500ms under specified conditions.
4. Adjust emissivity where required for the surface being measured.
5. Use Data Hold, Maximum Value or High/Low Alarm functions as required for the application.

Measurement Notes

- The ME3025 measures surface temperature. It does not measure internal temperature through glass, plastic or other transparent materials.
- Steam, dust, smoke, condensation or heavy contamination between the instrument and target may affect readings.
- Avoid measuring a spot smaller than the instrument field of view. Move closer if necessary.
- Rapid movement between very different ambient temperatures can affect accuracy until the instrument reaches thermal equilibrium.
- Infrared temperature measurement is not a substitute for a contact probe where internal, immersion or food-core temperature is required.

Laser Safety

Class 2 laser product. Do not stare into the laser beam or direct it towards the eyes of people or animals. The laser is for targeting only and does not perform the temperature measurement.

Typical Applications

- Science education: heat transfer, thermal radiation, emissivity, insulation and cooling investigations.
- Electrical and electronics: checking surface temperatures of equipment, terminals, power supplies and components.
- HVAC and building services: heating, cooling, duct, pipe and surface-temperature checks.
- Automotive and mechanical servicing: engines, brakes, bearings, exhaust systems and machinery.
- Industrial and maintenance: motors, gearboxes, production equipment and preventive inspection.

Technical data source: TASI TA601 Series manufacturer specifications. Specifications may be subject to change without notice.