



 **Cole-Parmer®**

INFRARED THERMOMETERS

JUST POINT AND SHOOT
FOR QUALITY NONCONTACT
TEMPERATURE MEASUREMENTS



Infrared Thermometers

WHEN NONCONTACT READINGS ARE CRITICAL, COLE-PARMER HAS THE INFRARED TOOL FOR THE JOB!

Measuring surface temperature can provide clues to such problems as leaky ductwork, over-stressed motors, faulty equipment, or food that is in danger of spoiling. There is no easier way to take such readings than with a Cole-Parmer infrared thermometer! Ideal for use when objects are extremely hot, moving quickly, difficult to reach, or vulnerable to contamination.

Cole-Parmer offers infrared thermometers to meet the demands of any application. The Cole-Parmer® and Oakton® brands are industry leaders in accuracy, durability, and high optical resolution. Our products are backed by expert applications assistance and customer service.

LIGHTWEIGHT. COMPACT. QUICK AND EASY TO USE.

Noncontact infrared (IR) thermometers use infrared technology to quickly and conveniently measure an object's surface temperature. They provide fast, accurate, repeatable readings without ever touching the target. Just aim, pull the trigger, and read the temperature on the LCD.

- Safely measure hot, hazardous, or hard-to-reach surfaces
- Measure food temperature without contaminating or damaging product
- Log several readings per second instead of waiting several minutes for a single reading from a contact thermometer



QUICK AND HANDY

TAKE REPEATABLE READINGS WITH MINI INFRARED THERMOMETERS DESIGNED TO FIT IN THE PALM OF YOUR HAND

- Ideal for fast inspections in food preparation, life sciences, and field use
- Quick temperature measurement from less than 12 inches—take readings of any liquid, solid, or semisolid in less than one second
- Our most economical units
- Models small enough to fit in a shirt pocket
- Adjustable emissivity available



MINI INFRARED THERMOMETERS			
MODEL	 OAKTON Super-Mini TempTestr® Thermometer	 OAKTON Mini TempTestr® Thermometer	 OAKTON Palm-Sized Thermometer
Catalog number	ML-39642-01	ML-39642-00	ML-39643-00
Temperature range	–27 to 230°F (–33 to 110°C)	–30 to 430°F (–33 to 220°C)	–27 to 482°F (–33 to 250°C)
Accuracy	±2.5% of reading or 3.6°F (2°C)	±2% of reading or 4°F (2°C)	±2.5% of reading or 3.6°F (2°C)
Emissivity	0.95 fixed	Adjustable from 0.01 to 1.00	Adjustable from 0.5 to 1.00
Sighting	None	None	Class II laser
Distance-to-target ratio (D:S)	1:1	1:1	8:1
Datalogging	—	—	—
Data output	—	—	—
Probe	—	—	—
Power	Two LR44/359 batteries (included)	One 3V battery (included)	Two CR2032 batteries (included)
Features	Metal housing	Min/max and hold functions; metal case	—

FOOD SAFETY

USE FOOD SAFETY IR THERMOMETERS TO MEET GMPs AND HACCP REQUIREMENTS AS SET BY THE FDA

- Measure and log food temperatures during cooking, serving, cooling, storage, transport, and reheating to increase product quality and consistency
- Quickly and accurately monitor for HACCP danger zones
- Measure temperatures up to 626°F (330°C) for pathogen reduction
- Reduce liability and waste by preventing cross-contamination
- Available with IP65- or IP54-rated housings for easy cleaning
- Ideal for food preparation areas, labs, and production plants



FOOD SAFETY INFRARED THERMOMETERS

MODEL	 OAKTON "2-in-1" Waterproof Thermometer	 OAKTON Food TempTestr® Mark-I Thermometer	 OAKTON Food TempTestr® Mark-II Thermometer	 OAKTON Food Safety Thermometer
Catalog number	ML-35625-41	ML-35625-15	ML-35625-45	ML-35625-40
Temperature range	IR: -67 to 482°F (-55 to 250°C) T/C: -67 to 626°F (-55 to 330°C)	-31 to 572°F (-35 to 275°C)	-20 to 400°F (-30 to 200°C)	IR: -30 to 525°F (-35 to 275°C) T/C: -40 to 390°F (-40 to 200°C)
Accuracy	IR: ±0.1°F from -27 to 32°F (-33 to 0°C), ±1°F from 32 to 149°F (0 to 65°C), ±1.5% of reading from 149 to 572°F (65 to 300°C) T/C: ±0.5°F from 15 to 212°F (-9 to 100°C), remaining ±0.9° of reading	±2°F (±1°C) from 32 to 150°F (0 to 65°C)	±2°F (±1°C) from 32 to 150°F (0 to 65°C)	IR: ±2°F (±1°C) from 32 to 150°F (0 to 65°C) T/C: ±1°F (±0.5°C) from 32 to 150°F (0 to 65°C)
Emissivity	Adjustable from 0.01 to 1.00	0.97 fixed	0.97 fixed	0.97 fixed
Sighting	White LED (nonlaser)	Class II laser	White LED (nonlaser)	White LED (nonlaser)
Distance-to-target ratio (D:S)	2.5:1	4:1	2.5:1	2.5:1
Datalogging	—	—	—	—
Data output	—	—	—	—
Probe	Thermocouple, type K input (integral probe)	—	—	Thermocouple, type K input (integral probe)
Power	Two AAA batteries (included)	One 9V battery (included)	One 9V battery (included)	One 9V battery (included)
Features	IP65 rated, HACCP, min/max, hold, backlit LCD	Steam interference filter, seven-second hold, backlit LCD	IP54 rated, HACCP, backlit LCD	IP65 rated, HACCP, alarm, timer, min/max, hold, backlit LCD

For probes and accessories, simply click on the Catalog Number and go to the sidebar.

GENERAL-PURPOSE

MAKE QUICK, BASIC TEMPERATURE CHECKS WITH COMPACT IR THERMOMETERS

- Economically priced for distance readings up to 20 feet
- Large, easy-to-read LCD allows rapid, multiple readings
- Ideal for automotive repair, plant maintenance, and HVAC equipment monitoring
- Some models are available with thermocouple input for the ability to gather internal or direct contact measurements
- Rugged enough for industrial environments



GENERAL-PURPOSE INFRARED THERMOMETERS

MODEL	OAKTON Mini-InfraPro™ 2 Thermometer	OAKTON Mini-InfraPro™ 4 Thermometer	OAKTON Mini-InfraPro™ 6 Thermometer	OAKTON TempTest® Thermometer	OAKTON Thermometer with Type K probe input	OAKTON Thermometer with Type K probe input
Catalog number	ML-39641-02	ML-39641-04	ML-39641-06	ML-35625-10	ML-39644-00	ML-39644-10
Temperature range	0 to 525°F (-18 to 274°C)	0 to 750°F (-18 to 400°C)	-20 to 932°F -30 to 500°C	0 to 500°F (-18 to 260°C)	IR: -76 to 932°F (-60 to 500°C) T/C: -83 to 1999°F (-64 to 1400°C)	IR: -76 to 1400°F (-60 to 760°C) T/C: -83 to 1999°F (-64 to 1400°C)
Accuracy	±2% or 3.5°F (2°C) from 30 to 275°F (-1 to 525°C)	±2% or 3.5°F (2°C) from 30 to 275°F (-1 to 525°C)	±2°F (±1°C) from 50 to 86°F (10 to 30°C), ±1.5% of reading or ±3°F (1.5°C) whichever is greater	±2% or ±3°F (2°C) whichever is greater	IR: ±2% or ±3.6°F (±2°C) T/C: ±1% or ±1.8°F (±1°C)	IR: ±2% or ±3.6°F (±2°C) T/C: ±1% or ±1.8°F (±1°C)
Emissivity	0.95 fixed	0.95 fixed	0.95 fixed	0.95 fixed	Adjustable from 0.01 to 1.00	Adjustable from 0.01 to 1.00
Sighting	None	Class II laser	Class II laser	Class II laser	Class II laser	Class II laser
Distance-to-target ratio (D:S)	8:1	8:1	10:1	8:1	12:1	20:1
Datalogging	—	—	—	—	—	—
Data output	—	—	—	—	—	—
Probe	—	—	—	—	Thermocouple, type K input (probe not included)	Thermocouple, type K input (probe not included)
Power	One 9V battery (included)	One 9V battery (included)	One 9V battery (included)	One 9V battery (included)	One 9V battery (included)	One 9V battery (included)
Features	Hold, backlit LCD	Hold, backlit LCD	Protective boot, max, hold, backlit LCD	Seven-second hold, backlit LCD	Alarm, min/max, hold	Alarm, min/max, hold

For probes and accessories, simply click on the Catalog Number and go to the sidebar.

INDUSTRIAL PROFESSIONAL

GET THE JOB DONE RIGHT THE FIRST TIME WITH INFRAPRO® PROFESSIONAL-GRADE IR GUNS

- Designed for the professional technician
- Broader temperature range and improved optics allow accurate measuring from greater distances
- Ideal for use around moving parts, and for dangerous or difficult-to-reach objects
- Monitor air stratification, furnace performance, electrical panels and connectors, and more
- Available with an RTD input for direct contact measurements with a temperature range up to 1400°F (760°C)



PROFESSIONAL-GRADE INFRARED THERMOMETERS

MODEL	OAKTON InfraPro 1 Thermometer	OAKTON InfraPro 3 Thermometer with RTD probe input	OAKTON InfraPro 4 Thermometer with RTD probe input	OAKTON InfraPro 5 Thermometer with RTD probe (Intrinsically Safe)
Catalog number	ML-35639-00	ML-35639-20	ML-35639-30	ML-35639-40
Temperature range	-25 to 999°F (-32 to 535°C)	-25 to 1100°F (-32 to 600°C)	-25 to 1400°F (-32 to 760°C)	-25 to 1400°F (-32 to 760°C)
Accuracy	±1% of the reading or ±2°F (±1°C) whichever is greater	±1% of the reading or ±2°F (±1°C) whichever is greater	±1% of the reading or ±2°F (±1°C) whichever is greater	±1% of the reading or ±2°F (±1°C) whichever is greater
Emissivity	0.95 fixed	Adjustable from 0.10 to 1.00	Adjustable from 0.10 to 1.00	Adjustable from 0.10 to 1.00
Sighting	Class II laser	Class II laser	Class II laser	Class II laser
Distance-to-target ratio (D:S)	12:1	30:1	50:1	50:1
Datalogging	—	12 data points	12 data points	12 data points
Data output	—	—	—	—
Probe	—	RTD input (probe not included)	RTD input (probe not included)	RTD input with probe
Power	One 9V battery (included)	One 9V battery (included)	One 9V battery (included)	One 9V battery (included)
Features	Hold, backlit LCD	Min/max, dif, avg, emissivity, high and low alarms, probe, log, recall, backlit LCD, rubber grip and nose	Min/max, dif, avg, emissivity, high and low alarms, probe, log, recall, backlit LCD, rubber grip and nose	Min/max, dif, avg, emissivity, high and low alarms, probe, log, recall, backlit LCD, rubber grip and nose

For probes and accessories, simply click on the Catalog Number and go to the sidebar.

PRECISION MEASUREMENT



TAKE HIGH-ACCURACY READINGS AT DISTANCES UP TO 60 FEET AND GREATER WITH THESE PRECISE INFRARED THERMOMETERS

- Precise sighting system and adjustable emissivity make these the most accurate IR thermometers on the market
- True Dimension™ extra-bright, three-point lasers for precise long-distance sighting
- Advanced models include 100-point datalogging, customizable log names, and monitoring, analysis, and reporting software
- Some models provide still-photo documentation of readings for complete record keeping with precise photographic IR models
- Date-and-time stamp capabilities available
- Distance-to-sight ratio of up to 60 to 1
- USB or RS-232 interface for quick, dependable computer record keeping
- Accurate from -25 to 1600°F (-30 to 900°C)



PRECISE INFRARED THERMOMETERS

MODEL	 COLE-PARMER Basic Class II Thermometer	 COLE-PARMER Basic Class III Thermometer	 COLE-PARMER Deluxe Class II Thermometer	 COLE-PARMER Close-Focus Deluxe Class II Thermometer*	 COLE-PARMER Close-Focus Photographic Class II Thermometer	 COLE-PARMER Photographic Class II Thermometer
Catalog number	ML-39755-00	ML-39755-10	ML-39755-20	ML-39755-50	ML-39753-60	ML-39753-50
Temperature range	-25 to 1600°F (-30 to 900°C)	-25 to 1600°F (-30 to 900°C)	-25 to 1600°F (-30 to 900°C)	-25 to 1600°F (-30 to 900°C)	-25 to 1600°F (-30 to 900°C)	-25 to 1600°F (-30 to 900°C)
Accuracy	±0.75% of reading or ±2°F (1°C), whichever is greater	±0.75% of reading or ±2°F (1°C), whichever is greater	±0.75% of reading or ±2°F (1°C), whichever is greater	±0.75% of reading or ±2°F (1°C), whichever is greater	±0.75% of reading or ±2°F (1°C), whichever is greater	±0.75% of reading or ±2°F (1°C), whichever is greater
Emissivity	Adjustable from 0.10 to 1.50	Adjustable from 0.10 to 1.50	Adjustable from 0.10 to 1.50; 30 preset material emissivity values	Adjustable from 0.10 to 1.50; 30 preset material emissivity values	Adjustable from 0.10 to 1.00	Adjustable from 0.10 to 1.00
Sighting	Class II 3-point laser	Class III 1-point laser (maximum brightness and for distances up to 100 feet)	Class II 3-point laser	Class II 3-point laser	Class II 3-point laser	Class II 3-point laser
Distance-to-target ratio (D:S)	60:1	60:1	60:1	50:1	50:1	60:1
Datalogging	—	—	100 data points with date-and-time stamp	100 data points with date-and-time stamp	100 measurements and photographs with date-and-time stamp	100 measurements and photographs with date-and-time stamp
Data output	—	—	RS-232 or 1 mV per degree	RS-232 or 1 mV per degree	USB	USB
Probe	—	—	Thermocouple, type K & J input	Thermocouple, type K & J input	Thermocouple, type K & J input	Thermocouple, type K & J input
Power	Two AA batteries (included)	Two AA batteries (included)	Two AA batteries (included) or 115 VAC	Two AA batteries (included) or 115 VAC	Two AA batteries (included)	Two AA batteries (included)
230 VAC models	—	—	ML-39755-30	ML-39755-60	—	—
Features	Audible/visible high alarm, current/min/ max readings, backlit graphical display	Audible/visible high alarm, current/min/ max readings, backlit graphical display	Audible/visible high/low alarm, current/min/ max readings, backlit graphical display, DIF/AVG readings	Audible/visible high/low alarm, current/min/ max readings, backlit graphical display, DIF/AVG readings	Audible/visible high/low alarm, current/min/ max readings, backlit graphical display, DIF/AVG readings	Audible/visible high/low alarm, current/min/ max readings, backlit graphical display, DIF/AVG readings

For probes and accessories, simply click on the Catalog Number and go to the sidebar.

*Close-Focus Basic Class II Thermometer is also available, click [ML-39755-40](#) for information.

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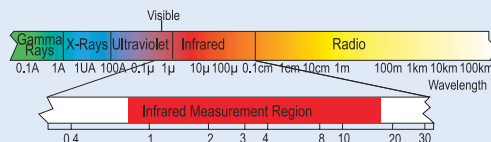
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How does IR work?

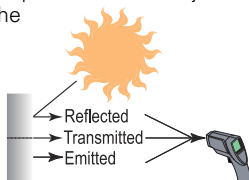
IR thermometers capture the invisible infrared energy naturally emitted from all objects. Infrared radiation is part of the electromagnetic spectrum which includes radio waves, microwaves, visible light, ultraviolet, gamma, and X-rays. On the spectrum, infrared falls between visible light and radio waves. Infrared wavelengths are usually expressed in microns with the infrared spectrum extending from 0.7 to 1000 microns. In practice, the 0.7 to 14 micron band is used for IR temperature measurement.



How to ensure accurate temperature measurement?

A solid understanding of infrared technology and its principles lies behind accurate temperature measurement. When the temperature is measured by a noncontact device, the IR energy emitted from the measured object passes through the optical system of the thermometer and is converted to an electrical signal at the detector. This signal is then displayed as a temperature reading. There are several important factors that determine accurate measurement. The most important factors are emissivity, distance-to-spot ratio, field-of-view, and location of a hot spot.

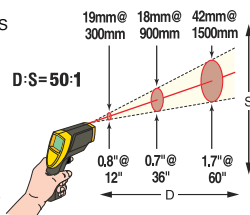
Emissivity. All objects reflect, transmit, and emit energy. Only the emitted energy indicates the temperature of the object. When IR thermometers measure the surface temperature they sense all three types of energy, therefore all thermometers have to be adjusted to read emitted energy only. Measuring errors are often caused by IR energy being reflected by light sources.



Some IR thermometers allow you to change the emissivity in the unit. The value of emissivity for various materials can be looked up in published emissivity tables.

Other units have a fixed, preset emissivity of 0.95, which is the emissivity value for most organic materials and painted or oxidized surfaces. If you are using a thermometer with a fixed emissivity to measure the surface temperature of a shiny object, you can compensate by covering the surface to be measured with masking tape or flat black paint. Allow time for the tape or paint to reach the same temperature as the material underneath. Measure the temperature of the taped or painted surface. That is the true temperature.

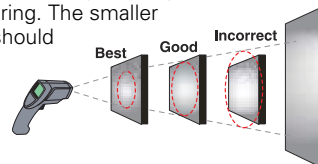
Distance-to-spot ratio. The optical system of an infrared thermometer collects the infrared energy from a circular measurement spot and focuses it on the detector. Optical resolution is defined by the ratio of the distance from instrument to the object compared to the size of the spot (90% of energy) being measured (D:S ratio). The larger the ratio number the better the instrument's resolution, and the smaller the spot size that can be measured.



The laser sighting included in some instruments only helps to aim at the measured spot.

A recent innovation in infrared optics is the addition of a Close Focus feature, which provides accurate measurement of small target areas without including unwanted background temperatures.

Field-of-view. Make sure that the target is larger than the spot size the unit is measuring. The smaller the target, the closer you should be to it. When accuracy is critical, make sure that the target is at least twice as large as the spot size.

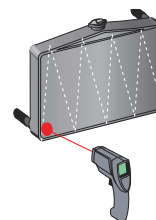


How to take temperature measurement?

To take a temperature measurement, just point the unit at the object you wish to measure. Pull the trigger and read the temperature on the unit's LCD. Be sure to consider distance-to-spot size ratio and field-of-view. There are important things to keep in mind while using infrared thermometers:

Measure surface temperature only. The IR thermometer cannot measure internal or direct contact temperatures.

Do not take temperature measurement through glass. Glass has very distinctive reflection and transmission properties that do not allow accurate infrared temperature reading. Infrared thermometers are not recommended for use in measuring shiny or polished metal surfaces (stainless steel, aluminum, etc.).



Locate 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 the hot spot.

Watch for environmental conditions. Factors such as steam, dust, and smoke can prevent accurate measurement by obstructing the unit's optics.

Ambient temperatures. If the thermometer is exposed to abrupt ambient temperature differences of 20° or more, allow it to adjust to the new ambient temperature for at least twenty minutes.