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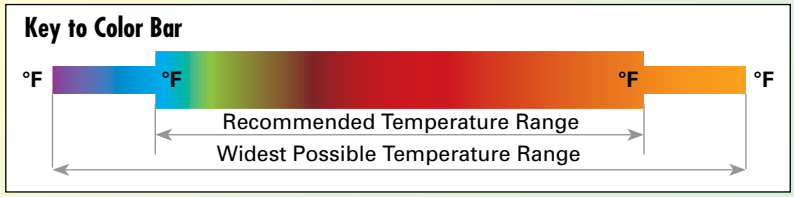
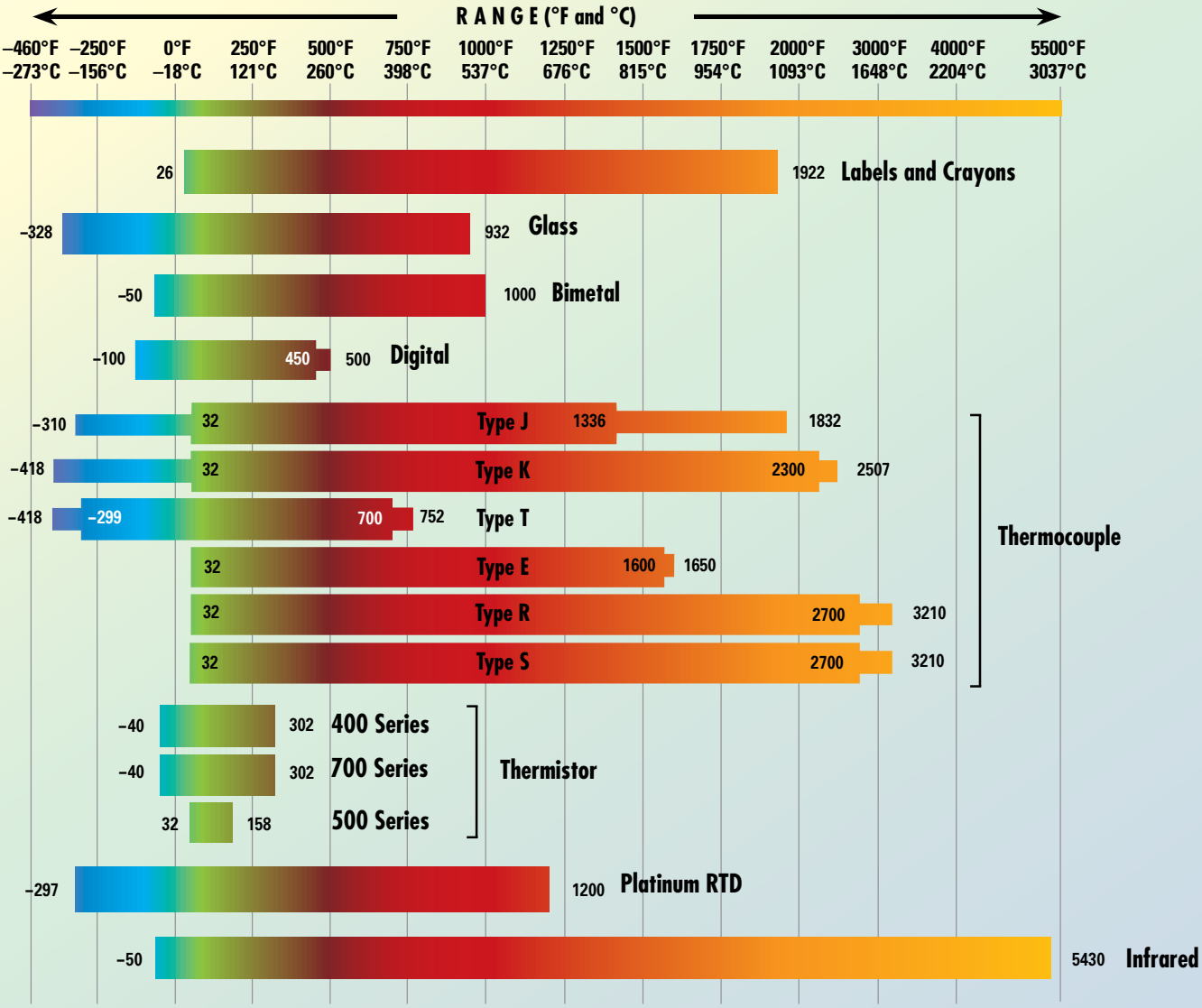
Tech Insights

Temperature Instrument Range Guide

The stated accuracy of any temperature measurement device is for the "Recommended Temperature Range" only. The narrow section of the temperature bar represents the widest range the instrument can be used in. Accuracy in this range is not guaranteed. Probe damage may occur at the extreme ends of the temperature range. Temperatures listed below are approximate.





Typical Accuracies

Labels and Crayons: ±2°F

Glass: ±1% of range; ±1.0°F (±0.5°C) for NIST-traceable models

Bimetal: ±0.5% of full-scale

Digital: ±1% of reading

Thermocouple
Type J, K, and E probes: ±1.8 to 7.9°F or ±0.4% of reading above 32°F, whichever is greater
Type T probes: ±0.9 to 3.6°F or ±0.4% of reading above 32°F, whichever is greater
Type R and S probes: ±2.5°F or ±0.25% of reading, whichever is greater
Meters: ±0.1 to 1% of reading and ±1.8°F (±1°C)

Thermistor
400-series probes: ±0.36°F (±0.2°C) from 32 to 167°F (0 to 75°C)
500-series probes: ±0.2°F (±0.1°C)
700-series probes: ±0.27°F (± 0.15°C)
Meters: ±0.2 to 0.4°F (±0.1 to 0.2°C)

Platinum RTD
Probes: ±0.2 to 0.35% of reading
Meters: ±0.1% of reading and ±1°F (±1°C)

Infrared: ±1 to 3% of reading

Temperature Conversion Equations

°F = (1.8 x °C) + 32
°C = (°F–32) x 0.555
Kelvin = °C + 273.2
°Rankin = °F + 459.67

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Application/Selection Guide

Labels and Crayons

Use to measure surface temperatures—labels and crayons change color or darken to indicate temperature. Use irreversible labels for a permanent record of maximum temperature. For continuous use, we offer reversible labels..... 1668–1670

Glass Thermometers

Accurate, economical, and reliable thermometers incorporate a liquid-fill (mercury or spirit) in a graduated-scale glass tube. As temperatures rise, the liquid rises. NIST-traceable models are available. See the introduction to "Glass Thermometers" section for more information..... 1671–1683

Bimetal Thermometers

These economical thermometers require no power—simply read the measurement from the dial. Thermometers incorporate a bimetal element that moves a pointer as the temperature changes 1684–1686

Digital Thermometers

Indicators are compact, easy-to-use thermometers that display temperature. Probe is usually a stainless steel sheath with thermistor or diode sensor..... 1687–1699

Thermocouple Meters

Instruments amplify, linearize, and display the millivolt signal generated by the two dissimilar wires of the thermocouple probe. The signal is proportional to the temperature gradient between the measuring and reference junctions. Probes resist mechanical shock. Use probe within 2000 feet of the instrument. See the introduction to "Thermocouples" section for more information..... 1700–1718

Thermistor Meters

Thermistors exhibit a greater sensitivity and accuracy in the biological range—32 to 212°F (0 to 100°C). Probes encase a ceramic element that generally decreases in resistance as the temperature increases. See the introduction to "Thermistors" section for more information..... 1719–1723

Platinum RTD Meters

These instruments provide excellent accuracy, stability, and repeatability over a wide temperature range. Probes have an element with a characteristic resistance that increases as the temperature increases. Three-wire probe reduces effect of lead-length resistance on measurements, giving a more precise indication of temperature 1724–1728

Infrared Thermometers

Provide fast response for surface temperatures. Models are available for both close- and far-range measurements. See thermometers section for more information.....1729–1739

Temperature Controllers

See the introduction to the "Temperature Control" section.....1740–1746

Probes

This section contains both handheld and industrial probes, for use with thermocouple, RTD and thermistor instruments 1747–1771

Recorders and Data Loggers

Use these instruments for recording, data logging, and data acquisition of temperatures. Single- or multi-input devices are available in portable or benchtop versions..... 1772–1776

Calibrators

Instruments calibrate temperature equipment, RTDs, thermocouples, transmitters, thermo switches, and more. Available in high-accuracy benchtop and field portable designs...1777–1779

INNOCAL® INNOVATIVE CALIBRATION SOLUTIONS — Calibration Services: How to Determine Your System Accuracy

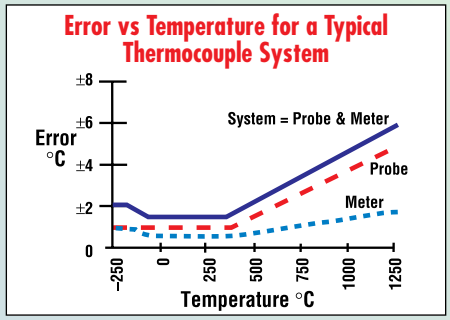
To determine your system accuracy when you have a separate meter and probe, add the tolerance of the meter to the tolerance of the probe.

The diagram at right shows the accuracy versus temperature for a typical thermocouple meter and probe. For example, using the diagram, the meter error at 250°C is ±0.5°C and the probe error at 250°C is ±1.0°C, thus the system accuracy would be ±1.5°C or better. The result is often conservative—the actual system accuracy is usually better.

National Institute of Standards and Technology (NIST) traceable documentation gives you the actual system accuracy. Knowing the actual system accuracy gives you the ability to compensate or calibrate your instruments measurements for greater accuracy.

Find MORE!

For a listing of our NIST-Temperature Traceable Calibration Services, see **pages 198–206.**



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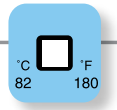
Irreversible High-Temperature Labels

Reliable proof that the product was maintained at the correct temperature

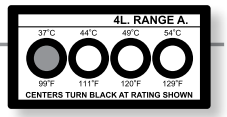
- Used as a quick inspection tool that the product is in usable condition during the shipping and receiving process
- Save time and money due to costly recalls
- Self-adhesive design

Labels are made up of a series of temperature-sensitive elements sealed between heat-resistant substrates with transparent windows. Each element changes color distinctly as its rated temperature is met or exceeded. The changes to the label are irreversible, providing a temperature history of the surface being monitored. The labels will not delaminate when removed, allowing them to be attached to an inspection report to serve as a permanent record. Ideal for use in the food, automotive, molding and metal working industries. Accuracy is ±1°C from 29 to 99°C, ±1.5°C from 100 to 154°C, and ±1% + 1°C from 160 to 280°C. Shelf life: one year after date of purchase.



A 90309-20

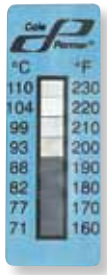
B 08068-41



C 90308-40

D 90303-24

E 90308-93



F 08068-22

H 08068-90

A One-Temperature Point—Square Labels

Catalog number	Temperature point °F	Temperature point °C	Dimensions (W x H) in.	Dimensions (W x H) mm	Price/pk of 50
TW-08068-31†	84	29	½ x ½	13 x 13	
TW-08068-32†	93	34			
TW-08068-33†	99	37	½ x ½	13 x 13	
TW-08068-34†	104	40			
TW-08068-35†	108	42	½ x ½	13 x 13	
TW-08068-36†	111	44			
TW-90309-00†	115	46	½ x ½	13 x 13	
TW-90309-05	140	60			
TW-90309-10	160	71	½ x ½	13 x 13	
TW-90309-15	171	77			
TW-90309-20	180	82	½ x ½	13 x 13	
TW-90309-25	190	88			
TW-90309-30	210	99	½ x ½	13 x 13	
TW-90309-35	230	110			
TW-90309-40	250	121	½ x ½	13 x 13	
TW-90309-45	261	127			
TW-90309-50	320	160			

B Four-Temperature Points—Micro Horizontal Labels

Catalog number	Temperature points	Dimensions (W x H) in.	Dimensions (W x H) mm	Price/pk of 10
TW-08068-41†	104, 108, 111, 115°F	⅛ x ½	4 x 13	
TW-08068-42†	120, 129, 140, 149°F			
TW-08068-43	160, 171, 180, 190°F	⅛ x ½	4 x 13	
TW-08068-44	199, 210, 219, 230°F			
TW-08068-45	241, 250, 261, 270°F	⅛ x ½	4 x 13	
TW-08068-46	280, 289, 300, 309°F			
TW-08068-47	320, 331, 340, 351°F			

C Four-Temperature Points—Horizontal Labels

Catalog number	Temperature points °F	Temperature points °C	Dimensions (W x H) in.	Dimensions (W x H) mm	Price/ pk of 10
TW-90308-40†	99, 111, 120, 129	37, 44, 49, 54	⅞ x 1¾	22 x 44	
TW-90308-45	140, 149, 160, 171	60, 65, 71, 77			
TW-90308-50	180, 190, 199, 210	82, 88, 93, 99	⅞ x 1¾	22 x 44	
TW-90308-55	219, 230, 241, 250	104, 110, 116, 121			
TW-90308-60	261, 270, 280, 289	127, 132, 138, 143	⅞ x 1¾	22 x 44	
TW-90308-65	300, 309, 320, 331	149, 154, 160, 166			
TW-90308-70	340, 351, 361, 370	171, 177, 182, 188	⅞ x 1¾	22 x 44	
TW-90308-75	379, 390, 399, 410	193, 199, 204, 210			

D Five-Temperature Points—Round Labels

Catalog number	Temperature points °F	Temperature points °C	Dimension (dia) in.	Dimension (dia) mm	Price/ pk of 25
TW-90303-20†	105, 110, 115, 120, 130	40, 43, 46, 49, 54	⅝	16	
TW-90303-22	140, 150, 160, 170, 180	60, 65, 71, 77, 82			
TW-90303-24	190, 200, 210, 220, 230	88, 93, 99, 104, 110			
TW-90303-26	240, 250, 260, 270, 280	116, 121, 127, 132, 138	⅝	16	
TW-90303-28	290, 300, 310, 320, 330	143, 149, 154, 160, 166			
TW-90303-30	340, 350, 360, 370, 380	171, 177, 182, 188, 193			
TW-08068-21	390, 399, 410, 421, 435	199, 204, 210, 216, 224	⅝	16	
TW-08068-23	450, 466, 480, 489, 500	232, 241, 249, 254, 260			

E Six-Temperature Points—Horizontal Labels

Catalog number	Temperature points °F	Temperature points °C	Dimensions (W x H) in.	Dimensions (W x H) mm	Price/ pk of 10
TW-90308-91†	84, 91, 93, 99, 104, 108	29, 33, 34, 37, 40, 42	½ x 1¼	13 x 32	
TW-90308-92†	111, 115, 120, 129, 140, 144	44, 46, 49, 54, 60, 62	½ x 1¼	13 x 32	
TW-90308-93	149, 160, 171, 180, 190, 199	65, 71, 77, 82, 88, 93	½ x 1¼	13 x 32	
TW-90308-94	210, 219, 230, 241, 250, 261	99, 104, 110, 116, 121, 127	½ x 1¼	13 x 32	
TW-90308-95	270, 280, 289, 300, 309, 320	132, 138, 143, 149, 154, 160	½ x 1¼	13 x 32	
TW-90308-96	331, 340, 351, 360, 370, 379	166, 171, 177, 182, 188, 193	½ x 1¼	13 x 32	
TW-90308-97	390, 399, 410, 421, 435, 450	199, 204, 210, 216, 224, 232	½ x 1¼	13 x 32	
TW-90308-98	460, 480, 489, 500, 536, 554	240, 249, 254, 260, 280, 290	½ x 1¼	13 x 32	

F-H Eight- and Nine-Temperature Points—Vertical Labels

Catalog number	Temperature points	Dimensions (W x H) in.	Dimensions (W x H) mm	Price/ pk of 25
F Eight-point				
TW-08068-20†	100, 105, 110, 115, 120, 130, 140, 150°F (37, 40, 43, 46, 49, 54, 60, 65°C)	¾" x 2"	19 x 51 mm	
TW-08068-22	160, 170, 180, 190, 200, 210, 220, 230°F (71, 77, 82, 88, 93, 99, 104, 110°C)	¾" x 2"	19 x 51 mm	
TW-08068-24	240, 250, 260, 270, 280, 290, 300, 310°F (116, 121, 127, 132, 138, 143, 149, 154°C)	¾" x 2"	19 x 51 mm	
TW-08068-26	320, 330, 340, 350, 360, 370, 380, 390°F (160, 166, 171, 177, 182, 188, 193, 199°C)	¾" x 2"	19 x 51 mm	
G Nine-point				
TW-08068-28	400, 410, 420, 435, 450, 465, 480, 490, 500°F (204, 210, 216, 224, 232, 240, 249, 254, 260°C)	¾" x 2"	19 x 51 mm	
H Eight- and nine-point label kit				
TW-08068-90†	Contains five labels of each of the five types of indicators shown in the table above			

†**Note:** Express shipping by air is required to prevent activation while in transit.

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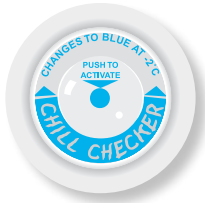
Irreversible Low-Temperature Indicators

Reliable proof that the product was maintained at the correct temperature

- Used as a quick inspection tool that the product is in usable condition during the shipping and receiving process
- Save time and money due to costly recalls
- Self-adhesive design

These labels offer a highly reliable and irreversible indication of exposure to low temperatures. Labels clearly indicate when the product to which it is attached to has been subjected to harsh temperatures, which could have detrimental effects on refrigerated pharmaceuticals, foods, chemicals, paints, adhesives and medical devices. Available in both ascending and descending style. Accuracy is ±1°C of the rated temperature. Shelf life: one year after date of purchase.

Catalog number	Temperature point	Dimensions		Price/pk of 10
		in.	mm	
Ascending labels				
TW-90308-00 TW-90308-10	28°F (–2°C) 41°F (5°C)	1¼ dia	32	
Descending labels				
TW-90309-60 TW-90309-65	32°F (0°C) 36°F (2°C)	1⅜ L x 11/16 W x ¼ H	35 L x 17 W x 6 H	



Ascending label 90308-00 (unactivated)

Descending label 90309-60 (activated)

Reusable Temperature-Indicating Strips

Each style covers a wide range of temperatures, for use in many different applications

- Nontoxic, nonhazardous temperature-measuring alternative
- Easy to read and unbreakable

These self-adhesive, reusable temperature labels provide a safe, accurate, easy-to-read means for monitoring temperatures. Indicating strips use liquid crystal technology to display the current temperature at an economical cost. The strip turns green when ambient temperature is reached. Shelf life: one year after date of purchase.

Catalog number	Temperature points	Dimensions (W x H)		Qty/pk	Price/pk
		in.	mm		
A Seven-point horizontal thermometers with adhesive backing					
TW-90308-20 TW-90308-25 TW-90308-30	–22 to 32°F (–30 to 0°C) 32 to 86°F (0 to 30°C) 86 to 140°F (30 to 60°C)	1¾ x ½	44 x 13	25	
TW-90308-35 TW-09100-00	140 to 194°F (60 to 90°C) 194 to 248°F (90 to 120°C)	1¾ x ½	44 x 13	25	
B Forty-eight-point vertical thermometer with magnetic backing					
TW-08078-48	26 to 120°F (–3 to 49°C)	1½ x 5	38 x 127	10	
C Sixteen-point vertical thermometers with adhesive backing					
TW-90316-00 TW-90316-02 TW-90316-04	26 to 56°F (–3 to 13°C) 58 to 88°F (14 to 31°C) 90 to 120°F (32 to 49°C)	½ x 5	13 x 127	25	
TW-09100-06 TW-09100-07	122 to 152°F (50 to 66°C) 154 to 184°F (68 to 83°C)	½ x 5	13 x 127	25	

A 90308-25 B 08078-48 C 90316-02

TECHNICAL info!

The green color shows the actual temperature. The brown shows the temperature just above the actual reading and the blue shows the temperature just below the actual reading.

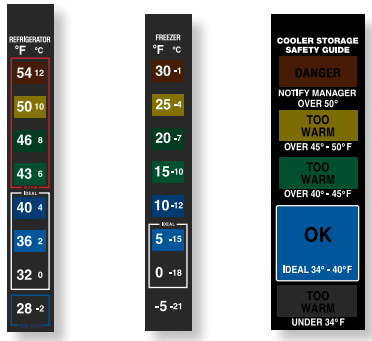
Reusable Low-Temperature Indicating Strips

Ideal for use in refrigerator, freezer and cooler applications

- Nontoxic, nonhazardous temperature-measuring alternative

These self-adhesive reusable temperature labels provide a safe, accurate, easy-to-read means for monitoring low temperatures. Indicating strips use liquid crystal technology to display the current temperature range at an economical cost. Shelf life: one year after date of purchase.

Catalog number	Indicator description	Number of temperature points	Temperature range	Dimensions (W x H)		Price/ pk of 10
				in.	mm	
TW-90308-80	Refrigerator	8	28 to 54°F (–2 to –12°C)	1 x 5½	25 x 140	
TW-90308-85	Freezer	8	–5 to 30°F (–21 to –1°C)	1 x 5½	25 x 140	
TW-90308-90	Cooler	4	34 to 50°F (1 to 10°C)	1½ x 5⅜	38 x 136	



90308-80 90308-85 90308-90

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Irreversible Thermostrip® Waterproof Disinfection Labels

Provide proof of HACCP compliance that sanitizing temperature has been reached during dishwashing

- Waterproof—designed to withstand the rigors of a full wash

Thermostrip labels are self-adhering and waterproof color-changing labels that measure the surface temperature of dishware in dishwashing machines. Label indicator will turn from white to black when surface temperature reaches rated temperature, providing reliable proof that the items being washed have been fully disinfected. Helps hygiene managers demonstrate that safety disinfection standards have been met.

To use, attach label to the thickest clean dry dish, place in dishwasher, and run. Remove and retain label as a permanent record of temperature attained as an excellent evidence-base for HACCP. Accuracy is ±1.8°F (±1°C). Shelf life: one year after date of purchase.

90308-13

90308-14

90308-16

90308-17

90308-11

90308-12

Catalog number	Temperature points	Dimensions		Qty/pk	Price/pk
		in.	mm		
Single temperature point					
TW-90308-13	140°F (60°C)	½ x 1¾	13 x 44 mm	25	
TW-90308-14	160°F (71°C)	½ x 1¾	13 x 44 mm	25	
TW-90308-16	170°F (76.5°C)	½ x 1¾	13 x 44 mm	25	
TW-90308-17	180°F (82°C)	½ x 1¾	13 x 44 mm	25	
Three temperature points					
TW-90308-11	150, 160, 170°F (65.5, 71, 76.5°C)	½ x 1¾	13 x 44 mm	16	
TW-90308-12	160, 170, 180°F (71, 76.5, 82°C)	½ x 1¾	13 x 44 mm	16	

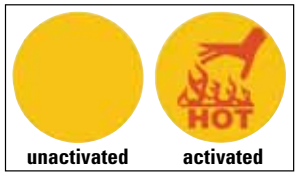
Hot Hand Reversible Temperature Monitors

A pictorial warning alerts you when an object becomes too hot to touch

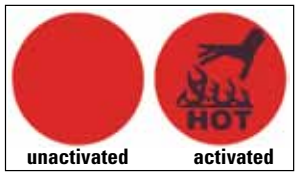
- The word "Hot" appears when a given temperature has been reached

These self-adhesive warning labels help protect against skin burns when affixed to potentially hazardous surfaces. When the bright yellow, self-adhesive temperature indicator reaches its calibrated temperature of about 122°F (50°C), which is skin burn temperature, a bright red hand appears that reads "HOT." Also available is a bright red temperature indicator which at 157°F (70°C) displays a black hand that reads "HOT."

When the temperature cools to normal, the written warning will disappear and change back to its original solid non-indicating position. Typically used on pipes, ovens, and other objects where a dangerously heated surface may not be obvious.



90308-07



90308-08

Catalog number	Type	Temperature points	Dimensions (dia)		Price/pk of 10
			in.	mm	
TW-90308-07	Yellow label, red pictorial warning	122°F (50°C)	1½	38 mm	
TW-90308-08	Red label, black pictorial warning	157°F (70°C)	1½	38 mm	

Irreversible Color-Changing Temperature Crayon Kit

Used in industrial manufacturing applications for quick and easy monitoring of material exposed to high temperature

- Instantaneously changes color when temperature is achieved
- Nontoxic and nonhazardous

Easy-to-use irreversible temperature-sensitive crayons can be used in a wide range of applications and industries. Records the maximum temperature the substrate has been exposed to, ensuring the material has been processed. Crayons cover a wide range of temperatures from 248 to 1112°F (120 to 600°C) with an accuracy of ±5°F/C. Apply to surface being tested—crayons change color within one to two seconds if object is within ±9°F (±5°C) of the temperature rating. Kit contains ten crayons; see table for temperature change points.


90307-50

Initial crayon color	Temperature points			
	First color change		Second color change	
Light gray	Violet-blue	248°F (120°C)	—	—
Pink	Blue-violet	383°F (195°C)	Gray	563°F (295°C)
Pale blue	Light green	419°F (215°C)	White-buff	581°F (305°C)
Light purple	Bright blue	437°F (225°C)	Gray	608°F (320°C)
Orange-brown†	Black	473°F (245°C)	Light-gray	635°F (335°C)
Yellow-brown	Red brown	572°F (300°C)	—	—
Dark violet	Light violet	608°F (320°C)	White-buff	860°F (460°C)
Aqua green	White-buff	680°F (360°C)	—	—
Red	White	878°F (470°C)	—	—
Apple green	White	1112°F (600°C)	—	—

†Orange-brown crayon has a third color change at 941°F (505°C).

Catalog number	Description	Price
TW-90307-50	Color-changing crayon kit	

Tech Insights

Glass thermometers are accurate, economical instruments that measure temperatures of liquids or gas. All of our glass thermometers conform to the International Temperature Scale of 1990 (ITS-90). ASTM thermometers vary from 5.5- to 8-mm diameter; most other thermometers have a 6- to 7-mm diameter.

Types of Glass Thermometers

Choose your thermometer by the length that will be immersed in the liquid or gas.

- **Partial Immersion Thermometers** are immersed in the fluid to the specified immersion depth. The remaining (emergent) portion of the stem is exposed to the air.
- **Total Immersion Thermometers** need to be immersed to the liquid temperature mark on the thermometer.

Accuracy

The accuracy of a typical glass thermometer is approximately ±1 scale division.

Care of Glass Thermometers

Treat glass thermometers with proper care. Never tap against hard surfaces—small fractures may result, affecting accuracy. Do not subject a glass thermometer to extreme temperature changes—the thermometer may break or the liquid column may separate.

Reuniting Separated Liquid Columns

Thermometer liquid columns can become separated during shipment. This means that some gas has gotten below the top of the liquid fill. Inspect thermometers for bubbles in bulb or liquid separation before using. For more information, go to Technical Resources at ColeParmer.com and search Articles and White Papers for "Methods for Reuniting Separated Columns".

Cole-Parmer is proud to offer nonhazardous and environmentally friendly, mercury-free alternatives!

As of July 1, 2008, Illinois state law prohibits the sale or distribution of mercury-containing devices worldwide.

Definitions

Accuracy vs Precision. Accuracy is the difference between the measured value and the true value of a tested material. Precision is the repeatability of successive measurements under the same conditions.

ASTM (American Society for Testing and Materials). A not-for-profit organization that has developed standards for materials, systems, products, and services. The ASTM number refers to a thermometer's specific application.

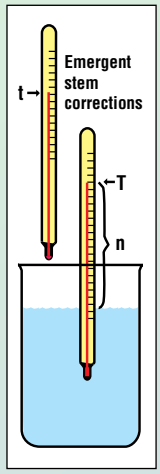
NIST (National Institute of Standards and Technology). US government agency that provides standard reference materials and calibration services. NIST-calibrated thermometers are calibrated at NIST. NIST-traceable with data thermometers are factory calibrated to NIST-calibrated standards and include a report with the calibration data.

Emergent Stem Corrections

Avoid inaccurate readings when a total immersion thermometer cannot be properly immersed. Determine the approximate stem correction with these formulas:

- For mercury Fahrenheit thermometers: **°Correction = 0.00009°F x n x (T-t)**
- For mercury Celsius thermometers: **°Correction = 0.00016°C x n x (T-t)**
- For spirit-filled Fahrenheit thermometers: **°Correction = 0.0006°F x n x (T-t)**
- For spirit-filled Celsius thermometers: **°Correction = 0.001°C x n x (T-t)**

where **T** is the bath temperature (the temperature indicated on the thermometer), **t** is the average temperature of the emergent stem, and **n** is the number of emergent thermometer degrees. Hold an auxiliary thermometer next to emergent stem to determine **t**.



08006-03

08006-05

Galileo Glass Thermometers

Colorful spheres rise and fall to indicate temperature

- Hand-crafted thermometers
- Nonmercury liquid

Interesting and unique glass thermometer is based on Galileo's theory developed over 400 years ago: in liquid, a body of fixed mass becomes less buoyant as the liquid temperature rises, and more buoyant as the temperature decreases—due to changes in liquid density. As temperature changes, the multicolored balls rise and fall within the liquid-filled thermostatic tube. Lowest sphere in the top group within the instrument indicates ambient temperature.

5 year warranty

Catalog number	Temperature range	Scale divisions	Accuracy	Height		Price
				in.	mm	
TW-08006-02	64 to 80°F	4°	±2°	7	177	
TW-08006-03	64 to 80°F	4°	±2°	11	280	
TW-08006-04	64 to 80°F	4°	±2°	13	330	
TW-08006-05	64 to 88°F	2°	±2°	17	430	
TW-08006-06	64 to 88°F	2°	±2°	24	610	

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Red Spirit General-Purpose Glass Thermometers

Low-cost way to measure temperature quickly and accurately

- Nonmercury red spirit liquid

08008-12

These thermometers are ideal for use in laboratory, biology, chemistry, university, photographic, food/beverage, petrochemical, automotive, wastewater, and many other general-purpose applications.

All thermometers feature permanently fused markings, red spirit fill, and white background glass.

5 year warranty

Temperature range	Scale divisions	Accuracy	Length	Partial immersion			Total immersion	
				Catalog number	Immersion depth	Price	Catalog number	Price
Celsius-scale thermometers								
–35 to 50°C	1°	±2°	300 mm	TW-08008-11	76 mm		TW-08008-19	
–20 to 110°C	1°	±2°	300 mm	TW-08008-12	76 mm		TW-08008-20	
–20 to 150°C	1°	±2°,3° above 110°C	300 mm	TW-08008-13	76 mm		TW-08008-21	
Fahrenheit-scale thermometers								
–40 to 120°F	2°	±4°	300 mm	TW-08008-14	76 mm		TW-08008-22	
0 to 230°F	2°	±4°	300 mm	TW-08008-15	76 mm		TW-08008-23	
0 to 300°F	2°	±4°, 5° above 230°F	300 mm	TW-08008-16	76 mm		TW-08008-24	

Red Spirit Refrigerator/Freezer Glass Thermometer

Monitor refrigerator or freezer temperatures with ease

This low-temperature thermometer features a dual-scale range. The large numbers and magnified lens make reading easy. Red spirit-filled thermometer is made of plastic and includes stainless steel clips to easily mount or hang from shelves.

5 year warranty

Catalog number	Temperature range	Scale divisions	Accuracy	Size (W x H x D)		Price
				in.	cm	
TW-90250-60	–40 to 80°F and –40 to 27°C	2°F/1°C	±2°F/1°C	4½ x 1¼ x ¾	11.4 x 3.2 x 1.9	

90250-60

Blue Spirit Minimum/Maximum Glass Thermometer

Reset thermometer with easy-to-use push button

Efficient thermometer measures both minimum and maximum temperatures in Fahrenheit and Celsius scales. Bulbs are enclosed in a sturdy plastic case suitable for outdoor or indoor use.

5 year warranty

Catalog number	Temperature range	Scale divisions	Accuracy	Size (W x H)		Price
				in.	cm	
TW-90250-00	–30 to 120°F and –35 to 50°C	2°F/1°C	±2°F/1°C	2½ x 7⅞	6.4 x 20	

90250-00

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NIST-traceable reports include test data. Test points are measured across range of thermometer. Recalibrate yearly.

Catalog number	Calibration points	Price
TW-17006-03	2 to 4	
TW-17006-05	5 to 9	
TW-17006-06	10 to 15	

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Red Spirit Specialty Glass Thermometers

Replace hazardous mercury thermometers for specific applications

- Nonmercury red spirit liquid

These thermometers are designed for use in specific applications. Some thermometers offer a PFA coating for safety (which may cause a slight change in accuracy up to 1 division). These thermometers feature permanently fused markings, red spirit fill, and white background glass; also individually serialized.

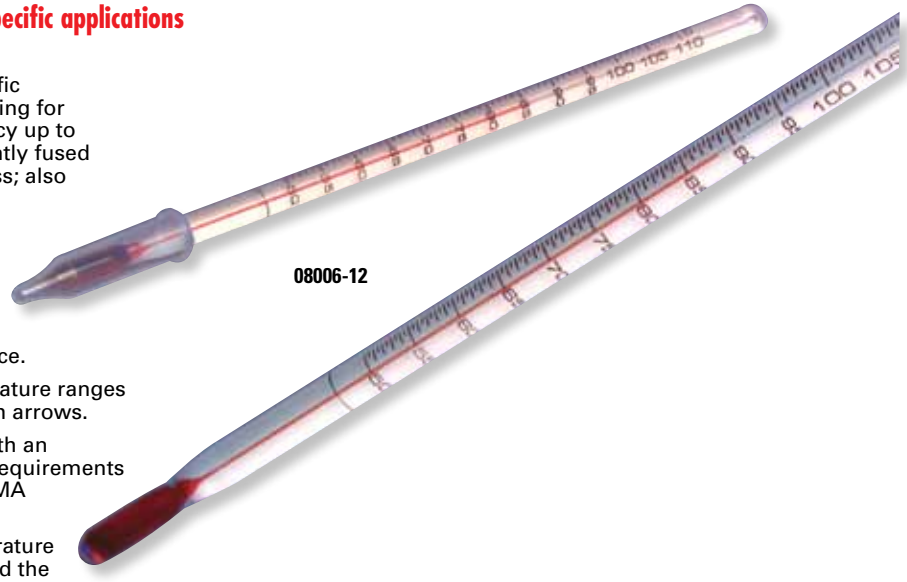
Dry Block Thermometers are ideal for use in all standard heating blocks and water baths. Most have arrows indicating critical temperatures.

Incubator Thermometers are designed with a swell in the glass to hold the thermometer in place.

Blood Bank Thermometers indicate critical temperature ranges used in blood banks, with 4°C and 6°C marked with arrows.

Ultralow-Temperature Thermometers are filled with an organic liquid (toluene or pentane) that meets all requirements for physical dimensions and accuracy of ANSI/SAMA Z236.1-1983.

Oven Thermometers are designed for high-temperature applications and feature a round glass swell to hold the thermometer in place.



5 year warranty

Temperature range	Scale divisions	Accuracy	Length	Partial immersion			Total immersion	
				Catalog number	Immersion depth	Price	Catalog number	Price
Incubator thermometers (Red Spirit)								
18 to 60°C	0.5°	±0.5°C	125 mm	TW-08006-09†	35 mm		—	—
50 to 110°C	0.5°	±0.5°C	150 mm	TW-08006-12†	35 mm		—	—
0 to 100°C	1°	±1°	225 mm	TW-08006-13‡	35 mm		—	—
Dry block thermometers (Red Spirit)								
–15 to 105°C	1°	±1°C	150 mm	—	—	—	TW-08006-14†	
0 to 100°C	1°	±1°C	225 mm	TW-08006-16‡	35 mm		—	—
0 to 100°C	1°	±1°C	225 mm	TW-08006-13††	35 mm		—	—
0 to 100°C	1°	±1°C	225 mm	TW-90300-07†	35 mm		—	—
0 to 80°C	0.5°	±0.5°C	225 mm	TW-08006-18‡ ‡‡	100 mm		—	—
0 to 80°C	0.5°	±0.5°C	225 mm	TW-08006-19† ‡‡	100 mm		—	—
20 to 100°C	1°	±1°C	300 mm	TW-08006-21‡ ‡‡	76 mm		—	—
20 to 100°C	1°	±1°C	300 mm	TW-08006-23† ‡ ‡‡	76 mm		—	—
0 to 70°C	1°	±1°C	300 mm	TW-08006-24†† ‡‡	150 mm		—	—
0 to 70°C	1°	±1°C	300 mm	TW-08006-25† ‡‡	150 mm		—	—
0 to 70°C	1°	±1°C	300 mm	TW-08006-26‡ ‡‡	150 mm		—	—
0 to 70°C	1°	±1°C	300 mm	TW-08006-27† ‡ ‡‡	150 mm		—	—
25, 37, 56°C	0.5°	±0.5°C	240 mm	TW-08006-28‡ ‡‡	76 mm		—	—
Blood bank thermometers (Red Spirit)								
–5 to 20°C	1°	±1°	152 mm	—	—	—	TW-08006-29	
–5 to 20°C	1°	±1°	152 mm	—	—	—	TW-08006-31†	
Ultralow-temperature thermometers (Blue Spirit)								
–200 to 30°C	2°	±3°, 6°C below -35°C	300 mm	—	—	—	TW-90300-27	
–100 to 50°C	2°	±3°, 6°C below -35°C	300 mm	TW-90300-25	76 mm		TW-90300-28	
–50 to 50°C	2°	±3°, 6°C below -35°C	300 mm	TW-90300-24	76 mm		TW-90300-26	
Oven thermometers (partial immersion models have swell)								
20 to 130°C	2°	±1°C; ±1.5°C above 100°C	135 mm	—	—	—	TW-08006-43	
20 to 130°C	2°	±1°C; ±1.5°C above 100°C	135 mm	—	—	—	TW-08006-45†	
35 to 200°C	1°	±1°C; ±2°C above 100°C	180 mm	—	—	—	TW-08006-47	
35 to 200°C	1°	±1°C; ±2°C above 100°C	180 mm	—	—	—	TW-08006-49†	
0 to 200°C	1°	±1°C; ±1.5°C above 100°C	280 mm	TW-08006-55‡‡	76 mm		—	—
0 to 200°C	1°	±1°C; ±1.5°C above 100°C	280 mm	TW-08006-56† ‡‡	76 mm		—	—
0 to 200°C	1°	±1°C; ±1.5°C above 100°C	405 mm	TW-08006-57‡‡	125 mm		—	—
0 to 200°C	1°	±1°C; ±1.5°C above 100°C	405 mm	TW-08006-58†‡‡	125 mm		—	—

†PFA coated. ‡Arrows at 25, 30, 37 and 56°C. ††Arrows at 37 and 56°C. ‡‡ Swell

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Catalog number	Calibration points	Price
TW-17006-03	2 to 4	
TW-17006-05	5 to 9	
TW-17006-06	10 to 15	

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Blue Spirit Pocket Glass Thermometers

Compact, durable case protects thermometers

- Nonmercury blue spirit liquid

Durable case protects these thermometers from accidental breakage during use and storage. The section of the case that surrounds the bulb has small openings for circulation (except for close-case style). The top of the case has an eyelet for easy suspension. Available with closed case or case with a viewing window.

All DURAC Plus thermometers feature permanently fused markings, blue spirit fill, and white background glass.

NEW
Expanded offering

08008-00

5 year warranty

Temperature range	Scale divisions	Accuracy	Length	Closed metal case; total immersion		Metal case with window; total immersion	
				Catalog number	Price	Catalog number	Price
Celsius-scale thermometers							
–35 to 50°C	1°	±1°	160 mm	TW-90250-18		—	—
–10 to 110°C	1°	±1°	160 mm	TW-90260-43		—	—
–5 to 50°C	0.5°	±0.5°	160 mm	TW-90260-44		TW-90260-42	
Fahrenheit-scale thermometers							
–30 to 120°F	2°	±2°	160 mm	TW-90250-16		—	—
0 to 220°F	2°	±2°	160 mm	TW-90260-46		—	—
20 to 120°F	2°	±2°	160 mm	TW-90260-47		TW-90260-45	
Dual-scale thermometer							
–10 to 110°C, 0 to 220°F	1°C, 2°F	±1°C, ±2°F	160 mm	TW-90300-29		—	—

Temperature range	Scale divisions	Accuracy	Length	Closed plastic case; total immersion		Plastic case with window; total immersion	
				Catalog number	Price	Catalog number	Price
Celsius-scale thermometers							
–35 to 50°C	1°	±1°	160 mm	TW-08008-00		TW-08008-07	
–10 to 110°C	1°	±1°	160 mm	TW-08008-01		—	—
–10 to 110°C	1°	±1°	160 mm	—	—	TW-90260-55	
–5 to 50°C	0.5°	±0.5°	160 mm	TW-08008-02		TW-08008-09	
Fahrenheit-scale thermometers							
–30 to 120°F	2°	±2°	160 mm	TW-08008-04		TW-08007-21	
0 to 220°F	2°	±2°	160 mm	TW-08008-05		TW-90260-58	
20 to 120°F	2°	±2°	160 mm	TW-08008-06		TW-08007-22	
Dual-scale thermometer							
–10 to 110°C, 0 to 220°F	1°C, 2°F	±1°C, ±2°F	160 mm	TW-08008-03		TW-90300-30	

Blue Spirit PFA-Coated Safety Glass Thermometers

Liquid and glass are contained within the PFE jacket, preventing contamination

- Nonmercury blue spirit liquid
- Statement of accuracy included

08077-65

These thermometers are ideal for use in laboratories, universities, food/beverage, environmental, wastewater, and many other general-purpose applications. In the event of breakage, the PFE coating contains the broken liquid and glass, preventing contamination or injury.

Thermometers feature permanently fused markings, blue spirit liquid, white background glass; are also individually serial numbered. Include a statement of accuracy supplied by manufacturer and a triangular-style antiroll fitting.

5 year warranty

Temperature range	Scale divisions	Accuracy	Length	Partial immersion			Total immersion	
				Catalog number	Immersion depth	Price	Catalog number	Price
Celsius-scale thermometers								
–10 to 110°C	2°	±2°	200 mm	TW-08077-65	50 mm		TW-08077-79	
–10 to 150°C	2°	±2°	200 mm	TW-08077-66	50 mm		TW-08077-80	
–20 to 110°C	1°	±1.5°	300 mm	TW-08077-68	76 mm		TW-08077-81	
–20 to 150°C	1°	±1.5°, 2° above 105°C	300 mm	TW-08077-76	76 mm		TW-08077-82	
Fahrenheit-scale thermometers								
0 to 230°F	2°	±3°	300 mm	TW-08077-77	76 mm		TW-08077-83	
0 to 300°F	2°	±3°, 4° above 220°F	300 mm	TW-08077-78	76 mm		—	—

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Canada 800-363-5900 • India 91-22-6716-2222 • UK 0500-345-300

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Blue Spirit Laboratory Glass Thermometers

Scales are permanently fused onto the glass and won't wear off

- Nonmercury blue spirit liquid
- Statement of accuracy included

These inexpensive thermometers are safe for use in laboratories, universities, food/beverage, environmental, wastewater, petrochemical, pharmaceutical, and many other general-purpose applications. Fractional-degree thermometers offer higher precision. Choose from partial immersion or total immersion thermometers.

Thermometers feature permanently fused markings, blue spirit liquid, white background glass; are also individually serial numbered. Include a statement of accuracy supplied by manufacturer and a ring top.

NEW

90260-00

5 year warranty

Temperature range	Scale divisions	Accuracy	Length	Partial immersion			Total immersion	
				Catalog number	Immersion depth	Price	Catalog number	Price
Celsius-scale thermometers, standard accuracy								
–10 to 110°C	2°	±3°	200 mm	TW-90260-00	50 mm		TW-90260-17	
–10 to 150°C	2°	±3°	200 mm	TW-90260-01	50 mm		TW-90260-18	
–200 to 30°C	2°	±3°, 6°C below -35°C	300 mm	—	—	—	TW-90300-27	
–100 to 50°C	2°	±3°, 6°C below -35°C	300 mm	TW-90300-25	76 mm		TW-90300-28	
–50 to 50°C	2°	±3°, 6°C below -35°C	300 mm	TW-90300-24	76 mm		TW-90300-26	
–35 to 50°C	1°	±1.5°	300 mm	TW-90260-02	76 mm		—	—
–20 to 110°C	1°	±1.5°	300 mm	TW-90260-03	76 mm		TW-90260-20	
–20 to 150°C	1°	±1.5°; ±2° above 110°C	300 mm	TW-90260-04	76 mm		TW-90260-21	
–10 to 225°C	2°	±2°, 2.5° above 110°C, 3° above 200°C	350 mm	—	—	—	TW-90260-22	
–10 to 260°C	2°	±2°	350 mm	TW-90260-05	76 mm		—	—
Celsius-scale fractional-degree thermometers, precision accuracy								
–1 to 51°C	0.1°	±0.3°	460 mm	TW-90260-07	76 mm		TW-90260-23	
–1 to 101°C	0.1°	±0.3°	610 mm	TW-90260-08	76 mm		TW-90260-24	
–1 to 201°C	0.2°	Partial ±1°, 1.5° above 100°C Total ±0.7°, 1° above 100°C	610 mm	TW-90260-09	76 mm		TW-90260-25	
Fahrenheit-scale thermometers, standard accuracy								
–40 to 120°F	2°	±3°	300 mm	TW-90260-10	76 mm		TW-90260-26	
0 to 230°F	2°	±3°	300 mm	TW-90260-11	76 mm		TW-90260-27	
0 to 300°F	2°	±3°;±4° above 230°F	300 mm	TW-90260-12	76 mm		TW-90260-28	
20 to 440°F	2°	±4°; ±5° above 230°F, 6° above 392°F	350 mm	—	—	—	TW-90260-29	
20 to 500°F	2°	±4°; ±5° above 230°F, 6° above 392°F	350 mm	TW-90260-13	76 mm		—	—
Fahrenheit-scale fractional-degree thermometers, precision accuracy								
30 to 124°F	0.2°	±2°	460 mm	TW-90260-14	76 mm		TW-90260-30	
30 to 214°F	0.2°	±2°	610 mm	TW-90260-15	76 mm		TW-90260-31	
30 to 394°F	0.5°	±2°; ±3° above 212°F	610 mm	TW-90260-16	76 mm		TW-90260-32	

Blue Spirit Armored Glass Thermometers

Armor shell absorbs shock and prevents thermometer damage

- Nonmercury blue spirit liquid
- Statement of accuracy included

08077-91

Ideal for use in application where thermometers need added protection from minor shocks. Nickel-plated brass armor shell protects these thermometers from accidental breakage during use and storage. The armor case has a screw cap with ring top and viewing window; the lower section that surrounds the bulb has small openings for circulation.

Thermometers feature permanently fused markings, blue spirit liquid, white background glass; are also individually serial numbered. Include a statement of accuracy supplied by manufacturer and a triangular-style antiroll fitting.

5 year warranty

Temperature range	Scale divisions	Length	Partial immersion		
			Catalog number	Immersion depth	Price
Celsius-scale thermometers					
–35 to 50°C	±1°	300 mm	TW-08077-90	76 mm	
–20 to 110°C	±1.5°	300 mm	TW-08077-91	76 mm	
–20 to 150°C	±1.5°, 2° above 110°C	300 mm	TW-08077-92	76 mm	
0 to 205°C	±2°, 2.5° above 110°C, 3° above 200°C	300 mm	TW-08077-93	76 mm	
–10 to 260°C	±2°, 2.5° above 110°C, 3° above 200°C	405 mm	TW-08077-97	76 mm	
Fahrenheit-scale thermometers					
–40 to 120°F	±2°	300 mm	TW-08077-94	76 mm	
0 to 230°F	±3°	300 mm	TW-08077-95	76 mm	
0 to 300°F	±3°, 4° above 230°F	300 mm	TW-08077-96	76 mm	
20 to 500°F	±4°, 5° above 230°F. 6° above 392°F	350 mm	TW-08077-98	76 mm	

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Ensure the accuracy of your glass thermometer!

NIST-traceable reports include test data. Test points are measured across range of thermometer. Recalibrate yearly.

Catalog number	Calibration points	Price
TW-17006-03	2 to 4	
TW-17006-05	5 to 9	
TW-17006-06	10 to 15	

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Blue Spirit ASTM Equivalent Glass Thermometers

Now you can perform ASTM method measurements without the worry of mercury contamination

08009-14

These thermometers conform to ASTM E-1 specifications except for not being mercury filled. Thermometers feature permanently fused markings, blue spirit liquid, white back glass; are also individually serial numbered. Include a triangular-style antiroll fitting.

5 year warranty

ASTM number	ASTM method	Temperature range	Scale divisions	Length	Immersion depth	Calibration points	Catalog number	Price
1C	Partial immersion	–20 to 150°C	1°	322 mm	76 mm	—	TW-08009-01	
1F	Partial immersion	0 to 302°F	1°C/2°F	300 mm	76 mm	—	TW-08009-02	
5C	Cloud and pour	–38 to 50°C	1°	231 mm	108 mm	—	TW-08009-03	
5F	Cloud and pour	–36 to 120°F	2°	231 mm	108 mm	—	TW-08009-04	
6C	Low cloud and pour	–80 to 20°C	1°	232 mm	76 mm	—	TW-08009-05	
6F	Low cloud and pour	–112 to 70°F	2°	232 mm	76 mm	—	TW-08009-06	
9C	Pensky-Martens low	–5 to 110°C	0.5°	287 mm	57 mm	—	TW-08009-07	
9F	Pensky-Martens low	20 to 230°F	1°	287 mm	57 mm	—	TW-08009-08	
12C	Density-wide range	–20 to 102°C	0.2°	420 mm	Total	—	TW-08009-09	
12F	Density-wide range	–5 to 215°F	0.5°	420 mm	Total	—	TW-08009-10	
14C	Wax melting point	38 to 82°C	0.1°	377 mm	79 mm	—	TW-08009-11	
14F	Wax melting point	100 to 180°F	0.2°	377 mm	79 mm	—	TW-08009-12	
15C	Low softening point	–2 to 80°C	0.2°	397 mm	Total	—	TW-08009-13	
15F	Low softening point	32 to 180°F	0.5°	397 mm	Total	—	TW-08009-14	
16C	High softening point	30 to 200°C	0.5°	397 mm	Total	—	TW-08009-15	
16F	High softening point	85 to 392°F	1°	397 mm	Total	—	TW-08009-16	
17C	Saybolt viscosity	19 to 27°C	0.1°	275 mm	Total	—	TW-08009-17	
17F	Saybolt viscosity	66 to 80°F	0.2°	275 mm	Total	—	TW-08009-18	
18C	Reid vapor pressure	34 to 42°C	0.1°	275 mm	Total	—	TW-08009-19	
18F	Reid vapor pressure	94 to 108°F	0.2°	275 mm	Total	—	TW-08009-20	
33C	Low aniline point	–38 to 42°C	0.2°	419 mm	50 mm	—	TW-08009-21	
33F	Low aniline point	–36.5 to 107.5°F	0.5°	419 mm	50 mm	—	TW-08009-22	
36C	Titer test	–2 to 68°C	0.2°	405 mm	45 mm	—	TW-08009-23	
37C	Solvents distillation	–2 to 52°C	0.2°	395 mm	100 mm	—	TW-08009-24	
38C	Solvents distillation	24 to 78°C	0.2°	395 mm	100 mm	—	TW-08009-25	
39C	Solvents distillation	48 to 102°C	0.2°	395 mm	100 mm	—	TW-08009-26	
40C	Solvents distillation	72 to 126°C	0.2°	395 mm	100 mm	—	TW-08009-27	
49C	Stormer viscosity	20 to 70°C	0.2°	305 mm	65 mm	—	TW-08009-28	
52C	Butadiene boiling point range	–10 to 5°C	0.1°	162 mm	Total	—	TW-08009-29	
54C	Congealing point	20 to 100.6°C	0.2°	312 mm	Total	—	TW-08009-30	
54F	Congealing point	68 to 213°F	0.5°	312 mm	Total	—	TW-08009-31	
57C	Tag closed tester, low range	–20 to 50°C	0.5°	287 mm	57 mm	—	TW-08009-32	
57F	Tag closed tester, low range	–4 to 122°F	1°	287 mm	57 mm	—	TW-08009-33	
58C	Tank	–34 to 49°C	0.5°	303 mm	Total	—	TW-08009-34	
62C	Precision general-purpose	–38 to 2°C	0.1°	379 mm	Total	–7, 0, 10, 20, 30°C	TW-08009-35†	
62F	Precision general-purpose	–36 to 35°F	0.2°	379 mm	Total	–35, –15, 0, 15, 32°F	TW-08009-36†	
63C	Precision general-purpose	–8 to 32°C	0.1°	379 mm	Total	–7, 0, 10, 20, 30°C	TW-08009-37†	
63F	Precision general-purpose	18 to 89°F	0.2°	379 mm	Total	20, 32, 50, 70, 88°F	TW-08009-38†	
82C	Fuel rating, engine	–15 to 105°C	1°	162 mm	30 mm	—	TW-08009-39	
82F	Fuel rating, engine	0 to 220°F	2°	162 mm	30 mm	—	TW-08009-40	
83C	Fuel rating, air	15 to 70°C	1°	171 mm	40 mm	—	TW-08009-41	
83F	Fuel rating, air	60 to 160°F	1°	171 mm	40 mm	—	TW-08009-42	
84C	Fuel rating, orifice tank	24 to 80°C	1°	382 mm	249 mm	—	TW-08009-43	
84F	Fuel rating, orifice tank	75 to 175°F	2°	382 mm	249 mm	—	TW-08009-44	
85C	Fuel rating, surge	40 to 150°C	1°	310 mm	181 mm	—	TW-08009-45	
85F	Fuel rating, surge	100 to 300°F	2°	310 mm	181 mm	—	TW-08009-46	
86C	Fuel rating, mix	95 to 175°C	1°	167 mm	35 mm	—	TW-08009-47	
86F	Fuel rating, mix	200 to 350°F	2°	167 mm	35 mm	—	TW-08009-48	
88C	Vegetable oil, flash	10 to 200°C	1°	287 mm	57 mm	—	TW-08009-49	
88F	Vegetable oil, flash	50 to 392°F	2°	287 mm	57 mm	—	TW-08009-50	
89C	Solidification point	–20 to 10°C	0.1°	370 mm	76 mm	—	TW-08009-51	
90C	Solidification point	0 to 30°C	0.1°	370 mm	76 mm	—	TW-08009-52	
91C	Solidification point	20 to 50°C	0.1°	370 mm	76 mm	—	TW-08009-53	
97C	Tank	–18 to 49°C	0.5°	303 mm	Total	—	TW-08009-54	
97F	Tank	0 to 120°F	1°	303 mm	Total	—	TW-08009-55	
99C	Weathering test	–50 to 5°C	0.2°	302 mm	35 mm	—	TW-08009-56	
99F	Weathering test	–55 to 40°F	0.5°	302 mm	35 mm	—	TW-08009-57	
113C	Bituminous softening point	–1 to 175°C	0.5°	406 mm	Total	—	TW-08009-58	
113F	Bituminous softening point	30 to 350°F	1°	406 mm	Total	—	TW-08009-59	
114C	Aviation fuel freezing point	–80 to 20°C	0.5°	300 mm	Total	—	TW-08009-60	
114F	Aviation fuel freezing point	–112 to 68°F	1°	300 mm	Total	—	TW-08009-61	
130C	Tank	–7 to 105°C	0.5°	305 mm	Total	—	TW-08009-62	
130F	Tank	20 to 220°F	1°	305 mm	Total	—	TW-08009-63	

†Supplied with a 5-point NIST-traceable report.

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NEW
Expanded offering

08077-45

90300-68

Cole-Parmer® EXCLUSIVE
PFA models

Blue Spirit Verification Bottle Thermometers

Enclosed bottle ensures accuracy and is ideal for use in environmental chambers

- An individual serial number is printed on the thermometer stem
- Nonmercury blue spirit liquid
- Statement of accuracy included

Accurately monitor temperatures in freezers, refrigerators, blood banks, incubators, ovens, and other environments where stability is required. All thermometers are supplied in a glass bead filled unbreakable plastic bottle and can be removed from the bottle for recalibration. Use the magnetic attachment with pressure-sensitive backing to attach the bottle to a metal wall or door.

Thermometers feature permanently fused markings, blue spirit liquid, white background glass; are also individually serial numbered. Include a statement of accuracy and a triangular-style antiroll fitting. Thermometers 08077-21, -22 and -23 are supplied with a NIST-traceable calibration report supplied by the manufacturer with stated corrections to one-tenth of the smallest division.

5 year warranty

Temperature range	Application	Bottle fill	Scale divisions	Accuracy	Length	Calibration points	Catalog number	Price
Precision accuracy thermometers with NIST report								
–25 to –5°C	Freezer	Glass beads	0.1°	±0.4°	210 mm	–20, 10°C	TW-08077-21	
–2 to 10°C	Refrigerator	Glass beads	0.1°	±0.4°	180 mm	0, 5°C	TW-08077-22	
25 to 45°C	Incubator	Glass beads	0.1°	±0.4°	190 mm	30, 40°C	TW-08077-23	
Precision accuracy thermometers								
–25 to –5°C	Freezer	Glass beads	0.1°	±0.4°	210 mm	—	TW-08077-31	
–2 to 10°C	Refrigerator	Glass beads	0.1°	±0.4°	180 mm	—	TW-08077-32	
15 to 30°C	Incubator	Glass beads	0.1°	±0.4°	180 mm	—	TW-08077-33	
25 to 45°C	Incubator	Glass beads	0.1°	±0.4°	190 mm	—	TW-08077-34	
95 to 115°C	Oven	Glass beads	0.1°	±0.4°	200 mm	—	TW-08077-35	
Standard accuracy thermometers								
–90 to 25°C	Ultralow freezer	Glass beads	1°	±1.5°C, 2.5 below -50°C	145 mm	—	TW-08077-41	
–30 to 1°C	Freezer	Glass beads	0.5°	±0.5°	135 mm	—	TW-08077-42	
–5 to 20°C	Blood bank	Glass beads	0.5°	±0.5°	135 mm	—	TW-08077-43	
–5 to 15°C	Refrigerator	Glass beads	0.5°	±0.5°	125 mm	—	TW-08077-44	
10 to 45°C	Incubator	Glass beads	0.5°	±0.5°	102 mm	—	TW-08077-45	
15 to 50°C	Incubator	Glass beads	0.5°	±0.5°	135 mm	—	TW-08077-46	
20 to 130°C	Oven	Glass beads	1°	±1.5°, 2° above 105°C	145 mm	—	TW-08077-47	
50 to 200°C	High-temp oven	Glass beads	2°	±2.5°, 5° above 130°C	145 mm	—	TW-08077-48	
PFA-coated standard accuracy thermometers with liquid filled bottle								
–90 to 25°C	Ultralow freezer	Propylene glycol	1°	±2°, 3° below -50°C	145 mm	—	TW-90300-69	
–5 to 20°C	Blood bank	Ethylene glycol	0.5°	±1°	135 mm	—	TW-90300-72	
–30 to 1°C	Freezer	Propylene glycol	0.5°	±1°	135 mm	—	TW-90300-70	
–5 to 15°C	Refrigerator	Ethylene glycol	0.5°	±1°	125 mm	—	TW-90300-67	
15 to 50°C	Incubator	Ethylene glycol	0.5°	±1°	135 mm	—	TW-90300-68	
20 to 130°C	Oven	Vermiculite	1°	±2°	145 mm	—	TW-90300-71	
50 to 200°C	High-temp oven	Vermiculite	2°	±4°, 6° above130°C	145 mm	—	TW-90300-73	

INNOCAL®
INNOVATIVE CALIBRATION SOLUTIONS

Ensure the accuracy of your glass thermometer!

NIST-traceable reports include test data. Test points are measured across range of thermometer. Recalibrate yearly.

Catalog number	Calibration points	Price
TW-17006-03	2 to 4	
TW-17006-05	5 to 9	
TW-17006-06	10 to 15	

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Blue Spirit Certified Glass Thermometers

NIST-traceable individually calibrated thermometers feature precise and accurate temperature measurement

NEW
Expanded offering

- Nonmercury blue spirit liquid
- NIST-traceable, laminated report of calibration included

These thermometers are ideal for use in applications where a very precise accurate temperature measurement is required. Thermometers are individually calibrated to NIST standards at specific temperatures and come with a NIST-traceable calibration report supplied by the manufacturer stating corrections to one-tenth the smallest division.

Thermometers feature permanently fused markings, blue spirit liquid, white background glass; are also individually serial numbered. Include a triangular-style antiroll fitting.

5 year warranty

Temperature range	Scale divisions	Accuracy	Length	Calibration points	Partial immersion			Total immersion	
					Catalog number	Immersion depth	Price	Catalog number	Price
Celsius-scale thermometers									
–100 to 50°C	2°	±3°, 6° below -35°C	300 mm	–78, –20, 0, 4, 37°C	TW-00708-00	76 mm		—	—
–20 to 110°C	1°	±1.5°C	300 mm	0, 50, 100°C	TW-00708-01	76 mm		TW-00708-05	
–20 to 110°C	1°	±1.5°C	300 mm	0, 37, 56°C	TW-90300-11	76 mm		—	—
–20 to 150°C	1°	±1.5°; 2°C above 105°C	300 mm	0, 60, 120°C	TW-00708-02	76 mm		TW-00708-06	
–10 to 70°C	0.5°	±1°C	300 mm	0, 37, 56°C	TW-00708-03	76 mm		—	—
–1 to 51°C	0.1°	±1°C	460 mm	0, 10, 20, 30, 37, 40, 50°C	TW-90300-13	76 mm		TW-90300-22	
–1 to 61°C	0.1	±1°C	420 mm	0, 37, 56°C	TW-00708-04	76 mm		—	—
–10 to 225°C	1°	±1°C	350 mm	1, 100, 200°C	—	—	—	TW-00708-07	
–1 to 101°C	0.1°	±1°C	610 mm	0, 50, 100°C	—	—	—	TW-00708-08	
–1 to 101°C	0.1°	±1°C	460 mm	0, 10, 20,30, 40, 50, 60, 70, 80, 90, 100°C	TW-90300-15	76 mm		TW-90300-21	
–1 to 201°C	0.2°	±1°C	610 mm	0, 25, 37, 44.6, 100, 121, 140, 150, 160, 200°C	—	—	—	TW-90300-23	
–1 to 201°C	0.2°	±1°C	610 mm	0, 20, 37, 56, 80, 100, 121, 150°C	TW-90300-19	76 mm		—	—
Fahrenheit-scale thermometers									
30 to 124°F	0.2°	±2°F	460 mm	32, 40, 60, 100, 120°F	TW-90300-17	76 mm		—	—
0 to 300°F	2°	±3°; 4° above 220°F	300 mm	32, 100, 200, 300°F	TW-90300-20	76 mm		—	—

Easy-Read® Nonhazardous General-Purpose Glass Thermometers

Designed to be very easy to read

NEW
Expanded offering

- Replace mercury thermometers with the same accuracy without any hazards
- 100% nontoxic, nonhazardous, biodegradable, and "green"
- Statement of accuracy included

These thermometers are ideal for use in laboratories, universities, food/beverage, environmental, wastewater and many other general-purpose applications where the use of mercury or other hazardous liquids is not desired. Each thermometer features a black liquid and yellow back glass which creates a distinct contrast making this thermometer very easy to read.

All Enviro-Safe glass thermometers contain an environmentally friendly nonmercury liquid that is 100% certified as nontoxic, nonhazardous, and fully biodegradable. In case of breakage, the liquid can be cleaned up easily with soap and water. These thermometers come complete with ring top anti-roll fitting, individual serial number, statement of accuracy supplied by the manufacturer, and recyclable packaging.

5 year warranty

Temperature range	Scale divisions	Accuracy	Length	Partial immersion			Total immersion	
				Catalog number	Immersion depth	Price	Catalog number	Price
Celsius-scale thermometers								
–10 to 110°C	1°	±0.5°, 1°, below 0°C and above 70°C, 1.5° above 110°C	300 mm	TW-08008-27	50 mm		TW-08008-28	
–10 to 150°C	1°	±0.5°, 1°, below 0°C and above 70°C, 1.5° above 110°C	200 mm	TW-08008-29	50 mm		TW-08008-30	
–35 to 50°C	0.5°	±0.5°	300 mm	TW-90300-32	76 mm		TW-90300-34	
–20 to 110°C	1°	±0.5°, 1°, below 0°C and above 70°C	300 mm	TW-08008-35	76 mm		TW-08008-36	
–20 to 150°C	1°	±0.75°; 1° above 70°C, 1.5° above 105°C	350 mm	TW-08008-37	76 mm		TW-08008-38	
–10 to 70°C	0.5°	±0.5°	300 mm	TW-90300-33	76 mm		—	—
–10 to 225°C	1°	±1°; 1.5° above 110°; 2° above 200°C	350 mm	—	—	—	TW-08008-44	
–10 to 260°C	1°	±1°; 1.5° above 110°; 2° above 200°C	350 mm	TW-08008-43	76 mm		—	—
Fahrenheit-scale thermometers								
20 to 230°F	2°	±0.5°, 1° below 32° and above 158°F	200 mm	TW-08008-31	50 mm		TW-08008-32	
20 to 300°F	2°	±0.5°, 1° below 32° and above 158°F, 1.5° above 230°F	200 mm	TW-08008-33	50 mm		TW-08008-34	
0 to 230°F	2°	±0.5°, 1° below 32° and above 158°F	300 mm	TW-08008-39	76 mm		TW-08008-40	
0 to 300°F	2°	±0.5°, 1° below 32°F and above 158°, 1.5° above 230°F	350 mm	TW-08008-41	76 mm		TW-08008-42	
20 to 440°F	2°	±2°; 3° below 32°F and above 221°. 4° above 400°F	350 mm	—	—	—	TW-08008-46	
20 to 500°F	2°	±2°; 3° below 32°F and above 221°. 4° above 400°F	350 mm	TW-08008-45	76 mm		—	—

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Enviro-Safe® Nonhazardous General-Purpose Glass Thermometers

The only thermometers certified as 100% nontoxic, nonhazardous, biodegradable, and "green"!

- Replace mercury thermometers with the same accuracy without any hazards
- Statement of accuracy included

NEW
Expanded offering

08008-67

These thermometers are ideal for use in laboratories, universities, food/beverage, environmental, wastewater, and many other general-purpose applications where the use of mercury or other hazardous liquids is not desired.

All Enviro-Safe glass thermometers contain an environmentally friendly nonmercury liquid that is 100% certified as nontoxic, nonhazardous, and fully biodegradable. In case of breakage, the liquid can be cleaned up easily with soap and water. Each thermometer features a green liquid and white back glass. These thermometers also have recyclable packaging, an antiroll fitting, individual serial numbers, and a statement of accuracy supplied by the manufacturer.

5 year warranty

Temperature range	Scale divisions	Accuracy	Length	Partial immersion			Total immersion	
				Catalog number	Immersion depth	Price	Catalog number	Price
Fractional Celsius-scale thermometer								
–1 to 61°C	0.1°	±0.5° full scale	420 mm	TW-08008-78	76 mm		—	—
Celsius-scale thermometers								
–10 to 110°C	1°	±1°	200 mm	TW-08008-57	50 mm		TW-08008-58	
–10 to 150°C	1°	±0.5°; 1.5° above 110°C	200 mm	TW-08008-59	50 mm		TW-08008-60	
–35 to 50°C	1°	±1°	300 mm	TW-90300-49	76 mm		TW-90300-51	
–20 to 110°C	1°	±1°	300 mm	TW-08008-65	76 mm		TW-08008-66	
–20 to 150°C	1°	±0.5°; 1.5° above 110°C	300 mm	TW-08008-67	76 mm		TW-08008-68	
–10 to 225°C	1°	±1.5°; 2° above 105°, 2.5° above 200°C	350 mm	—	—	—	TW-08008-74	
–10 to 260°C	1°	±1.5°; 2° above 105°, 2.5° above 200°C	350 mm	TW-08008-73	76 mm		—	—
Fahrenheit-scale thermometers								
20 to 230°F	2°	±2°	200 mm	TW-08008-61	50 mm		TW-08008-62	
20 to 300°F	2°	±2°; 3° above 230°F	200 mm	TW-08008-63	50 mm		TW-08008-64	
–30 to 120°F	1°	±1°	300 mm	TW-90300-50	76 mm		—	—
0 to 230°F	2°	±2°; 3° above 220°F	300 mm	TW-08008-69	76 mm		TW-08008-70	
0 to 300°F	2°	±2°; 3° above 220°F	300 mm	TW-08008-71	76 mm		TW-08008-72	
20 to 440°F	2°	±3°; 4° above 220°, 5° above 400°F	300 mm	—	—	—	TW-08008-76	
20 to 500°F	2°	±2°; 3° above 230°, 4° above 392°F	300 mm	TW-08008-75	76 mm		—	—

Enviro-Safe® Nonhazardous Dry Block Glass Thermometers

Replace mercury thermometers for dry block applications with the same accuracy

- 100% nontoxic, nonhazardous, biodegradable, and "green"
- Statement of accuracy included

08006-07

Designed for use in all standard heating blocks and water baths. All Enviro-Safe glass thermometers contain an environmentally friendly nonmercury liquid that is 100% certified as nontoxic, nonhazardous, and fully biodegradable. In case of breakage, the liquid can be cleaned up easily with soap and water. These thermometers feature a green liquid fill, white back glass, arrows indicating critical temperatures, and individual serial numbers. Come with a statement of accuracy supplied by the manufacturer and recyclable packaging.

5 year warranty

Temperature range	Scale divisions	Accuracy	Length	Partial immersion		
				Catalog number	Immersion depth	Price
Standard						
24 to 57°C	0.5°	±0.5°	175 mm	TW-08006-07	175 mm	
PFA Coated						
24 to 57°C	0.5°	±0.5°	175 mm	TW-08006-08	175 mm	

INNOCAL®
INNOVATIVE CALIBRATION SOLUTIONS

Ensure the accuracy of your glass thermometer!

NIST-traceable reports include test data. Test points are measured across range of thermometer. Recalibrate yearly.

Catalog number	Calibration points	Price
TW-17006-03	2 to 4	
TW-17006-05	5 to 9	
TW-17006-06	10 to 15	

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Enviro-Safe® Nonhazardous Pocket Glass Thermometers

Rugged case with an eyelet at the top for easy suspension

- Enviro-Safe liquid within the thermometers is nontoxic, nonhazardous, and fully biodegradable
- Replace mercury thermometers with the same accuracy without any hazards
- NIST- and DKD-traceable statement of accuracy included

NEW
Expanded offering

The case protects these thermometers from accidental breakage during use and storage. The section of the case that surrounds the bulb has small openings for circulation (except for close-case styles). Available in six case styles: closed metal, open metal, closed plastic, open plastic, aluminum duplex, or nickel-plated brass.

Enviro-Safe glass thermometers contain an environmentally friendly nonmercury liquid that is 100% certified as nontoxic, nonhazardous, and fully biodegradable. In case of breakage, the liquid can be cleaned up easily with soap and water. Each thermometer features a green liquid and white back glass. These thermometers also have recyclable packaging, individual serial numbers, and a statement of accuracy supplied by the manufacturer.

Easy-Read® thermometers are the same as the standard Enviro-Safe thermometers except they feature a black liquid and yellow back glass—distinct contrast makes these thermometers very easy to read.

5 year warranty

Standard Enviro-Safe Pocket Thermometers

Temperature range	Scale divisions	Accuracy	Length	Closed metal case		Metal case with window		Closed plastic case	
				Catalog number	Price	Catalog number	Price	Catalog number	Price
Celsius-scale thermometers									
–10 to 110°C	1°	±1°	160 mm	TW-08007-01		TW-08008-80		TW-08008-84	
–5 to 50°C	0.5°	±0.5°	160 mm	TW-08007-02		TW-08008-81		TW-08008-85	
Fahrenheit-scale thermometers									
0 to 220°F	2°	±2°	160 mm	TW-08007-03		TW-08008-82		TW-08008-86	
20 to 120°F	1°	±1°	160 mm	TW-08007-04		TW-08008-83		TW-08008-87	

Temperature range	Scale divisions	Accuracy	Length	Plastic case with window		Aluminum duplex case		Nickel-plated brass case	
				Catalog number	Price	Catalog number	Price	Catalog number	Price
Celsius-scale thermometers									
–10 to 110°C	1°	±1°	160 mm	TW-08008-88		TW-08008-92		TW-08008-96	
–5 to 50°C	0.5°	±0.5°	160 mm	TW-08008-89		TW-08008-93		TW-08008-97	
Fahrenheit-scale thermometers									
0 to 220°F	2°	±2°	160 mm	TW-08008-90		TW-08008-94		TW-08008-98	
20 to 120°F	1°	±1°	160 mm	TW-08008-91		TW-08008-95		TW-08008-99	

Easy-Read Enviro-Safe Pocket Thermometers

Temperature range	Scale divisions	Accuracy	Length	Closed metal case		Metal case with window		Closed plastic case	
				Catalog number	Price	Catalog number	Price	Catalog number	Price
Celsius-scale thermometers									
–30 to 50°C	1°	1°	160 mm	TW-90300-40		TW-90300-46		—	—
–10 to 110°C	1°	1°	160 mm	TW-90300-37		TW-90300-43		—	—
–5 to 50°C	0.5°	0.5°	160 mm	TW-90300-38		TW-90300-44		—	—
Fahrenheit-scale thermometers									
0 to 220°F	2°	2°	160 mm	TW-90300-36		TW-90300-42		—	—
20 to 120°F	1°	1°	160 mm	TW-90300-39		TW-90300-45		—	—

Temperature range	Scale divisions	Accuracy	Length	Plastic case with window		Aluminum duplex plastic case		Nickel-plated brass case with window	
				Catalog number	Price	Catalog number	Price	Catalog number	Price
Celsius-scale thermometers									
–5 to 50°C	0.5°	0.5°	160 mm	TW-90300-48		TW-90300-35		TW-90300-41	
Fahrenheit-scale thermometers									
0 to 220°F	2°	2°	160 mm	TW-90300-47		—	—	—	—

Enviro-Safe® FRIO-Temp® Nonhazardous PFA-Coated Verification Bottle Thermometers

Enclosed bottle ensures accuracy

- Enviro-Safe liquid is certified as 100% nontoxic, nonhazardous, biodegradable, and "green"
- Replace mercury thermometers with the same accuracy without any hazards
- Statement of accuracy included

NEW
Expanded offering

Accurately monitor temperatures in freezers, refrigerators, blood banks, incubators, ovens, and other environments where stability is required. Thermometers are filled with Enviro-Safe liquid and supplied with a unbreakable plastic bottle filled with Enviro-Safe liquid or glass beads. The thermometer can be removed from the bottle for recalibration if needed. Thermometers are PFA coated for enhanced safety in case of breakage. Use the magnetic or Velcro® attachment strip to securely attach the bottle to object such as a metal wall or door.

All Enviro-Safe glass thermometers contain an environmentally friendly nonmercury liquid that is 100% certified as nontoxic, nonhazardous, and fully biodegradable. In case of breakage, the liquid can be cleaned up easily with soap and water. Each thermometer features a green liquid and white back glass. These thermometers also have recyclable packaging, individual serial numbers, and a statement of accuracy supplied by the manufacturer. Precision accuracy thermometers are supplied with a NIST-traceable calibration report supplied by the manufacturer with stated corrections to one-tenth of the smallest division.

08077-52

5 year warranty

Temperature range	Application	Bottle fill	Scale divisions	Accuracy	Length	Calibration point	Catalog number	Price
Standard accuracy thermometers								
–90 to 25°C	Ultralow freezer	Glass beads	1°	±1°; 2° from -1° to -40°C, 2.5° below -40°C	145 mm	—	TW-90300-65	
–30 to 1°C	Freezer	Enviro-Safe liquid	0.5°	±0.5°	135 mm	—	TW-08077-53	
–25 to –5°C	Freezer	Enviro-Safe liquid	0.1°	±0.2°	210 mm	—	TW-90300-60	
–5 to 15°C	Refrigerator	Enviro-Safe liquid	0.5°	±0.5°	125 mm	—	TW-08077-54	
–2 to 10°C	Refrigerator	Enviro-Safe liquid	0.1°	±0.2°	180 mm	—	TW-90300-61	
10 to 45°C	Incubator	Glass beads	0.5°	±0.5°	98mm	—	TW-08077-55	
15 to 30°C	Incubator	Glass beads	0.1°	±0.2°	180 mm	—	TW-90300-62	
15 to 50°C	Incubator	Enviro-Safe liquid	0.5°	±0.5°	135 mm	—	TW-08077-56	
15 to 50°C	Incubator	Enviro-Safe liquid	0.5°	±0.5°	135 mm	—	TW-08077-59†	
25 to 45°C	Incubator	Enviro-Safe liquid	0.1°	±0.2°	200 mm	—	TW-90300-63	
–5 to 20°C	Blood bank	Enviro-Safe liquid	0.5°	±0.5°	135 mm	—	TW-08077-52	
20 to 130°C	Oven	Glass beads	1°	±1°	145 mm	—	TW-08077-57	
95 to 115°C	Oven	Glass beads	0.1°	±0.4°	200 mm	—	TW-90300-64	
50 to 200°C	High-temp oven	Glass beads	2°	±2°, 4° above 130°C	145 mm	—	TW-08077-58	
Precision accuracy thermometers with NIST report								
–90 to 25°C	Ultralow freezer	Enviro-Safe liquid	1°	±1°; 2° from -1° to -40°C, 2.5° below -40°C	145 mm	–40°C	TW-90300-55‡	
–30 to 1°C	Freezer	Enviro-Safe liquid	0.5°	±0.5°	135 mm	–15°C	TW-90300-57	
–25 to –5°C	Freezer	Enviro-Safe liquid	0.1°	±0.2°	210 mm	–20, –10°C	TW-08077-21	
–5 to 15°C	Refrigerator	Enviro-Safe liquid	0.5°	±0.5°	125 mm	6°C	TW-90300-56	
–2 to 10°C	Refrigerator	Enviro-Safe liquid	0.1°	±0.2°	180 mm	0, 5°C	TW-08077-22	
15 to 30°C	Incubator	Enviro-Safe liquid	0.1°	±0.2°	180 mm	20, 25°C	TW-90300-53	
15 to 50°C	Incubator	Enviro-Safe liquid	0.5°	±0.5°	135 mm	37°C	TW-90300-59	
25 to 45°C	Incubator	Enviro-Safe liquid	0.1°	±0.2°	190 mm	30, 40°C	TW-08077-23	
–5 to 20°C	Blood bank	Enviro-Safe liquid	0.5°	±0.5°	135 mm	4°C	TW-90300-58	
95 to 115°C	Oven	Glass beads	0.1°	±0.4°	200 mm	100, 110°C	TW-90300-54	

† Easy-Read version is not PFA coated and has a black fill and yellow back glass.
‡ Contains hazardous liquid.

MORE info!

Enviro-Safe® Environmentally Safe Certified Thermometers

The only glass thermometers and packaging to achieve certification stating that they are 100% nontoxic, nonhazardous, biodegradable, and "green"! These thermometer brands have achieved **EnviroKleen certification** through ChemTel Inc. ChemTel is internationally recognized for its leadership in environmental compliance solutions with intricate knowledge of hazardous chemicals and environmental regulations. EnviroKleen third party certification identifies products and services that are environmentally friendly and socially responsible. In order to achieve this certification, the manufacturing process was fully examined while observing key environmental and human health issues relevant to each product line. Both product lines and packaging were found to be "environmentally friendly" and are certified safe for personal, commercial, and industrial use.

ENSURE ACCURACY
INNOCAL®
Have your new product calibrated.
See pages 198–204.

Find MORE!
For more Petroleum Testing equipment products, see **pages 1040–1045**.

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Enviro-Safe® Nonhazardous Double-Safe™ PFA-Coated Safety Glass Thermometers

PTFE coating provides additional safety—no glass or contamination if the thermometer breaks

- The filling and glass are contained within the PFA jacket, preventing contamination
- Enviro-Safe liquid within the thermometers is nontoxic, nonhazardous, and fully biodegradable
- Replace mercury thermometers with the same accuracy without any hazards
- Statement of accuracy included

NEW
Expanded offering

08077-13

Double-safe thermometers are PFA safety coated. In the event of breakage, the coating will help contain the broken liquid and glass. All Enviro-Safe glass thermometers contain an environmentally friendly nonmercury liquid that is 100% certified as nontoxic, nonhazardous, and fully biodegradable. In case of breakage, the liquid can be cleaned up easily with soap and water. Each thermometer features a black liquid and yellow back glass which creates a distinct contrast making this thermometer very easy to read. These thermometers also have recyclable packaging, ring top, antiroll fitting, individual serial numbers, and a statement of accuracy supplied by the manufacturer.

5 year warranty

Temperature range	Scale divisions	Accuracy	Length	Partial immersion			Total immersion	
				Catalog number	Immersion depth	Price	Catalog number	Price
Celsius-scale thermometers								
–10 to 110°C	1°	±1°	200 mm	TW-08077-03	50 mm		TW-08077-05	
–10 to 150°C	1°	±1°; ±1.5° above 110°C	200 mm	TW-08077-06	50 mm		TW-08077-07	
–20 to 110°C	1°	±1°	300 mm	TW-08077-13	76 mm		TW-08077-14	
–20 to 150°C	1°	±1°; ±1.5° above 110°C	300 mm	TW-08077-15	76 mm		TW-08077-16	
–10 to 70°C	0.5°	±1°	300 mm	TW-90300-01	50 mm		—	—
–10 to 225°C	1°	±1°	350 mm	—	—	—	TW-90300-07	
–10 to 260°C	1°	±1°; ±2° above 110°C; 2.5° above 200°C	350 mm	TW-90300-03	76 mm		—	—
Fahrenheit-scale thermometers								
20 to 230°F	2°	±2°	200 mm	TW-08077-08	50 mm		TW-08077-09	
20 to 300°F	2°	±2°	200 mm	TW-08077-11	50 mm		TW-08077-12	
0 to 230°F	2°	±2°	300 mm	TW-08077-17	76 mm		TW-08077-18	
0 to 300°F	2°	±2°; ±3° above 221°F	300 mm	TW-08077-19	76 mm		TW-08077-26	
20 to 500°F	2°	±2°; ±3° above 221°F; 4° above 392°F	350 mm	TW-90300-05	76 mm		—	—

Easy-Read® Nonhazardous Enviro-Safe® Certified Glass Thermometers

Each thermometer is individually calibrated

NEW
Expanded offering

- Designed to be very easy to read
- Replace mercury thermometers with the same accuracy without any hazards
- 100% nontoxic, nonhazardous, biodegradable, and "green"
- NIST-traceable detailed, laminated Report of Calibration

Each thermometer features a black liquid and yellow back glass which creates a distinct contrast making this thermometer very easy to read. These thermometers are also individually calibrated to NIST standards at specific temperatures and supplied with an NIST report of calibration stating corrections to one-tenth the smallest division.

All Enviro-Safe glass thermometers contain an environmentally friendly nonmercury liquid that is 100% certified as nontoxic, nonhazardous, and fully biodegradable. In case of breakage, the liquid can be cleaned up easily with soap and water. These thermometers come complete with ring top anti-roll fitting, individual serial number, NIST-traceable calibration report supplied by the manufacturer, and recyclable packaging.

08008-49

5 year warranty

Temperature range	Scale divisions	Accuracy	Length	Calibration points	Partial immersion			Total immersion	
					Catalog number	Immersion depth	Price	Catalog number	Price
Celsius-scale thermometers									
–10 to 70°C	0.5°	0.5°	300 mm	0, 37, 56°C	TW-08008-47	76 mm		—	—
–20 to 110°C	1°	1°	300 mm	0, 50, 100°C	TW-08008-48	76 mm		TW-08008-49	
–20 to 110°C	1°	1°	300 mm	0, 37, 56°C	TW-08008-52	76 mm		TW-08008-53	
–20 to 110°C	1°	1°	300 mm	0, 4, 20, 37, 44.5, 103°C	TW-90300-31	76 mm		—	—
–20 to 150°C	1°	1°	300 mm	0, 60, 120°C	TW-08008-50	76 mm		TW-08008-51	
–10 to 225°C	1°	1°	350 mm	1, 100, 200°C	—	—	—	TW-08008-54	

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Thermometer Magnifier

Magnifier power 3X

Magnifier uses metal clips to securely grip thermometers. Release the clips, and magnifier slides easily up, down, or out of the way. Fits all thermometers with an outside diameter of ¼" to 3⁄16" (6 to 7 mm) in diameter. Constructed of clear plastic with an etched hairline for easy reference. Overall dimensions are 3"L x 2½"H (7.6 x 2.4 cm).

Cat. no.	Description	Price
TW-52301-90	Thermometer magnifier	

Thermometer Rack

Store thermometers easily and safely

Polypropylene rack holds up to 25 thermometers. Distance between top and bottom plates is 4⅛" (10.5 cm). Overall dimensions are 5⅞"L x 8⅜"W x 9⅞"H (14.9 x 21.3 x 25.1 cm).

Cat. no.	Description	Price
TW-93860-00	Thermometer rack	

Thermometers not included.

Thermometer Holder with Clip

Hold your thermometer firmly to the side of any beaker

Foam rubber holder has five holes ranging from 4- to 14 mm in dia to hold almost any size thermometer. Made of steel/rubber for long life.

Cat. no.	Description	Price
TW-08120-90	Thermometer holder with clip	-

Thermometer and beaker not included.

Thermometer Non-roll Fittings

Prevent glass thermometers from rolling off a surface and breaking

- Use for all types of liquid-in-glass thermometers

Durable PVC antiroll fittings are designed to prevent standard-sized glass thermometers from rolling when left on a flat surface. Choose from ring top or triangular styles.

08007-98

08007-99

Catalog number	Style	Qty/pk	Price/pk
TW-08007-98	Ring top	25	
TW-08007-99	Triangular	25	

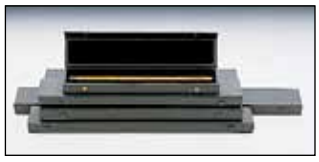
MORE online!

For additional information on recycling mercury thermometers visit our "Technical Library" section.
Go to . . .ColeParmer.com/techinfo

Thermometer Cases

Properly protect all glass thermometers

To guard against mercury separation, store mercury-filled thermometers horizontally. Plush lining protects thermometers against breakage.



Thermometer not included.

Catalog number	Accommodates	Price
TW-08118-72	12" (300 mm) L thermometer	
TW-08118-76	16" (405 mm) L thermometer	
TW-08118-78	18" (460 mm) L thermometer	
TW-08118-84	24" (610 mm) L thermometer	

Thermometer Storage Tubes

Help protect your glass thermometer while in storage

Clear plastic storage tube holds one glass thermometer and features a twist-lock cap that holds the thermometer securely in place. Choose the size that best fits your thermometer length.

Thermometer not included.

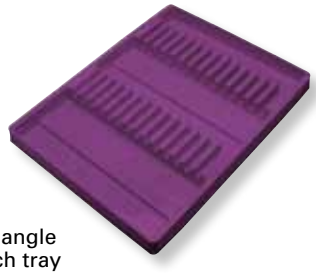
Catalog number	Accommodates	Qty/pk	Price
TW-08007-93	One 6" (160 mm) L glass thermometer	25	
TW-08007-94	One 12" (300 mm) L glass thermometer	25	
TW-08007-95	One 16" (405 mm) L glass thermometer	25	

Angled Thermometer Storage Trays

Designed to properly store your glass thermometers at the correct angle

- Use for all types of liquid-in-glass thermometers
- Angled to prevent separation of liquid column
- UV coated

Keep thermometers handy and properly stored while keeping your space organized. These 2-mm thick polystyrene trays feature an inclined angle to help prevent liquid separation. Each tray has numbered slots. Choose from two sizes: one fits easily in a drawer, the other is suited for shelf storage.



08007-97

Catalog number	Accommodates	Dimensions (L x W x H)	Qty/pk	Price/pk
TW-08007-96	Up to 3 glass thermometers, 16" (406 mm) long	17 x 4 x 1¼" (432 x 102 x 32 mm)	5	
TW-08007-97	Up to 14 glass thermometers, 16" (406 mm) long	17½ x 13¼ x 1¼" (442 x 340 x 30 mm)	2	

Mercury Collector Jar

Makes small mercury spill cleanup quick and simple

Foam pad on lid liner absorbs spilled mercury. Simply screw on lid to collect mercury beneath perforated plate.

Cat. no.	Description	Price
TW-06706-00	Mercury collector	

TW-06706-10 **Replacement pads** affix with rubber cement. Pack of 12

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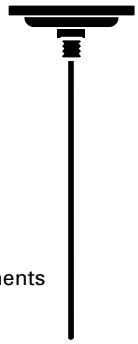
Cole-Parmer® Bimetal Industrial Thermometers

Back-connected dial 08138-01

Adjustable angle dial 90490-01

General Features

- ±1% full-scale accuracy
- Reset screw for field calibration
- Anti-parallax dished dial for superior readability
- Rugged 304 stainless steel construction for tough environments
- Guaranteed hermetically sealed per ASME B40.3 standard to prevent fogging
- Heat-treated bimetal helix for extended life and accuracy
- Made in the USA



Standard Thermometers

- Silicone-free, dry case thermometer
- Manufactured in a totally silicone-free environment
- The workhorse thermometer of the industrial market place

Dampened Movement Thermometers

- Provides all the advantages of silicone-free, dry case thermometers
- Dampening is achieved by using an inert gel encapsulated in a dashpot
- Dry case eliminates the possibility of cross-contamination if thermometer breaks
- Eliminate pointer flutter, improving readability
- Increased overall life of the thermometer

Silicone-Filled Thermometers

- Designed for the most severe vibration conditions
- Silicone is used to dampen and lubricate all internal parts, enhancing readability and lifespan
- Superior performance that will hold up to the toughest vibration applications
- Lens material is acrylic due to the expansion properties of silicone

Specifications

7 year warranty

Accuracy: ±1% full-scale
Dimensions: 0.25" stem dia
Materials: 304 SS case and stem†
Connections: ½" NPT(M)

Dial size (dia)	Stem length in. (cm)	Temperature ranges (scale divisions) 0 to 250°F (2°F) –20 to 120°C (1°C) Cat. no.	Price	25 to 125°F (2°F) –5 to 50°C (1°C) Cat. no.	Price	50 to 300°F (2°F) 10 to 150°C (1°C) Cat. no.	Price	50 to 550°F (2°F) 10 to 290°C (1°C) Cat. no.	Price
Back-connected dial									
Standard (glass lens†)									
3" (7.6 cm)	2.5 (6.4)	TW-08138-01		—	—	TW-08138-03		TW-08138-04	
	4 (10.2)	TW-08139-01		TW-08139-02		TW-08139-03		TW-08139-04	
	6 (15.2)	TW-08140-01		TW-08140-02		TW-08140-03		TW-08140-04	
	9 (22.9)	TW-08141-01		TW-08141-02		TW-08141-03		TW-08141-04	
	12 (30.5)	TW-08142-01		TW-08142-02		TW-08142-03		TW-08142-04	
	24 (61.0)	TW-08144-01		TW-08144-02		TW-08144-03		TW-08144-04	
Dampened movement (glass lens†)									
3" (7.6 cm)	2.5 (6.4)	TW-90550-59		—	—	—	—	TW-90550-60	
	4 (10.2)	TW-90550-61		—	—	—	—	TW-90550-62	
	6 (15.2)	TW-90550-63		—	—	—	—	TW-90550-64	
	9 (22.9)	TW-90550-65		—	—	—	—	TW-90550-66	
	12 (30.5)	TW-90550-67		—	—	—	—	TW-90550-68	
	24 (61.0)	TW-90550-69		—	—	—	—	TW-90550-70	
Silicone-filled (acrylic lens†)									
3" (7.6 cm)	2.5 (6.4)	TW-90551-41		—	—	TW-90551-42		—	—
	4 (10.2)	TW-90551-43		TW-08084-06		TW-90551-44		—	—
	6 (15.2)	TW-90551-45		TW-08084-07		TW-90551-46		—	—
	9 (22.9)	TW-90551-47		TW-08084-08		TW-90551-48		—	—
	12 (30.5)	TW-90551-49		TW-08084-09		TW-90551-50		—	—
	24 (61.0)	TW-90551-51		TW-08084-10		TW-90551-52		—	—
Bottom-connected dial (90° angle)									
Standard (glass lens†)									
3" (7.6 cm)	2.5 (6.4)	TW-08131-01		—	—	TW-08131-03		TW-08131-04	
	4 (10.2)	TW-08132-01		TW-08132-02		TW-08132-03		TW-08132-04	
	6 (15.2)	TW-08133-01		TW-08133-02		TW-08133-03		TW-08133-04	
	9 (22.9)	TW-08134-01		TW-08134-02		TW-08134-03		TW-08134-04	
	12 (30.5)	TW-08135-01		TW-08135-02		TW-08135-03		TW-08135-04	
	24 (61.0)	TW-08137-01		TW-08137-02		TW-08137-03		TW-08137-04	
Dampened movement (glass lens†)									
3" (7.6 cm)	2.5 (6.4)	TW-90550-47		—	—	—	—	TW-90550-48	
	4 (10.2)	TW-90550-49		—	—	—	—	TW-90550-50	
	6 (15.2)	TW-90550-51		—	—	—	—	TW-90550-52	
	9 (22.9)	TW-90550-53		—	—	—	—	TW-90550-54	
	12 (30.5)	TW-90550-55		—	—	—	—	TW-90550-56	
	24 (61.0)	TW-90550-57		—	—	—	—	TW-90550-58	
Silicone-filled (acrylic lens†)									
3" (7.6 cm)	2.5 (6.4)	TW-90551-29		—	—	TW-90551-30		—	—
	4 (10.2)	TW-90551-31		—	—	TW-90551-32		—	—
	6 (15.2)	TW-90551-33		—	—	TW-90551-34		—	—
	9 (22.9)	TW-90551-35		—	—	TW-90551-36		—	—
	12 (30.5)	TW-90551-37		—	—	TW-90551-38		—	—
	24 (61.0)	TW-90551-39		—	—	TW-90551-40		—	—
Adjustable angle dial (0 to 90° angles)									
Standard (glass lens†)									
3" (7.6 cm)	2.5 (6.4)	TW-90490-01		—	—	TW-90490-03		TW-90490-04	
	4 (10.2)	TW-90491-01		TW-90491-02		TW-90491-03		TW-90491-04	
	6 (15.2)	TW-90492-01		TW-90492-02		TW-90492-03		TW-90492-04	
	9 (22.9)	TW-90493-01		TW-90493-02		TW-90493-03		TW-90493-04	
	12 (30.5)	TW-90494-01		TW-90494-02		TW-90494-03		TW-90494-04	
	24 (61.0)	TW-90496-01		TW-90496-02		TW-90496-03		TW-90496-04	
Dampened movement (glass lens†)									
3" (7.6 cm)	2.5 (6.4)	TW-90550-35		—	—	—	—	TW-90550-36	
	4 (10.2)	TW-90550-37		—	—	—	—	TW-90550-38	
	6 (15.2)	TW-90550-39		—	—	—	—	TW-90550-40	
	9 (22.9)	TW-90550-41		—	—	—	—	TW-90550-42	
	12 (30.5)	TW-90550-43		—	—	—	—	TW-90550-44	
	24 (61.0)	TW-90550-45		—	—	—	—	TW-90550-46	
Silicone-filled (acrylic lens†)									
3" (7.6 cm)	2.5 (6.4)	TW-90510-01		—	—	TW-90510-03		—	—
	4 (10.2)	TW-08081-01		TW-08081-02		TW-08081-03		—	—
	6 (15.2)	TW-08082-01		TW-08082-02		TW-08082-03		—	—
	9 (22.9)	TW-08083-01		TW-08083-02		TW-08083-03		—	—
	12 (30.5)	TW-08084-01		TW-08084-02		TW-08084-03		—	—
	24 (61.0)	TW-90516-01		TW-90516-02		TW-90516-03		—	—

†Maximum environmental temperature for glass lens is 550°F (290°C); acrylic lens is 180°F (82°C).

TW-17003-00 **NIST-traceable calibration** with data for bimetallic thermometer

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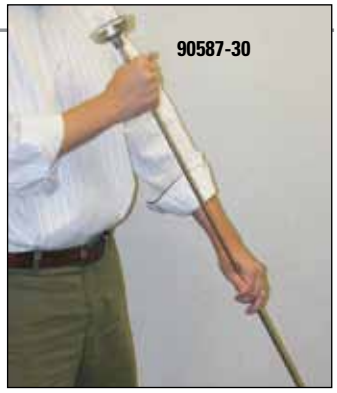
Cole-Parmer® Soil/Compost Thermometers

- Calibrate with external reset screw
- Thermometers meet ASME B40.3 standards for leak- and fog-proof operation
- Fast response 0.25"-dia tip model available



Specifications

7 year warranty

Accuracy: ±1% full-scale
Display: 3" dia (7.6 cm) display
Materials: 304 SS case and stem, acrylic lens

Catalog number	Probe dimensions (L x dia) in.	Probe dimensions (L x dia) cm	Temperature range	Divisions	Price
TW-90577-30	12 x ¼	30.5 x 0.6	0 to 200°F (–15 to 90°C)	2°F (1°C)	
TW-90585-30	24 x ⅛	61.0 x 1.0			
TW-90586-30	36 x ⅛	91.4 x 1.0			
TW-90587-30	48 x ⅛	121.9 x 1.0			

TW-17003-00 **NIST-traceable calibration** with data for bimetallic thermometer

Cole-Parmer® Solar-Powered Adjustable-Angle Thermometers

- View readings from almost any angle
- No batteries required—ideal for plant floor or lab
- Safety circuit prevents false readings

Specifications

NSF

Accuracy: ±1% full-scale
Resolution: 0.1°F or °C
Display: 3-digit LCD, 0.4"H (10.2 cm)
Probe: thermistor type; 0.25" dia stem
Materials: 304 SS case and stem, acrylic lens
Dimensions: 3.25" dia face
Power: solar (above 35 lux light level)
Connections: ½" NPT

Catalog number	Temperature range	Stem length	Price
TW-90130-02	–50 to 300°F	2.5"	
TW-90130-04		4"	
TW-90130-06		6"	
TW-90130-09		9"	
TW-90130-12		12"	
TW-90131-02	–50 to 150°C	2.5"	
TW-90131-04		4"	
TW-90131-06		6"	
TW-90131-09		9"	
TW-90131-12		12"	

TW-17003-00 **NIST-traceable calibration** with data for bimetallic thermometer

Solar-Powered Industrial Thermometers

Safer replacement to traditional mercury-filled industrial thermometers

Our solar-powered digital thermometers meet the strict standards required in hydronic applications, and are perfect for new installations and existing systems that require the removal of mercury industrial thermometers. The instruments are self-powered requiring only 10 lux, the equivalent light of a candle. They are rated at ±1% full-scale accuracy and are a direct drop-in replacement to industrial glass thermometers. With a wide measuring range of –50 to 300°F (–45 to 150°C), these meters cover all of the popular ranges.

Specifications

CE 7 year warranty

Resolution: 1/10° from –19 to 199.9°F (–28 to 93°C)
Accuracy: ±1% of reading or 1°, whichever is greater
Display: ⅜"H LCD digits
Materials: high-impact ABS case with metal thermowell
Power: solar (above 10 lux light level)
Dimensions (display case) (W x H x D): 2⅜" x 4½" x 1⅛" (6.0 x 11.4 x 2.8 cm)

Catalog number	Temperature range	Stem length	Connection	Thermowell	Price
TW-90552-49	–50 to 300°F (–45 to 150°C)	3½"	1¼" –18 swivel nut	No	
TW-90552-51		6"			
TW-90552-50		3½"	½" NPT(M)	Yes	
TW-90552-52		6"			

TW-17003-00 **NIST-traceable calibration** with data

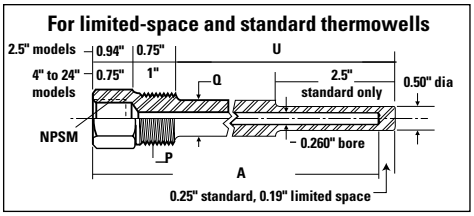
Thermowells

Protect your temperature probe

To match your probe to a thermowell, first measure the distance from the tip of the probe to the top of the thread (typical thread length is 0.5" for ½" NPT fittings). Next, match this stem length to the probe depth of the thermowell ("A" dimension).

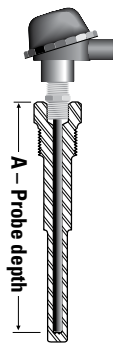
Use the limited-space thermowell when you need a shorter insertion depth. Choose the standard thermowell for general-purpose applications.

Other thermowell sizes and materials are available—call our Application Specialists for more information.



Thermowell type	Probe depth (A)	Internal / external thread (P)	Shank dia (Q)	Insertion length (U)	Max velocity (ft/sec) at 1000°F Gas	Max velocity (ft/sec) at 1000°F Water	304 stainless steel Catalog number	304 stainless steel Price	316 stainless steel Catalog number	316 stainless steel Price
Limited space	2.5"	½" NPT(M)	0.50"	1"	300.0	148.0	TW-90433-80		TW-90433-93	
Standard	4"	½" NPT(M)	0.625"	2.5"	300.0	148.0	TW-90433-81		TW-90433-94	
	6"			4.5"	109.0	82.2	TW-90433-82		TW-90433-95	
	9"			7.5"	39.5	39.5	TW-90433-83		TW-90433-96	
	12"			10.5"	20.1	20.1	TW-90433-84		TW-90433-97	
	24"			22.5"	4.4	4.4	TW-90433-85		TW-90433-98	

TW-93785-61 **Thermal transfer compound,** 4 oz. nonsilicone compound to help improve heat transfer to sensor



Match the probe length (the tip of the probe to the top of the thread) to the thermowell's probe depth ("A" dimension).

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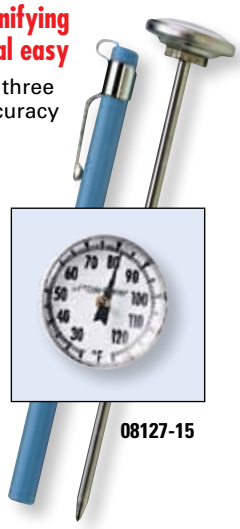
Cole-Parmer® Stainless Steel Pocket Thermometers

1" polycarbonate magnifying lens makes reading dial easy

- Factory calibration to three points with a ±1% accuracy
- Hermetically sealed dial plate stops internal fogging
- Recalibrate using external adjustment nut
- Include a anti-microbial plastic storage sleeve
- Shock resistant



Specifications

Accuracy: ±1% full-scale
Materials: 304 SS dial case and stem, polycarbonate lens
Dimensions: 5"L x 0.142" dia stem, 1" dia dial

Catalog number	Temp range‡	Divisions	Price
TW-08127-10	–40 to 160°F	2°F	
TW-08127-15†	25 to 125°F	1°F	
TW-08127-20†	0 to 220°F	2°F	
TW-08127-30	50 to 550°F	5°F	
TW-08080-07	–40 to 50°C	1°C	
TW-08080-08	–10 to 110°C	1°C	

†NSF listed.
‡Temperature range for probe only. Polycarbonate lens maximum temperature is 275°F (135°C).

1¾" glass lens for use in high-temperature applications

- Factory calibration to three points with a ±1% accuracy
- Hermetically sealed dial plate stops internal fogging
- Recalibrate using external adjustment nut
- Include a beaker clip
- Shock resistant

Specifications

Accuracy: ±1% full-scale
Materials: 304 SS dial case and stem, glass lens
Dimensions: 8"L x 0.150" dia stem, 1.75" dia dial

Catalog number	Temp range	Divisions	Price
TW-08080-01	–40 to 160°F	2°F	
TW-08080-02	25 to 125°F	1°F	
TW-08080-03	0 to 180°F	2°F	
TW-08080-04	0 to 220°F	2°F	
TW-08080-05	50 to 300°F	2°F	
TW-08080-06	50 to 500°F	5°F	
TW-08080-10	–10 to 110°C	1°C	
TW-08080-11	0 to 50°C	0.5°C	
TW-08080-12	0 to 100°C	1°C	
TW-08080-13	0 to 250°C	2°C	

TW-08103-02 **Replacement beaker clip** for 1.75" and 2" dia thermometers

2" polycarbonate lens with dual °F/°C scale

- Factory calibration to three points with a ±1% accuracy
- Hermetically sealed dial plate stops internal fogging
- Recalibrate using external adjustment nut
- Include a beaker clip and manual indicator
- Shock resistant

Specifications

Accuracy: ±1% full-scale
Materials: 304 SS dial case and stem, polycarbonate lens
Dimensions: 8"L x 0.142" dia stem, 2" dia dial

Catalog number	Temp range‡	Divisions	Price
TW-08103-40	–40 to 160°F, –40 to 70°C	2°F, 1°C	
TW-08103-10	0 to 220°F, –10 to 110°C	2°F, 1°C	
TW-08103-50	25 to 125°F, –4 to 52°C	1°F, 0.5°C	
TW-08103-30	0 to 550°F, –10 to 290°C	5°F, 5°C	

‡Temperature range for probe only. Polycarbonate lens maximum temperature is 275°F (135°C).

Pocket Thermometer

1" polycarbonate magnifying lens for easy reading

- Factory calibrated to one point
- Hermetically sealed case
- Includes plastic storage sleeve with pocket clip
- Sleeve features a built-in wrench for convenient field adjustment

Specifications

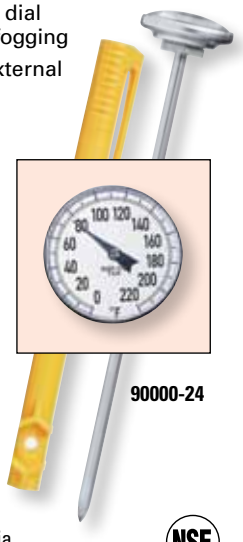
Accuracy: ±2% full-scale
Materials: 304 SS dial case and stem, polycarbonate lens
Dimensions: 5"L x 0.142" (12.7 x 0.36 cm) dia stem, 1" (2.5 cm) dia dial

Catalog number	Temp range	Divisions	Price
TW-08080-18	–40 to 160°F	2°F	
TW-08080-17	25 to 125°F	1°F	
TW-08080-14	0 to 220°F	2°F	
TW-08080-15	50 to 550°F	5°F	
TW-08080-16	–40 to 50°C	1°C	
TW-08080-19	–10 to 110°C	1°C	

Antibacterial Pocket Thermometer

Case additive inhibits bacterial growth

- NSF listed
- Hermetically sealed dial plate stops internal fogging
- Recalibrate using external adjustment nut
- Multi-purpose protective case also functions as a handle and recalibration wrench
- Bold, easy-to-read dial numerals



Specifications

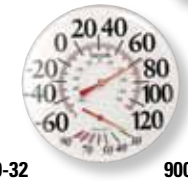
Accuracy: ±2% full-scale
Materials: 304 SS dial case and stem, polycarbonate lens
Dimensions: 5"L x 0.142 dia stem, 1" dia dial

Catalog number	Temp range	Divisions	Price
TW-90000-24	0 to 220°F	2°F	

Indoor/Outdoor Jumbo Thermometers

Giant, oversized face has bold, easy-to-read numerals

- Durable metal case is weather resistant
- Easily mount to wall or other flat surfaces
- Temperature scale has maximum contrast for ease of reading in low-lighting conditions



Catalog number	Style	Temp range	Price
TW-90000-32	Temperature (12" dia round)	0 to 120°F (–50 to 50°C)	
TW-90000-35	Temperature/RH (12" dia round)	0 to 120°F (–50 to 50°C)	
TW-90000-31	Dry storage (12"L rectangle)†	–45 to 75°F (–35 to 24°C)	
TW-90000-33	Cold storage (12"L rectangle)†	–60 to 120°F (–50 to 50°C)	

†Spirit-filled glass tube.

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NSF-Approved Digital Pocket Thermometers

Ideal for use in the food industry and all other general applications

- 304 stainless steel penetration stem
- All include a protective case with pocket clip and a battery

A 90000-60 **B** 90000-65 **C** 90000-61 **D** 90000-68 **E** 90025-02 **F** 90025-01 **G** 90026-00

A Taylor® Flat-Edged Dial Safe-T-Guard Thermometer with antimicrobial sleeve. Special additive in the sleeve material inhibits bacterial and fungal growth. Thermometer is waterproof for dependable use in kitchen or lab environments. Field calibratable. °F/°C switchable. Auto-off feature saves on battery life.

B Taylor Reduced-Tip Flat-Edged Dial Safe-T-Guard Thermometer with antimicrobial sleeve. Same features as "A" plus the addition of a 1.5-mm FDA-recommended step-down tip.

C Taylor Pen-Style Safe-T-Guard Thermometer with antimicrobial sleeve. Special additive in the sleeve material inhibits bacterial and fungal growth. Thermometer is waterproof for dependable use in kitchen or lab environments. Field calibratable. Features °F/°C switchable ranges, Max and Hold functions, and auto-off which saves on battery life. Includes lanyard. Dishwasher safe.

D Taylor Reduced-Tip Pen-Style Safe-T-Guard Thermometer with antimicrobial sleeve. Same features as "C" plus the addition of a 1.5-mm FDA-recommended step-down tip.

E Cooper-Atkins® Reduced-Tip Pen-Style Waterproof Thermometer with antimicrobial protection added to all plastic components. Thermometer is factory calibrated to three temperature points and guaranteed to never need field adjustment. Features include IP67 rating, stainless steel shaft, 6-second response time, °F/°C switchable ranges, hold function, min/max reading, and auto-off.

F Cooper-Atkins Reduced-Tip Waterproof Thermometer with alarm. Same features as "E" plus the addition of a unique adjustable alarm function. Dishwasher-safe.

G UEI Pen-Style Thermometer is waterproof and features Min/Max and Hold functions. Magnetic clip allows thermometer to be attached to any metal surfaces. Use ON/OFF button to conserve battery life.

Key letter	Catalog number	Range	Resolution	Accuracy	Display	Dimensions		Price	Replacement batteries	
						Head	Probe		Cat. no.	Price
A	TW-90000-60	–40 to 450°F (–40 to 230°C)	0.1°F (0.1°C)	±1°F (±0.6°C)	3½ digit, 0.3"H	2.5" dia	5"L x 0.15" dia		TW-09377-17	/pk of 5
B	TW-90000-65	–40 to 450°F (–40 to 230°C)	0.1°F (0.1°C)	±1°F (±0.6°C)	3½ digit, 0.3"H	2.5" dia	5"L x 0.15" dia		TW-09377-17	/pk of 5
C	TW-90000-61	–40 to 450°F (–40 to 230°C)	0.1°F (0.1°C)	±1.8°F (1.0°C)	3½ digit, 0.3"H	4"L x 1"W x 0.5"D	2.5"L x 0.16" dia		TW-09377-17	/pk of 5
D	TW-90000-68	–40 to 450°F (–40 to 230°C)	0.1°F (0.1°C)	±1°F (±1°C)	3½ digit, 0.3"H	4"L x 1"W x 0.5"D	2.5"L x 0.16" dia		TW-09377-16	/pk of 6
E	TW-90025-02	–40 to 392°F (–40 to 150°C)	0.1°F (0.1°C)	±2°F (±1°C)	3 digit, 0.25"H	0.75"L x 0.625"W x 6.0"D	2.75"L x 0.156" dia		TW-09377-16	/pk of 6
F	TW-90025-01	–40 to 450°F (–40 to 232°C)	0.1°F (0.1°C)	±2°F (±1°C)	3½ digit, 0.25"H	1.3125"L x 0.75"W x 6.25"D	4.625"L x 0.140" dia		TW-09377-16	/pk of 6
G	TW-90026-00	–58 to 572°F (–50 to 300°C)	0.1°F (0.1°C)	±1.8°F (1.0°C)	3½ digit; 0.25"H	3.5"L x 1"W x 0.5"D	3.25"L x 0.13" dia		TW-09377-16	/pk of 6

TW-17003-00 **NIST-traceable calibration** with data for pocket thermometers

See next page for more...

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NSF-Approved Digital Pocket Thermometers *(continued)*

Ideal for use in the food industry and all other general applications

- 304 stainless steel penetration stem
- All include a protective case with pocket clip and a battery

NEW
Expanded offering

H	I	J	K	L	M	N	O	P
90025-04	90025-00	90000-57	90025-06	90000-62	90025-59	90000-58	90090-00	36842-95

H Comark® Basic Reduced Tip Thermometer with antimicrobial protection is water resistant and has a 5" (127 mm) long stem and a 0.6" (1.5 mm) diameter tip. This field-calibratable meter features °F/°C switchable ranges, a hold function, and low battery indicator. Use ON/OFF button to conserve battery life or the unit will automatically shut off.

I Comark Basic Reduced Tip Thermometer with Boot and antimicrobial protection has the same features of item "H" plus the addition of a rubber boot that provides added protection.

J Comark Waterproof Thermometer with Large Head and antimicrobial protection has a 5" (127 mm) long stem and a 0.8" (2.2 mm) diameter tip. This field-calibratable meter features °F/°C switchable ranges, a hold function and low battery indicator. Use ON/OFF button to conserve battery life or the unit will automatically shut off. This dishwasher ready thermometer is designed to monitor whether an industrial dishwasher has achieved the required disinfection temperature.

K Comark Waterproof Thermometer has a 5" (127 mm) long stem. Features °F/°C switchable ranges, field calibratable, hold function and low battery indicator. Use ON/OFF button to conserve battery life.

L Comark Reduced Tip Waterproof Thermometer with antimicrobial protection has a 2¾" (68.5 mm) long stem and a 0.6" (1.5 mm) diameter tip. This field-calibratable meter features °F/°C switchable ranges, a hold function, a display that updates every 1.5 seconds and low battery indicator. Use the ON/OFF button to conserve battery life or the unit will automatically shut off.

M Comark High-Accuracy Reduced Tip Waterproof Thermometer with antimicrobial protection has the same features as item "L" above, plus an accuracy of ±1%. This dishwasher ready thermometer is designed to monitor whether an industrial dishwasher has achieved the required disinfection temperature.

N Comark High-Accuracy Reduced Tip Waterproof Thermometer with Large Head and antimicrobial protection has the same features of item "L" plus a longer stem of 5" (127 mm) and a large upright display that makes it easier for the user to read.

O Cole-Parmer® Thermometer has °F/°C switchable ranges and display updates every second. Use ON/OFF button to conserve battery life.

P Cole-Parmer Flat-Surface Thermometer is ideal for measuring temperatures on cooking grills, motors or other flat surfaces. Use ON/OFF button to conserve battery life or unit automatically shuts off after one hour of nonuse.

CE NSF

Key letter	Catalog number	Range	Resolution	Accuracy	Display	Dimensions		Price	Replacement batteries	
						Head	Probe		Cat no.	Price
H	TW-90025-04	–40 to 300°F (–40 to 150°C)	0.1°F (0.1°C)	±2°F (1°C)	3 digit, 0.3"H	1.5"L x 1"W x 1"D	5"L x 0.6" dia		TW-09377-16	/pk of 6
I	TW-90025-00	–40 to 300°F (–40 to 150°C)	0.1°F (0.1°C)	±2°F (1°C)	3 digit, 0.3"H	1.5"L x 1"W x 1"D	5"L x 0.6" dia		TW-09377-16	/pk of 6
J	TW-90000-57	–4 to 400°F (–20 to 200°C)	0.1°F (0.1°C)	±2°F (1°C)	3 digit, 0.3"H	1.75"L x 1.5"W x 0.75"H	2.75"L x 0.8" dia		TW-09377-16	/pk of 6
K	TW-90025-06	–40 to 450°F (–40 to 230°C)	0.1°F (0.1°C)	±2°F (1°C)	3 digit, 0.3"H	3.5"L x 0.8"W x 0.5"D	5"L x 0.16" dia		TW-09377-16	/pk of 6
L	TW-90000-62	–40 to 450°F (–40 to 230°C)	0.1°F (0.1°C)	±2°F (1°C)	3 digit, 0.3"H	3"L x 0.75"W x 0.75"D	2.7"L x 0.6" dia		TW-09377-16	/pk of 6
M	TW-90000-59	–4 to 400°F (–20 to 200°C)	0.1°F (0.1°C)	±1°F (0.5°C)	3 digit, 0.3"H	3"L x 0.75"W x 0.75"D	2.75"L x 0.6" dia		TW-09377-16	/pk of 6
N	TW-90000-58	–4 to 400°F (–20 to 200°C)	0.1°F (0.1°C)	±1°F (0.5°C)	3 digit, 0.3"H	1.75"L x 1.3"W x 0.75"H	5"L x 0.6" dia		—	—
O	TW-90090-00	–58 to 302°F (–50 to 150°C)	0.1° from –19 to 199.9°; 1° outside this range	±2°F (1°C)	3½ digit, 0.3"H	1.4" dia	5"L x 0.14" dia		TW-09377-17	/pk of 5
P	TW-36842-95	–58 to 572°F (–50 to 300°C)	0.1°F (0.1°C)	±1.8°F (1.0°C)	3½ digit, 0.3"H	2" dia	5"L x 0.71 dia		TW-09376-14	/ea

TW-17003-00 **NIST-traceable calibration** with data for pocket thermometers

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General-Purpose Digital Pocket Thermometers

Quickly verify temperatures

- 304 stainless steel penetration stem
- All include a protective case with pocket clip and battery

A 90003-00 **B** 90205-10 **C** 90205-00 **D** 90205-25 **E** 90050-00 **F** 90000-20 **G** 90051-00 **H** 90001-02 **I** 90205-15

A Oakton® Waterproof Thermometer features a dishwasher-safe sealed case. Features °F/°C switchable ranges, a Min/Max button, and display updates every second. Use ON/OFF button to conserve battery life.

B Cole-Parmer® Key-Chain "Mini" Thermometer is pocket sized and perfect for carrying around anywhere. Clip onto a lab coat, jacket zipper, belt loop, backpack, or key ring. Features °F/°C switchable ranges and display updates every second. Use ON/OFF button to conserve battery life.

C Cole-Parmer Long-Stem Thermometer has an 8" or 11½" long stem, °F/°C switchable ranges, and display updates every second. Use ON/OFF button to conserve battery life.

D Cole-Parmer Rotating-Display Thermometer can be angled up to 180° for easy reading. Extra-long 8" stem is ideal for measuring reagents, water baths, air, liquids, and any semisolid. Features °F/°C selection. Use ON/OFF button to conserve battery life.

E Extech® Large-Display Thermometer has an easy-to-read display and °F/°C switchable ranges. Display updates every second. Use ON/OFF button to conserve battery life.

F Taylor® Potentiometer Thermometer features zero and span potentiometers for calibration, a Min/Max button, and a °F/°C switch. Display automatically updates every ten seconds; press and hold ON button to update every second. Use ON/OFF button to conserve battery life or to set automatic shutoff at seven minutes.

G Cole-Parmer T-Handle Thermometer is designed for penetrating semisolids and features °F/°C switchable ranges. Display updates every second. Use ON/OFF button to conserve battery life or auto shutoff at one hour.

H Cole-Parmer Pen-Style Thermometer has °F/°C switchable ranges and display updates every second. Data Hold button to freeze readings. Use ON/OFF button to conserve battery life.

I Cole-Parmer NIST-Traceable Pen-Style Thermometer has a unique, flat-profile design. Probe guard snaps into handle to extend the overall length to 10¾" making it ideal for hard-to-reach locations. Features °F/°C switchable ranges, Hold button, display that updates every second, and an ON/OFF button to conserve battery life.

Key letter	Catalog number	Range	Resolution	Accuracy	Display	Dimensions		Price	Replacement batteries	
						Head	Probe		Cat. no.	Price
A	TW-90003-00	14 to 392°F (–10 to 200°C)	0.1° up to 199.9°; 1° above 200°	±1.8°F (±1.0°C)	3½ digit, 0.3"H	1.8" dia	5.3"L x 0.14" dia		TW-09377-16	/pk of 6
	TW-90205-05					1.8" dia	10"L x 0.14" dia		TW-09377-16	/pk of 6
B	TW-90205-10	–58 to 302°F (–50 to 150°C)	0.1°F (0.1°C)	±1.8°F (1.0°C)	3½ digit, 0.25"H	2.75"L x 0.8" dia	1"L x 0.14" dia		TW-09376-14	/ea
C	TW-90205-00	–58 to 302°F (–50 to 150°C)	0.1° from –19 to 199.9°; 1° outside this range	±1.8°F (±1°C)	3½ digit, 0.3"H	3"L x 0.8" dia	8"L x 0.14" dia		TW-09376-14	/ea
	TW-90205-02	–58 to 302°F (–50 to 150°C)	0.1° from –19 to 199.9°; 1° outside this range	±0.5°F (±0.2°C)	3½ digit, 0.3"H	3"L x 0.8" dia	8"L x 0.14" dia			
	TW-94460-40	–58 to 572°F (–50 to 300°C)	0.1° from –19 to 199.9°; 1° outside this range	±1.8°F (±1°C)	3¾ digit, 0.3"H	3"L x 0.8" dia	11.5"L x 0.14" dia			
	TW-90205-00	–58 to 302°F (–50 to 150°C)	0.1° from –19 to 199.9°; 1° outside this range	±0.5°F (±0.2°C)	3¾ digit, 0.3"H	3"L x 0.8" dia	11.5"L x 0.14" dia			
D	TW-90205-25	–58 to 536°F (–50 to 280°C)	0.1° from –20 to 200°F; 1° outside this range	±1.8°F (1.0°C)	3½ digit, 0.25"H	1.25"L x 2"W	8"L x 0.14" dia		TW-09376-14	/ea
E	TW-90050-00	–58 to 302°F (–50 to 150°C)	0.1° from –19 to 199.9°; 1° outside this range	±1.8°F (±1.0°C)	3½ digit, 0.4"H	2.1" dia	5.3"L x 0.14" dia		TW-09377-16	/pk of 6
F	TW-90000-20	–58 to 500°F (–50 to 260°C)	0.1°F (0.1°C)	±2°F (±1°C)	4 digit, 0.3"H	1.4"L x 0.6"W	4.8"L x 0.16" dia		TW-09377-16	/pk of 6
G	TW-90051-00	–58 to 302°F (–50 to 150°C)	0.1° from –19 to 199.9°; 1° outside this range	±1.8°F (±1.0°C)	3½ digit, 0.2"H	2.25" L x 0.75" dia	5.3"L x 0.14" dia		TW-09377-16	/pk of 6
H	TW-90001-02	–58 to 572°F (–50 to 300°C)	0.1° from –19 to 199.9°; 1° outside this range	±2°F (±1.5°C)	3½ digit, 0.3"H	3.5"L x 0.8"W	2.5"L x 0.16" dia		TW-09377-16	/pk of 6
I	TW-90205-15	–58 to 572°F (–50 to 300°C)	0.1° from –20 to 200°F; 1° outside this range	±3°F (1.5°C)	3½ digit, 0.25"H	3.5"L x 0.8 W	3.5"L x 0.14" dia		TW-09376-14	/ea

TW-17003-00 **NIST-traceable calibration** with data for pocket thermometers

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Heavy-Duty Recalibratable Digital Pocket Thermometers

Heavy-duty 0.20"-dia, 304 stainless steel penetration stem

- Typical response time is 30 seconds for 99% of new reading
- All include a protective case with pocket clip and battery

A Flat-Edge Pocket Thermometer has °F/°C switchable ranges and a 1-second display update. Features a large 1/4" LED display, potentiometer for calibration, and heavy-duty stem. Use ON/OFF button to conserve battery life.

B Pen-Style Water-Resistant Thermometer has °F/°C switchable ranges, a Min/Max memory button, and a 1-second display update. Features a large 5/16" LED display, potentiometer for calibration, and heavy-duty stem. Use ON/OFF button to conserve battery life or unit automatically shuts off after five minutes of nonuse.

C T-Handle Water-Resistant Pocket Thermometer is ideal for firm and semi-firm materials. Has °F/°C switchable ranges and a 1-second display update. Features a large 15/16" LED display, potentiometer for calibration and heavy-duty stem. Use ON/OFF button to conserve battery life or unit automatically shuts off after five minutes of nonuse.

A 90090-05 **B** 90090-06 **C** 90090-07

Key letter	Catalog number	Range	Resolution	Accuracy	Display	Dimensions	Price	Replacement batteries	
								Cat. no.	Price
A	TW-90090-05	–58 to 302°F (–50 to 150°C)	0.1°F (0.1°C)	±2°F (±1.5°C)	3¾ digit, 0.25"H	Probe: 4¾"L x 0.2" dia Head: 1.4" dia x 0.3"H		TW-09377-17	/pk of 6
B	TW-90090-06	–58 to 536°F (–50 to 280°C)	0.1°F (0.1°C)	±2°F (±1°C)	4 digit, 0.3"H	Probe: 4½"L x 0.2" dia Head: 3½"L x 1½"W		TW-09376-14	/ea
C	TW-90090-07	–58 to 536°F (–50 to 280°C)	0.1°F (0.1°C)	±2°F (±1.5°C)	3½ digit, 0.3"H	Probe: 4¼"L x 0.2" dia Head: 3"L x 1"W		TW-09376-14	/ea

TW-17003-00 **NIST-traceable calibration** with data for pocket thermometers

Mini Stick Thermometers

Professional pocket thermometers with swivel head

- 180° swivel head enables display to be read from any angle
- Super quick response time of 10 seconds for 99% new reading
- Can be used in high temperatures up to 660°F for up to two minutes
- 304 stainless steel stem
- Include a multifunction clip and battery

A Penetration Thermometer with exclusive tip sensor provides for an extremely accurate measurement. Features °F/°C switchable ranges and a display that updates every second. Use ON/OFF button to conserve battery life.

B Surface Thermometer with unique spring-loaded thermocouple probe which adapts itself to uneven surfaces. Features °F/°C switchable ranges and a display that updates every second. Use ON/OFF button to conserve battery life.

A 92600-80 **B** 92600-81

Key letter	Catalog number	Range†	Resolution	Accuracy‡	Display	Dimensions	Price	Replacement batteries	
								Cat. no.	Price
A	TW-92600-80	–60 to 660°F (–50 to 350°C)	0.1°F (0.1°C)	±1.8°F/°C from –58 to 210°F (–50 to 99.9°C); ±1.0% of rdg	3½ digit, 0.3"H	Probe: 7.5"L x 0.50" dia Head: 0.875" dia		TW-09377-17	/pk of 6
B	TW-92600-81	–60 to 660°F (–50 to 350°C)	0.1°F (0.1°C)	±1.8°F/°C from –58 to 932°F (–50 to 350°C); ±1.0% of rdg	3½ digit, 0.3"H	Probe: 6"L x 0.10" dia Head: 0.875" dia		TW-09377-17	/pk of 6

†Short-term (1 to 2 minutes) temperatures up to 900°F (500°C). ‡M.V. = measured value

TW-17003-00 **NIST-traceable calibration** with data for pocket thermometers

US Toll-free: 800-323-4340 • Outside the US: 1-847-549-7600 • www.coleparmer.com
Canada 800-363-5900 • India 91-22-6716-2222 • UK 0500-345-300

Distributed by: Fiedler Scientific Instruments, s.r.o.
info@lab-eu.com info@pristroje.cz

Cole-Parmer® Mini Digital Thermometers with Remote Probe

Ideal for measuring temperature from a distance

- Typical response time is 30 seconds for 99% of new reading
- 304 stainless steel penetration stem

A Standard Remote Probe Thermometer features a 3-ft flexible cord and °F/°C switchable ranges. Magnetic back allows for placement on metal surfaces such as freezers, incubators, or water baths. Includes a flip-open stand for use on bench or desktop, and a spring fastener for clipping onto any edge.

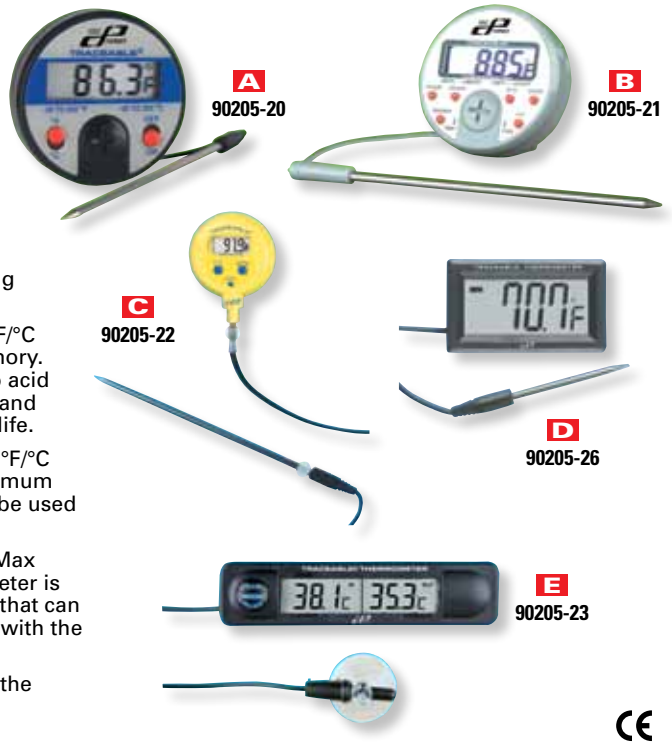
B Deluxe Remote Probe Thermometer features a 3-ft flexible cord, °F/°C switchable ranges, a display that updates every second, high/low alarm, Min/Max memory, and Hold function. Magnetic back allows for placement on metal surfaces such as freezers, incubators or water baths. Includes a flip-open stand for use on bench or desktop, and spring fastener for clipping on to any edge. Use ON/OFF button to conserve battery life.

C Waterproof Remote Probe Thermometer features a 10-ft flexible cord, °F/°C switchable ranges, a display that updates every second, and Min/Max memory. Perfect for wet areas—case is water/shockproof and probe is impervious to acid and solvents. Supplied with suction cups, magnet, and self-adhesive hook and loop tabs to attach to any surface. Use ON/OFF button to conserve battery life.

D Panel-Mount Remote Probe Thermometer features a 10-ft flexible cord, °F/°C switchable ranges, a large easy-view LCD, and records minimum and maximum readings over time. Versatile panel-mount module snaps into place or can be used as a stand-alone unit.

E Stick-Style Remote Probe Thermometers have a 3-ft flexible cord, Min/Max memory, and simultaneous display of probe and ambient temperatures. Meter is chemical-resistant and shockproof; comes with a remote sensor and cable that can be submerged. Use as a pocket thermometer or mount for continuous use with the supplied self-adhesive hook and loop tabs.

What's included: battery and NIST-traceable calibration report supplied by the manufacturer.



Key letter	Catalog number	Range	Resolution	Accuracy	Display	Dimensions		Price	Replacement batteries	
						Head	Probe		Cat. no.	Price/pk of 6
A	TW-90205-20	–58 to 500°F (–50 to 250°C)	0.1°F (0.1°C)	±1°C between –20 to 100°C, otherwise ±1.5° outside range	3½ digit, 0.4"H	2.1" dia	5½"L x 0.14" dia		TW-09376-14	/ea
B	TW-90205-21	–58 to 572°F (–50 to 300°C)	0.1°F (0.1°C)	±1°C between –20 to 100°C, otherwise ±1.5° outside range	3½ digit, 0.4"H	2.1" dia	5½"L x 0.14" dia		TW-09376-14	/ea
C	TW-90205-22	–58 to 572°F (–50 to 300°C)	0.1° from –19 to 199.9°; 1° outside this range	±2.0°F (±1°C)	3½ digit, 0.25"H	1.75" dia	5"L x 0.14" dia		TW-09377-16	/pk of 6
D	TW-90205-26	–58 to 572°F (–50 to 300°C)	0.1° from –20 to 200°; 1° outside this range	±1°C between –20 to 100°C, otherwise ±1.5° outside range	4 digit, 0.4"H	1.5"H x 2.5"W x 0.5"D	2¾"L x 0.14" dia		TW-09376-14	/ea
E	TW-90205-24	–58 to 158°F	0.1°F	±1.0°F	3½ digit, 0.4"H	4.25"L x 1"W x 0.6"D	0.20" dia		TW-09376-14	/ea
	TW-90205-23	(–50 to 70°C)	0.1°C	±1.0°C						

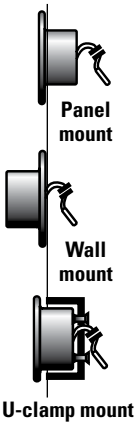
TW-17003-00 **NIST-traceable recalibration** with data for pocket thermometers

Cole-Parmer® Panel-Mount Solar-Powered LED Thermometers

Perfect for use in freezers and walk-in coolers!

- NSF (National Sanitation Foundation) certified for food storage areas

Replace existing 2" mechanical thermometers. These maintenance–free thermometers operate on solar power in light levels above 100 lux, and use a battery back-up below 100 lux. Calibration adjustment is on back of the unit. The 48" (1.2 m) L cable has no lead-containing pigments.



Specifications

Resolution: 0.1°F (0.1°C)
Accuracy: ±1% full-scale
Display: 3½-digit LCD, 0.4"H
Probe: 1"L x 0.203" dia thermistor sensor with 304 SS sheath and Santoprene® covered cable
Power: solar (above 100 lx) with an AAA battery backup

Cat. no.	Mounting	Range	Dimensions	Price
304 stainless steel case				
TW-90150-02	Panel	–40.0 to 158.0°F (–40.0 to 70.0°C)	0.9"H x 2.0" dia case; 3.0" OD flange	
TW-90150-22	Wall		1.1"H x 2.6" dia case; 3.5" OD flange	
TW-90150-42	U-clamp		1.0"H x 2.0" dia case	
Plastic case				
TW-90150-04	Panel	–40.0 to 158.0°F (–40.0 to 70.0°C)	0.8"H x 2.0" dia case; 3.0" OD flange	

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Foodservice Adjustable-Angle Thermometer

LEDs provide fast indication of HACCP food temperature zone

90025-50

Use this folding thermometer for any food handling application—three LEDs provide instant, error-free indication of critical food temperature zones. Yellow indicates cold (below 40°F/4°C), green indicates hot (140°F/60°C to 180°F/82°C), and red indicates cooked (above 158°F/70°C). Type T thermocouple provides accurate readings for a wide range of food applications.

What's included: one 9 V battery, wrist strap, and case.

Specifications

Display: 3½-digit LCD
Probe: 4⅜"L
Dimensions (W x H x D): 6 11/16" x 2" x 1"† (17.0 x 5.1 x 2.5 cm)
Power: one 9 V battery (included)
Battery life: 100 hours

Catalog number	Range	Resolution	Accuracy	Price
TW-90025-50	–58 to 482°F	0.1°F	Below 257°F: ±0.3%, ±1.35°F Above 257°F: ±0.7%, ±0.45°F	

†With probe retracted

TW-09376-04 Replacement batteries, 9 V. Pack of 4
TW-17003-00 NIST-traceable calibration with data for pocket thermometers

Adjustable-Angle Thermometer

Convenient pen-like design fits in your pocket

- Hinged design allows probe to fold away

90382-00

This thermometer takes fast and accurate measurements anywhere. Tapered probe can be used in solids, semisolids, liquids and gases. Large, ½" high display provides great visibility. Fold up 4.5"L (114 mm) probe adjusts from 0° to 180° for best measurement and viewing angle. Features °F/°C selectable data hold, and Min/Max functions. Auto shut-off after one hour of non-use to conserve battery life.

What's included: one AAA battery and wrist strap.

Specifications

Display: 3½-digit LCD
Display update rate: one second
Probe: 4½" L (114 mm)
Dimensions (L x W x H): 6" x 2" x ¾" (15.2 x 5.1 x 1.9 cm)
Power: one AAA battery (included)

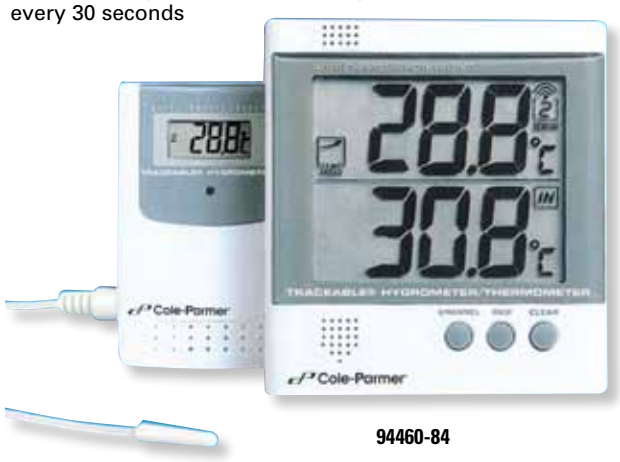
Catalog number	Range	Resolution	Accuracy	Price
TW-90382-00	–58 to 572°F (–50 to 300°C)	0.1°F/°C	±1.8°F (±1.0°C)	

TW-09376-00 Replacement batteries, AAA. Pack of 12
TW-17003-00 NIST-traceable calibration with data for pocket thermometers

Cole-Parmer® Wireless Thermometer Set

Read up to three separate modules, 100 feet away, without any cables

- Transmitting modules have a remote probe for the ability to measure air, liquid, or solids
- Monitors temperature continuously—data is transmitted every 30 seconds



94460-84

Wireless signal from weatherproof remote sensor broadcasts temperature measurements up to 100 feet in an open area. A total of three modules may be used with the main receiver. Each module is supplied with an internal and external sensor. External sensor can be used under water and is supplier with a 10-ft L cable. Receiver and modules can be switched from °F to °C. The receiver displays data from all three transmitting modules on temperature trends, Min/Max memory and has a alarm function. Supplied with self-adhesive hook and loop tabs and bracket for wall mounting or has a flip-out stand for tabletop use.

What's included: one receiver, one remote sensor module, probe, two AA batteries, two AAA batteries, mounting hardware, and NIST-traceable calibration report supplied by the manufacturer.

Specifications

Monitor/receiver

Temperature
Range
Model 94460-78: –58 to158°F (–50 to 70°C);
Model 94460-84: –4 to 140°F (–20 to 60°C)
Resolution: 0.1°F (0.1°C)
Accuracy: ±1°F (±1°C)

Humidity (94460-84 only)
Range: 25 to 90%
Resolution: 1%
Accuracy: 2% RH midrange, otherwise, ±4%

Display: two displays, 3½-digit LCD
Dimensions (W x H x D): 4¼" x 4¼" x ⅝" (10.8 x 10.8 x 1.6 cm)
Power: two AAA batteries (included)

Remote sensor module
Accuracy: ±1°F (±1°C)
Frequency band: 434 MHz
Dimensions (W x H x D): 2⅓" x 3½" x ¾" (5.9 x 8.9 x 1.9 cm)
Power: two AA batteries (included)

Catalog number	Description	Price
TW-94460-78	Wireless thermometer set	
TW-94460-84	Wireless thermometer with humidity set	

TW-94460-79 Additional wireless remote sensor module for model 94460-78, includes two AA batteries
TW-94460-85 Additional wireless remote sensor module for model 94460-84, includes two AA batteries
TW-09376-00 Replacement batteries, AAA. Pack of 12
TW-09376-01 Replacement batteries, AA. Pack of 4
TW-17101-61 NIST-traceable recalibration with data for digital indicator

Cole-Parmer® Solar-Powered Table/Wall-Mount Thermometer

Perfect for measuring a process continuously over an extended period of time

94460-75

Efficient thermometer includes a weatherproof remote sensor with a 10-ft cable for measuring temperature remotely. Large LCD is switchable between °F and °C, and updates every 10 seconds. Supplied with self-adhesive hook and loop tape and a slot for wall mounting or can be placed on top of a bench. Includes a backup button cell battery for when the light source has dimmed below required levels.

What's included: probe, battery, mounting hardware, and NIST-traceable calibration report supplied by the manufacturer.

Specifications

Display: 3½-digit LCD
Power: one silver-oxide battery (included)
Dimensions (W x H x D): 2¾" x 2¾" x ¾" (7 x 7 x 1.9 cm)

Catalog number	Range	Resolution	Accuracy	Price
TW-94460-75	–58 to 158°F (–50 to 70°C)	0.1°F (0.1°C)	±1°F (±1°C)	

TW-09376-14 **Replacement batteries,** 357 silver-oxide coin cell. Pack of 6
TW-17101-61 **NIST-traceable recalibration** with data for digital indicator

Cole-Parmer® Big-Digit "See-Thru" Thermometers

Monitors temperature continuously

90080-10

Attractive transparent body with large 1.2"H digit LCD easily attaches to a window or piece of glass. Use to continually monitor temperature in storerooms, control rooms, fume hoods, laboratories, cleanrooms, refrigerators, plant areas, or just about anywhere else. It may also be attached to the outside of a window to view outdoor temperatures. Simultaneously displays current temperature and daily min/max readings.

What's included: NIST-traceable calibration report supplied by the manufacturer, mounting tape, hook and loop strips, and one AAA battery.

Specifications

Display: LCD, 1.2"H digits, 3"W x 4"H
Power: one AAA battery (included)
Dimensions (W x H x D): 3½" x 4¼" x ¾" (8.9 x 10.8 x 1.9 cm)

Catalog number	Range	Resolution	Accuracy	Price
TW-90080-10	–13 to 158°F	0.1°F (0.1°C)	±2°F (±1°C)	
TW-90080-11	–25 to 70°C			

TW-09376-00 **Replacement batteries,** AAA. Pack of 12
TW-17101-61 **NIST-traceable recalibration** with data for digital indicator

Cole-Parmer® Monitoring Thermometer with Remote Probe

Always-on monitoring thermometer with 10-foot submersible cable and probe

- For use with liquid, gas/air, and semi-solids

NEW

90000-41

This thermometer has two temperature sensors: a built-in air sensor and an independent external probe sensor with 10-foot cable. The external probe can be used to monitor temperatures of liquids, air/gas, and semisolids. Perfect for monitoring reagents or solutions in tanks, water baths, incubators, and refrigerators. The unit can be switched between °F and °C. Displays air or probe temperature at the touch of a button. The large display updates every 10 seconds.

What's included: mounting tape, probe bracket, built-in bench stand, one AAA battery and NIST-traceable calibration report supplied by the manufacturer.

Specifications

Display: LCD
Power: one AAA battery (included)
Dimensions (W x H x D): 3¼" x 2¼" x ⅝" (8.2 x 5.7 x 1.6 cm)

Catalog number	Range	Resolution	Accuracy	Price
TW-90000-41	–58 to 158°F (–50 to 70°C)	0.1°F (0.1°C)	±2°F (±1°C)	

TW-09376-00 **Replacement batteries,** AAA. Pack of 12
TW-17101-61 **NIST-traceable recalibration** with data for digital indicator

Wall-Mount LCD Thermometer

Includes 10-ft cable for remote readings

- °F or °C selectable

Rugged, waterproof housing and probe make this meter perfect for measuring the temperature of freezers, walk-in coolers, tanks, and other enclosures.

90000-30

Specifications

2 year warranty

Display: 4-digit LCD, 0.25"H
Display update rate: every 10 seconds
Probe: ¾"L stainless steel probe with 10-ft L cable
Dimensions (W x H x D): 3½" x 2" x 1¼" (8.9 x 5.1 x 3.2 cm)
Power: one AAA battery (not included)

Catalog number	Range	Resolution	Accuracy	Price
TW-90000-30	–40 to 300°F (–40 to 150°C)	0.1°F/°C	±1.8°F (1°C) between 14 and 212°F; ±3.6°F above or below range	

TW-09376-00 **Batteries,** AAA. Pack of 12
TW-17101-61 **NIST-traceable recalibration** with data for digital indicator

Cole-Parmer® Dual Thermometer with Four Alarms

Audible alarm alerts user when temperature exceeds the setpoints

- Displays indoor/outdoor temperature simultaneously
- Both internal and external sensor alarms can be set

95001-20

This temperature indicator is ideal for monitoring indoor and outdoor temperatures. Perfect for the office, labs, storage spaces, or the home. °F/°C selectable.

What's included: one AAA battery, adhesive backing stand, wall mounting screws, and an internal and external weatherproof sensor on a 3-ft (0.9-m) cord.

Specifications

CE

Display: 3-digit LCD
Probe: 0.2" dia. with 3-ft (0.9-m) long cable (included)
Dimensions (W x H x D): 3" x 3" x 1/2" (7.6 x 7.6 x 1.3 cm)
Power: one AAA battery (included)

Catalog number	Range	Resolution	Accuracy	Price
TW-95001-20	–58 to 158°F	0.1°F/°C	±1.8°F (±1.0°C)	

TW-09376-00 Replacement batteries, AAA. Pack of 12
TW-17101-61 NIST-traceable recalibration with data for digital indicator

Cole-Parmer® Dual-Thermometer with Four Alarms and Giant Display

Four different alarm configurations

- Jumbo digital display is easy to read from a distance
- Remote, heat-resistant probe

90000-37

This thermometer has two temperature sensors—a built-in air sensor and an independent external probe sensor with 3½ foot cable. The external probe can be used to monitor temperatures of liquids, air/gas, and semisolids.

Alarm configurations can be set up for four conditions: temperature above a setting, below a setting, between two settings, or outside two settings. A green or red light will blink and an audible alarm will sound when one of these conditions is detected. The alarm will sound every minute for 5 seconds until the temperature returns to a non-alarm condition or until the alarm is turned off.

What's included: mounting tape, probe suction cup, built-in flip-open bench stand, one AAA battery, and NIST-traceable calibration report supplied by the manufacturer.

Specifications

CE

Display: LCD
Power: one AAA battery (included)
Dimensions (W x H x D): 4" x 4" x 5/8" (10.2 x 10.2 x 1.6 cm)

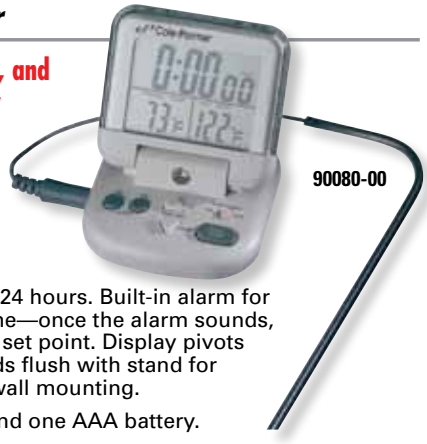
Catalog number	Range	Resolution	Accuracy	Price
TW-90000-39 TW-90000-37	–58 to 158°F –50 to 70°C	0.1°F (0.1°C)	±2°F (±1°C)	

TW-09376-00 Replacement batteries, AAA. Pack of 12
TW-17101-61 NIST-traceable recalibration with data for digital indicator

Cole-Parmer® Thermometer with Alarm/Timer

View temperature, time, and set point simultaneously

- Set audible alarm for temperature and time
- Remote, heat-resistant probe great for cooking and ovens



90080-00

Timer counts down from 24 hours. Built-in alarm for both temperature and time—once the alarm sounds, the timer counts up from set point. Display pivots on magnetic stand or folds flush with stand for convenient storage and wall mounting.

What's included: probe and one AAA battery.

Specifications

CE

Display: two-line LCD
Probe: 6.5"L x 0.13" dia, stainless steel (SS) probe with 4-ft (1.2-m) L SS straight wire cable (included)
Dimensions (W x H x D): 2¾" x 3¾" x 1" (7 x 9.5 x 2.5 cm)
Power: one AAA battery (included)

Catalog number	Range	Resolution	Accuracy	Price
TW-90080-00	32 to 392°F (0 to 200°C)	2°F (1°C)	±3.6°F (±2°C)	

TW-90080-05 Replacement probe
TW-09376-00 Replacement batteries, AAA. Pack of 12
TW-86106-10 Antimicrobial wipes. Box of 100
TW-17101-61 NIST-traceable recalibration with data for digital indicator

Cole-Parmer® Dual Thermometer with Giant Display

Jumbo digital display is easy to read from a distance

- °F/°C selectable

Thermometer includes a weatherproof remote sensor to measure remote and ambient temperatures at the same time. Dual display shows both indoor and outdoor temperature readings at the same time. Sits on desktop or can be wall mounted.

What's included: probe, one AAA battery, and NIST-traceable certificate supplied by the manufacturer.

90000-75

Specifications

CE

Display: 3½-digit LCD, 1.2"H
Probe: 1"L probe with 10-ft (0.3-m) long cable (included)
Dimensions (W x H x D): 4" x 4½" x 1" (10.2 x 11.4 x 2.5 cm)
Power: one AAA battery (included)

Catalog number	Range	Resolution	Accuracy	Price
TW-90000-75	–58 to 158°F (–50 to 70°C)	0.1°F/°C	±2°F (±1°C)	

TW-09376-00 Replacement batteries, AAA. Pack of 12
TW-17101-61 NIST-traceable recalibration with data for digital indicator

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Cole-Parmer® Compact Thermometer

Compact design that fits easily into tight locations

- Monitors temperature continuously

Inexpensive thermometer that can be switched from Fahrenheit to Celsius with a range from 14 to 131°F or –10 to 55°C. The large ½" LCD updates every 30 seconds so that the reading is not affected from the occasional opening of a refrigerator door. Can also be used to monitor temperatures in storerooms, labs, offices, hoods, and cabinets. The suction cup on the back of the thermometer allows the unit to be located anywhere inside a refrigerator or other surfaces.

What's included: suction cup, self-adhesive hook and loop tape strip, one silver-oxide battery, and NIST-traceable calibration report supplied by the manufacturer.

90080-01

Specifications

Display: ½-digit LCD

Dimensions (W x H x D): 1" x 2½" x ⅜" (2.5 x 6.4 x 1.0 cm)

Power: one silver-oxide battery (included)

Catalog number	Range	Resolution	Accuracy	Price
TW-90080-01	14 to 131°F (–10 to 55°C)	0.1°F (0.1°C)	±1°C between 5 to 20°C, otherwise ±1.5° outside range	

TW-09376-14 **Replacement batteries,** 357 silver-oxide coin cell. Pack of 6

Cole-Parmer® Big-Digit "Stick It Anywhere" Thermometers

Mount anywhere—include suction cup, hook and loop tape, stand, and hanger

- Easy view display

These inexpensive thermometers can be switched from Fahrenheit to Celsius with a range from –3.8 to 199.9°F (–19.9 to 110.0°C). The large LCD updates every 30 seconds, preventing readings from being affected by the occasional variations in temperature. May be placed almost anywhere with the use of the suction cup, hook and loop tape, stand, or hanger (included). Model 94460-95 features ±1° F (0.5°C) accuracy.

What's included: suction cup, hook and loop tape, stand, hanger, one silver-oxide battery, and NIST-traceable calibration report supplied by the manufacturer.

NEW

94460-94

Specifications

Display: LCD

Dimensions (W x H x D): 3½" x 2" x ¾" (8.9 x 5.1 x 1.9 cm)

Power: one silver-oxide battery (included)

Catalog number	Description	Range	Resolution	Accuracy	Price
TW-94460-94	Standard	–3.8 to 199.9°F (–19.9 to 110.0°C)	0.1°F (0.1°C)	±2°F (±1°C) between 32 to 77°F (0 to 25°C) and ±3°F (±1.5°C) outside range	
TW-94460-95	High-accuracy			±1°F (±0.5°C) between 32 to 77°F (0 to 25°C) and ±2°F (±1°C) outside range	

TW-09376-14 **Replacement batteries,** 357 silver-oxide coin cell. Pack of 6

Cole-Parmer® Waterproof Digital-Bottle Thermometers

Provides an advantage over glass thermometers that can only display current temperature

- Displays high/low readings

This fully waterproof unit comes equipped with a stainless steel sensor that assures long product life. Probe is sealed in a miniature bottle filled with nontoxic glycol or glass beads. Bottle and solution insulate the sensor from rapid changes, such as when a refrigerator door is opened. Easy-to-read digital display shows current and min/max temperatures by monitoring the high and low readings for any time period. Models 94460-57 and -59 feature ±0.8°F (±0.4°C) accuracy. Place the unique chemical-resistant ABS plastic holder on a shelf or affixe to a refrigerator or any wall. Bottle may be removed from holder.

What's included: holder/stand, double back tape, hook and loop tape, one silver-oxide battery, and NIST-traceable calibration report supplied by the manufacturer.

NEW

94460-56

Specifications

Display: LCD

Dimensions (W x H x D)
Thermometer: 1⅞" x 1" x 4⅝" (4.8 x 2.5 x 11.7 cm)
Base: 2¼" x 2¼" x 1⅛" (5.7 x 5.7 x 2.9 cm)

Power: one silver-oxide battery (included)

Catalog number	Description	Bottle fill	Range	Resolution	Accuracy	Price
TW-94460-56	Standard	Liquid	–22 to 122°F (–30 to 50.0°C)	0.1°F (0.1°C)	±2°F (±1°C)	
TW-94460-58	Standard	Glass beads				
TW-94460-57	High accuracy	Liquid			±0.8°F (±0.4°C)	
TW-94460-59	High accuracy	Glass beads				

TW-09376-14 **Replacement batteries,** 357 silver-oxide coin cell. Pack of 6

Cole-Parmer® Table/Wall-Mount Thermometers with Time and Date

Minimum and maximum readings are time/date stamped

- Simultaneously displays temperatures and time
- Wire mounting bracket permits easy probe placement

Ideal for monitoring temperature in the lab, home or office. Thermometer includes a remote probe with 6-ft (1.8-m) cable to measure outdoor temperature and an internal sensor to measure indoor temperature. Display can be changed to show probe or ambient temperature, time of day, and month/day. Thermometer can also display the exact time and date when the minimum and maximum temperature occurred. The temperature sensor performs accurately in most environments, even including under water. Use rear stand to place unit on table or attach to wall via Velcro® strip or the two rear-mounted screw holes.

Refrigerator/freezer model is supplied with the temperature sensor enclosed in a glycol-filled bottle, protecting it from rapid temperature changes when refrigerator door is opened. Vaccine model has the temperature sensor enclosed in a 5-mL vaccine bottle, allowing it to fit into a vaccine tray while protecting it from rapid temperature changes.

What's included: one AAA alkaline battery and NIST-traceable calibration report supplied by the manufacturer.

90002-01

90002-02

Specifications

CE

Display: triple-line 3½-digit LCD, 0.5"H
Power: one AAA battery (included)
Dimensions (W x H x D): 3½" x 3½" x 1" (8.9 x 8.9 x 2.5 cm)

Catalog number	Application	Sensor type	Range	Resolution	Accuracy	Price
TW-90002-01	General purpose	Wire probe	Indoor: 14 to 122°F (–10 to 50°C) Outdoor: –40 to 176°F (–40 to 80°C)	0.5°F (0.5°C)	±1°F (±1°C)	
TW-90002-02	Refrigerator/freezer	Bottle probe				
TW-90002-03	Vaccine/refrigerator/freezer	5-mL vaccine bottle probe				

TW-09376-00 **Replacement batteries,** AAA. Pack of 12
TW-17101-61 **NIST-traceable recalibration** with data for digital indicator

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info@lab-eu.com info@pristroje.cz

Cole-Parmer® Sentry Table/Wall-Mount Thermometers

Simultaneously display high, low, and current temperatures

- Monitors temperature continuously

Thermometers include a weatherproof remote sensor with a 10-ft (3-m) long, 1/16"-diameter micro cable. The micro cable is ideal for applications that require a seal, such as a refrigerator, where a larger cable would interfere with the sealing of the door. Unplugging the external probe will activate an internal sensor for monitoring ambient temperature. Thermometer features a high-impact ABS plastic case, large LCD that updates every 10 seconds, and a simple one-button reset to clear the high/low memory. Supplied with Velcro® strip for wall mounting or has a flip-out stand for tabletop use.

Refrigerator/freezer models are supplied with the temperature sensor enclosed in a glycol-filled bottle, protecting it from rapid temperature changes when refrigerator door is opened. Vaccine models have the temperature sensor enclosed in a 5-mL vaccine bottle, allowing it to fit into a vaccine tray while protecting it from rapid temperature changes.

What's included: mounting hardware, one battery, and NIST-traceable calibration report supplied by the manufacturer.

94460-76

94460-86

Specifications

CE

Display: triple-display LCD
Power: one button cell battery (included)
Dimensions (W x H x D): 2⅝" x 2½" x ¾" (6.7 x 6.4 x 1.9 cm)

Catalog number	Application	Sensor type	Range	Resolution	Accuracy	Price
TW-94460-76	General purpose	Wire probe	–58 to 158°F	1°F	±1°F	
TW-94460-77			–50 to 70°C	1°C	±1°C	
TW-94460-86	Refrigerator/freezer	Bottle probe	–58 to 158°F	1°F	±1°F	
TW-94460-87			–50 to 70°C	1°C	±1°C	
TW-94460-96	Vaccine/refrigerator/freezer	5-mL vaccine bottle probe	–58 to 158°F	1°F	±1°F	
TW-94460-97			–50 to 70°C	1°C	±1°C	

TW-17101-61 **NIST-traceable recalibration** with data for digital indicator

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Cole-Parmer® Jumbo-Display Table/Wall-Mount Thermometers

Easy-view, jumbo 1½" high digits may be read from 30 feet (9 meters)

The jumbo-digit thermometer is designed for monitoring freezers, water baths, heating blocks, incubators, refrigerators, and other general-purpose applications. Triple display simultaneously shows maximum, minimum, and current probe temperatures plus room temperature. Min/max monitors high/low readings overnight, on weekends, or for any time period—a significant advantage over reading-only glass thermometers. Alarm feature provides alert when temperature rises above or falls below a set point. Alarm is programmable in 1° increments. The 10-ft (3-m) long micro-cable with solid-state probe permits doors to close on it and eliminates mercury contamination.

Refrigerator/freezer model 94460-82 is supplied with the temperature sensor enclosed in a nontoxic glycol-filled bottle, protecting it from rapid temperature changes when refrigerator door is opened. Vaccine model has the temperature sensor enclosed in a 5-mL vaccine bottle, allowing it to fit into a vaccine tray while protecting it from rapid temperature changes.

What's included: Velcro® and magnetic strips, one AAA alkaline battery, and NIST-traceable calibration report supplied by the manufacturer.

94460-81

94460-82

Specifications

Display: triple-display LCD
Dimensions (W x H x D): 3⅞" x 4⅜" x ⅞" (9.8 x 11.1 x 2.2 cm)
Power: one AAA battery (included)

Catalog number	Application	Sensor type	Range	Resolution	Accuracy	Price
TW-94460-81	General purpose	Wire probe	–58 to 158°F (–50 to 70°C)	0.1°	±1°	
TW-94460-82	Refrigerator/freezer	Bottle probe				
TW-94460-83	Vaccine/refrigerator/freezer	5-mL vaccine bottle probe				

TW-09376-00 **Replacement batteries,** AAA. Pack of 12
TW-17101-61 **NIST-traceable recalibration** with data for digital indicator

Cole-Parmer® High-Accuracy Table/Wall-Mount Thermometers

Alarm provides alert when temperature rises above or falls below a set point

Precision thermometer is designed for monitoring freezers, water baths, heating blocks, incubators, refrigerators, and other general applications. Display simultaneously shows maximum, minimum, and current probe temperatures. Min/max monitors high/low readings for any time period. Alarm is programmable in 1° increments. The 10-ft (3-m) micro-cable with solid-state probe permits doors to close on it.

Refrigerator/freezer model 94460-74 is supplied with the temperature sensor enclosed in a nontoxic glycol-filled bottle, protecting it from rapid temperature changes when refrigerator door is opened. Vaccine model has the temperature sensor enclosed in a 5-mL vaccine bottle, allowing it to fit into a vaccine tray while protecting it from rapid temperature changes.

What's included: Velcro® and magnetic strips, one AAA alkaline battery, and NIST-traceable calibration report supplied by the manufacturer.

94460-88

94460-74

Specifications

Display: triple-display LCD
Dimensions (W x H x D): 3¼" x 2½" x ⅝" (8.3 x 6.4 x 1.6 cm)
Power: one AAA battery (included)

Catalog number	Application	Sensor type	Range	Resolution	Accuracy	Price
TW-94460-88	General purpose	Wire probe	–58 to 158°F (–50 to 70°C)	0.1°	±0.5°	
TW-94460-74	Refrigerator/freezer	Bottle probe				
TW-94460-73	Vaccine/refrigerator/freezer	5-mL vaccine bottle probe				

TW-09376-00 **Replacement batteries,** AAA. Pack of 12
TW-17101-61 **NIST-traceable recalibration** with data for digital indicator

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Cole-Parmer® General-Purpose and Refrigerator/Freezer Table/Wall-Mount Thermometers

Monitor minimum and maximum temperatures—all at a single glance

NEW
Expanded offering

- Available with one or two probes for monitoring multiple applications
- Easily and accurately monitor temperature in most scientific, industrial, and general applications.


94460-70

Standard thermometers simultaneously display high, low, and current temperatures. The min/max feature is designed to monitor and store the highest and lowest readings until the memory is cleared. Built-in alarm provides an alert when temperature rises above or falls below user-defined set point, and is programmable in 1° increments. A visual and audible signal continues even if the temperature returns to non-alarm range until reset by the user. Probe is attached to a 10-ft (3-m) micro-cable that permits a doors to close on it; probe and cable are both submersible. Mount meter with included Velcro® strips, wall-mount slots, or use flip-open stand on benchtop.


94460-72

Advanced thermometers have all the same features plus higher accuracy, one-button field calibration, date/time stamp, and dual probes with designated alarms. Ideal for monitoring two unique areas that are near each other. The unit will provide a visual and audio alert when temperature rises above or falls below the high and low set points for each probe. Unit displays the exact time and date when thermometer alarms are triggered.

Refrigerator/freezer models are supplied with the temperature sensor enclosed in a glycol-filled bottle, protecting it from rapid temperature changes when refrigerator door is opened. Vaccine models have the temperature sensor enclosed in a 5-mL vaccine bottle, allowing it to fit into a vaccine tray while protecting it from rapid temperature changes.


94460-91

What's included: one AA alkaline battery and NIST-traceable calibration report supplied by the manufacturer.


94460-98

Specifications

CE

Display: triple-display LCD
Power: one AA battery (included)
Dimensions (W x H x D): 2 3/4" x 4 1/4" x 3/4" (7 x 10.8 x 1.9 cm)

Catalog number	Application	Sensor type	Range	Resolution	Accuracy	Price
Standard models						
TW-94460-70	General purpose	Wire probe	–58 to 158°F (–50 to 70°C)	0.1°	±1°	
TW-94460-72	Refrigerator/freezer	Bottle probe				
TW-94460-71	Vaccine/refrigerator/freezer	5-mL vaccine bottle probe				
Advanced dual-probe models						
TW-94460-91	General purpose	Two wire probes	–58 to 158°F (–50 to 70°C)	0.01°	±0.30°	
TW-94460-92	Refrigerator/freezer	Two bottle probes				
TW-94460-98	General purpose	One solid SS probe				
TW-94460-99	General purpose	Two solid SS probes				

Accessories

TW-09376-01 **Replacement batteries,** AA. Pack of 4
TW-17101-61 **NIST-traceable recalibration** with data for digital indicator

Dual-Zone Monitoring Thermometer

Dual channels with separate and independent temperature measurement

- 96-hour memory of high and low temperatures
- Probe wires are 6 feet (1.8 meters) in length

94460-01

This highly accurate, dual-channel instrument is designed for monitoring two separate and independent temperatures—ideal for use with temperature-critical materials. Weather-resistant housing handles both indoor or outdoor use. Suitable for a variety of industrial and institutional applications, including manufacturing, foodservice (food storage), medical (drug storage), home and office.

The thermometer displays temperature from each sensor probe in °F or °C, time (24-hour format only), and the status of each alarm event records. Each probe may be programmed with high and low limit alarms. A total of 120 alarm records (60 alarm breaches per probe) including the time and duration of each breach is stored in nonvolatile memory, even if the battery dies. All operational functions can be password protected. The unit does not have an on/off power button and is continually active once the batteries have been installed but unit does have an LCD idle function to preserve battery life. Low-battery indication lets you know when batteries need to be replaced.

Specifications

CE

Display: dual-line, 3/4" LCD
Power: four AAA batteries (not included)
Dimensions (W x H x D): 5" x 3 1/2" x 3/4" (12.7 x 8.9 x 1.9 cm)

Catalog number	Range	Resolution	Accuracy	Price
TW-94460-01	–40 to 392°F (–40 to 200°C)	0.1°	±1.8°F (±1°C)	

Accessories

TW-09376-00 **Batteries,** AAA. Pack of 12
TW-17101-61 **NIST-traceable recalibration** with data for digital indicator

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Cole-Parmer® Two-Channel Table/Wall-Mount Thermometers

Monitor two areas at the same time

- Display date and time when Min/Max temperatures occur

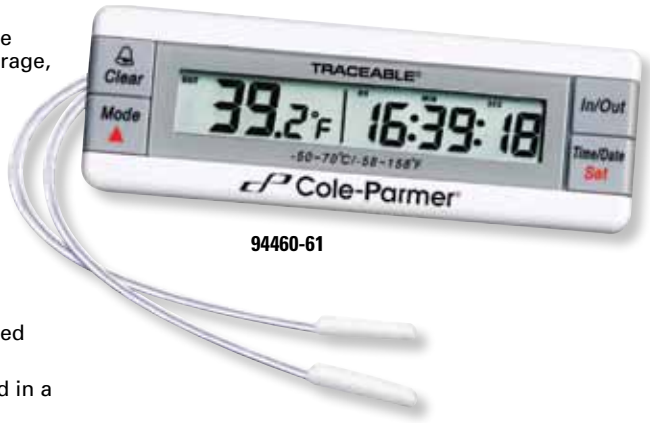
The dual-probe design is perfect for monitoring temperature in two separate areas or measure two adjoined areas to insure uniformity. Ideal for cold storage, chemicals, pharmaceuticals, vaccines, and more. The two channels record the date and time of the minimum and maximum readings, while independently monitoring user programmable high and low alarms.

Built-in alarm provides an alert when the temperature readings exceed the preset alarm limits, an audible alert will sound and a red LED will flash. If the readings return to acceptable limits, the audible alarm will turn off; however, the LED will continue to flash until reset to indicate that during the test period an alarm was reached. Alarm is programmable in 1° increments.

Probe is attached to a 3½-ft (1-m) micro-cable that permits a door to close on it; probe and cable are both submersible. Mount meter with included Velcro® and magnetic strips, or use flip-open stand on benchtop.

Refrigerator/freezer model is supplied with the temperature sensor enclosed in a glycol-filled bottle.

What's included: one AAA alkaline battery and NIST-traceable calibration report supplied by the manufacturer.



94460-61

Specifications

Display: dual-display LCD
Power: one AAA battery (included)
Dimensions (W x H x D): 3½" x 1¾" x 1" (8.9 x 4.4 x 2.5 cm)

Catalog number	Application	Sensor type	Range	Resolution	Accuracy	Price
TW-94460-61	General purpose	Two wire probes	–58 to 158°F (–50 to 70°C)	0.1°	±1.8°F (±1°C)	
TW-94460-62	Refrigerator/freezer	Two bottle probes				

Accessories

TW-09376-00 Replacement batteries, AAA. Pack of 12

TW-17101-61 NIST-traceable recalibration with data for digital indicator

Frozen Food Thermometer with Interchangeable Probes

Three easy-to-interchange probes for various food applications

- Ergonomic design provides comfort during repetitive measurements

These food thermometers were developed specifically for food professionals. The robust, IP65-rated body is water- and dust-resistant for high liquid or moisture environments. User-selectable high and low alarm limits provide an audible and visual alarm when critical thresholds are exceeded. The backlit display allows convenient viewing in low-lit areas.

Model 92600-12 is the economical choice for standard food temperature measurements; comes with penetration probe.

Model 92600-14 offers the complete measurement package with three interchangeable probes for a variety of food temperature measurement applications.

What's included: penetration probe and four button-cell batteries. Kit 92600-14 also includes a corkscrew probe, extra-long probe, and aluminum carrying case.

92600-12

Kit 92600-14

Specifications

Display: 3½-digit LCD
Dimensions (W x H x D): 1½" x 7¾" x 5¾" (3.8 x 19.7 x 14.6 cm)
Probes: 4¾"L penetration (92600-12 and -14), 3½"L corkscrew (92600-14), 7¾"L extra-long (92600-14)
Power: four button cell batteries (included)

Catalog number	Description	Range	Resolution	Accuracy	Price
TW-92600-12	Thermometer with penetration probe	–58 to 527°F (–50 to 275°C)	0.1°F (0.1°C)	±1°F/°C from –58 to –4°F (–50 to –20°C); ±0.5°F/°C from –4 to 212°F (–20 to 100°C); ±1% from 212 to 527°F (100 to 275°C)	
TW-92600-14	Thermometer kit with three probes				

TW-17101-61 NIST-traceable recalibration with data for digital indicator

KEY INFORMATION

Tech Insights

What is a Thermocouple Sensor?

A thermocouple is a sensor for measuring temperature composed of two different materials joined at one end and separated at the other. The separated ends are the output and they generate voltage. It is proportional to the heat being measured or monitored. The hotter the temperature, the higher the voltage. The fact that two metals generate voltage is known as the Seebeck Effect.

What Types of Thermocouples are Commonly Available?

Thermocouples come with different pairings of materials allowing for a very wide range of applications. The different compositions are given in thermocouple types (letter names) which are standardized across the industry. The most common types (calibrations) are J, K, T and E. Although the thermocouple calibration dictates the temperature range, the maximum range is also limited by the diameter of the thermocouple wire. A very thin thermocouple may not reach the full temperature range.

How to Choose the Best Thermocouple Type for Your Needs

Use the following criteria when selecting a thermocouple:

- Temperature range (probe calibration type)
- Chemical resistance of the thermocouple
- Sheath material (such as stainless steel)
- Abrasion and vibration resistance
- Probe length and diameter

91427-50

37486-15

91210-36

91500-04

90025-34

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2-in-1 Dual Probe Thermometer

Measure both surface and internal temperatures—with just one unit!

- Spring-loaded cordless pipe clamp ensures repeatability
- 2.5" (63.5 mm) retractable general-purpose probe

This versatile instrument measures the surface temperature of a pipe and other round objects or the internal temperature of liquids and solids. The claw-like spring-loaded clamp probe is designed to accommodate round objects from ¼" to 1⅜" (6.4 to 35 mm) in diameter. The retractable stainless steel penetration probe is hidden in the handle of the unit and can be inserted into an object up to 2" (50.8 mm) deep. Temperature is conveniently shown on a built-in LCD. Other features include selectable units of measure, min/max and hold functions, and auto shut-off.

What's included: protective nylon belt pouch and LR44 button cell battery.

90025-03

Specifications

CE

Resolution: 0.1°F/°C

Accuracy
Clamp probe: ±3°F (±2°C) from –14 to 212°F (–10 to 100°C)
Penetration probe: ±3°F (±2°C) from –20 to 300°F (–30 to 150°C)

Response time
Clamp probe: 90 seconds
Penetration probe: 20 seconds

Display: 4-digit LCD, 0.25"H digits

Power: one button cell battery (included)

Battery life: 150 hours

Dimensions (W x H x D): 4" x 6¾" x 1" (10.2 x 17.1 x 2.5 cm)

Catalog number	Type	Range	Price
TW-90025-03	Clamp probe, penetration probe	–20 to 300°F (–40 to 15°C)	

TW-17000-10 **NIST-traceable calibration** with data for thermocouple meter

OAKTON® Single-Input Thermocouple Thermometers

Heavy-duty thermometer offers versatility and accuracy in a compact design

- 3-way hands-free operation
- Large, easy-to-read screen with backlight
- Rugged armor is built to withstand the toughest conditions
- Easy-to-use automatic field calibration ensures accurate readings

These robust and reliable meters work in any environment from the lab to the production floor. The sturdy arm ored construction protects against knocks and jars. All models are ergonomically designed for both large and small hands alike. The sealed keypad and ABS plastic case meet IP54 standards for splash resistance. Select from the three most popular thermocouple types—J, K, or T—to meet all your basic temperature measurement needs.

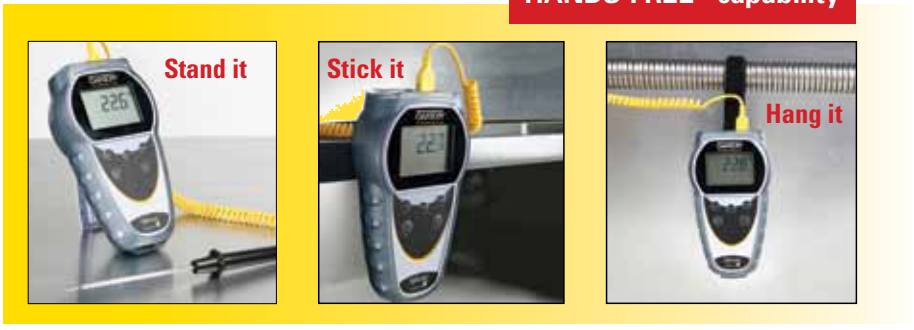
Features include a large, easy-to-read illuminated display; an easy-to-use five-button control panel; Min/Max and Hold functions; °F/°C selection; auto shutoff; and low-battery indicator. Automatic field calibration is easily performed: simply place the probe in a container packed with ice, fill with water, then press the "CAL" button—meter automatically recognizes the freezing point.

OAKTON's exclusive "3-WAY HANDS-FREE" capability allows "hands-free" use—use the built-in stand on a table top, attach the meter to metal objects through magnets inserted into the armor boot, or hang from a pipe or belt using the hook-and-loop strap. Meters come standard with the integral stand; the "hands-free" option adds magnets and strap (order separately below).

What's included: protective rubber armor boot with built-in stand and three AA batteries.

91427-10

Exclusive "3-WAY HANDS-FREE" capability



Calibrate NOW & SAVE!
INNOCAL®
Save 10% off the NIST-traceable calibration when you order your product precalibrated.

Specifications

CE 3 year warranty

Resolution: 0.1°F/°C between –199.9 to 999.9°, 1° below –199.9° and above 999.9°

Accuracy
Below –238°F (–150°C): ±0.25% of reading ±2°F (±1°C)
Above –238°F (–150°C): ±0.1% of reading ±0.7°F (±0.4°C)

Display: 4-digit LCD, 2¼" x 1½" backlit viewing area

Power: three AA batteries (included)

Battery life: 700 hours continuous (without the use of backlighting)

Dimensions (W x H x D): 4" x 7" x 2" (10.2 x 17.8 x 5.1 cm) with protective boot

Accessories

TW-35427-85 **Oakton "Hands-Free" option** includes two magnets and hook-and-loop strap

TW-35427-80 **Replacement boot** with built-in stand

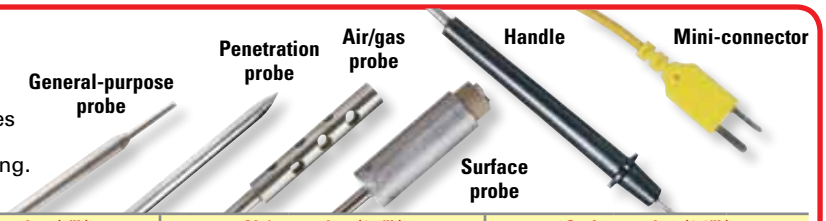
TW-09376-01 **Replacement batteries,** AA. Pack of 4

TW-17002-10 **NIST-traceable calibration** for thermocouple system (meter with probe)

Type	Range	Meters		Precalibrated meters	
		Catalog number	Price	Catalog number	Price
J	–346 to 2192°F (–210 to 1200°C)	TW-91427-00		TW-91427-01	
K	–418 to 2501°F (–250 to 1372°C)	TW-91427-10		TW-91427-11	
T	–418 to 752°F (–250 to 400°C)	TW-91427-20		TW-91427-21	

Some of Our Most Popular Thermocouple Probes

All probes include a 5-ft coiled cord with strain relief spring that protects from repeated flexing and tugging. Ergonomic, easy-to-grip glass-filled nylon handle provides maximum insulation and impact resistance; fingerstops prevent fingers from sliding and prevent probe from rolling. Rugged thermoset plastic miniconnector also included.



Probe Type	General-purpose probes (5"L)			Penetration probes (4"L)			Air/gas probes (8.5"L)			Surface probes (9.9"L)		
	Max temp	Cat. no.	Price	Max temp	Cat. no.	Price	Max temp	Cat. no.	Price	Max temp	Cat. no.	Price
J	1400°F (760°C)	TW-08517-55		1400°F (760°C)	TW-08517-65		1000°F (537°C)	TW-08517-75		1200°F (649°C)	TW-08517-60	
K	1652°F (900°C)	TW-08516-55		1652°F (900°C)	TW-08516-65		1000°F (537°C)	TW-08516-75		1200°F (649°C)	TW-08516-60	
T	752°F (400°C)	TW-08500-55		752°F (400°C)	TW-08500-65		1000°F (537°C)	TW-08500-75		650°F (343°C)	TW-08500-60	

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91427-40

OAKTON® Dual-Input Thermocouple Thermometer

Multidata display shows both temperatures and the temperature differential simultaneously

- 3-way hands-free operation
- Nonvolatile memory stores up to 1000 sets of readings
- Large, easy-to-read screen with backlight
- Rugged armor is built to withstand the toughest conditions
- Simple automatic field calibration ensures accurate readings

Choose the Oakton Temp-100 thermometer for either single-temperature readings or simultaneous dual-temperature readings. Meter accepts all type J, T, E, and K thermocouple probes with miniconnector. This robust and reliable meter works in any environment from the lab to the production floor. Sturdy armored construction protects against knocks and jars. Sealed keypad and ABS plastic case meet IP54 standards for splash resistance. Ergonomically designed housing is ideal for both large and small hands alike.

Large, illuminated display features easy-to-read digits. The seven-button control panel and intuitive on-screen menus guide you in choosing your desired functionality. Additional meter features include Min/Max, Hold, and average functions; °F/°C selection; offset; out-of-range alarm with audible/visible indicator; auto shutoff; and low-battery indicator.

Store up to 1000 sets of readings in the nonvolatile memory. Take differential temperature measurements with the T1/T2 function. The multidata LCD simultaneously indicates the readings of each probe, as well as the differential reading. For improved readability with rapidly changing temperatures, the meter resolution is keypad selectable. Above 999.9°, the meter automatically switches from 0.1° resolution to 1° resolution, below –99°C the meter autoranges to 1°C resolution.

Automatic field calibration is easily performed for either a single- or dual-point calibration for each probe. Simply place the probe in a container packed with ice, fill with water, activate the calibration function, and the meter automatically recognizes the freezing point.

OAKTON's exclusive "3-WAY HANDS-FREE" capability allows "hands-free" operation—use the built-in stand on a table top, attach the meter to metal objects through magnets inserted into the armor boot, or hang from a pipe or belt using the hook-and-loop strap. Meter comes standard with the integral stand; the "hands-free" option adds magnets and strap (order separately below).

What's included: protective rubber armor boot with built-in stand and three AA batteries.

Exclusive "3-WAY HANDS-FREE" capability

Calibrate NOW & SAVE!
INNOCAL®
Save 10% off the NIST-traceable calibration when you order your product precalibrated.

Specifications

CE 3 year warranty

Resolution: 0.1°F/°C between –99.9 to 999.9°, 1° below –99.9° and above 999.9°

Accuracy
Below –148°F (–99.9°C): ±0.25% of reading ±2°F (±1°C)
Above –148°F (–99.9°C): ±0.1% of reading ±0.7°F (±0.4°C)

Display: 4-digit LCD, 2¼" x 1½" backlit viewing area

Power: three AA batteries (included)

Battery life: 400 hours with sleep mode (without the use of backlighting, buzzer, and USB)

Dimensions (W x H x D): 4" x 7" x 2" (10.2 x 17.8 x 5.1 cm) with protective boot

Type	Range	Meter		Precalibrated meter	
		Cat. no.	Price	Cat. no.	Price
Dual input; types J, K, T, E	Type J: –346°F to 2192°F (–210°C to 1200°C) Type K: –418°F to 2501°F (–250°C to 1372°C) Type T: –418°F to 752°F (–250°C to 400°C) Type E: –418°F to 1832°F (–250°C to 1000°C)	TW-91427-40		TW-91427-41	

TW-35427-85 **Oakton "Hands-Free" option** includes two magnets and hook-and-loop strap
TW-35427-80 **Replacement boot** with built-in stand
TW-09376-01 **Replacement batteries,** AA. Pack of 4 **/pk**
TW-17002-10 **NIST-traceable calibration certificate** for thermocouple system (meter with probe)

OAKTON® Dual-Input Thermocouple Data Logging Thermometer

Log up to 2000 sets of readings in real time with time-and-date stamp

- 3-way hands-free operation
- Transfer data via USB
- Menu-driven setup lets you easily customize your meter
- Rugged armor is built to withstand the toughest conditions
- Simple-to-use automatic field calibration ensures accurate readings


USB port

91427-50

This Oakton Temp-300 thermometer features real-time data logging and a USB data output. Meter accepts dual inputs from type J, K, T, E, R, S, N, or B thermocouples probes with miniconnector. This robust and reliable meter works in any environment from the lab to the production floor. Sturdy armored construction protects against knocks and jars. Sealed keypad and ABS plastic case meet IP54 standards for splash resistance. Ergonomically designed housing is ideal for both large and small hands alike.

Large, illuminated display features easy-to-read digits. The seven-button control panel and intuitive on-screen menus guide you in choosing your desired functionality. Additional meter features include Min/Max, Hold, and average functions; temperature units in °F, °C, °R, or K; offset; time stamp/clock; countdown timer; out-of-range alarm with audible/visible indicator; auto shutoff; and low-battery indicator. Order an optional AC adapter to conserve battery life during extended operations.

Manually store or automatically log up to 2000 sets of readings in real time. Log interval is selectable from 1 second to 60 minutes. Take differential temperature measurements with the T1/T2 function. The dot matrix display simultaneously indicates the readings of each probe, as well as the differential reading. For improved readability during rapidly changing temperatures, the meter resolution is keypad selectable. Above 999.9°, the meter automatically switches from 0.1° resolution to 1° resolution, below –99°C the meter autoranges to 1°C resolution.

Automatic field calibration is easily performed for either a single- or dual-point calibration for each probe. Simply place the probe in a container packed with ice, fill with water, activate the calibration function and the meter automatically recognizes the freezing point.

OAKTON's exclusive "3-WAY HANDS-FREE" capability allows "hands-free" operation—use the built-in stand on a table top, attach the meter to metal objects through magnets inserted into the armor boot, or hang from a pipe or belt using the hook-and-loop strap. Meter comes standard with the integral stand; the "hands-free" option adds magnets and strap (order separately below).

What's included: protective rubber armor boot with built-in stand and three AA batteries.

Calibrate NOW & SAVE!
INNOCAL®
Save 10% off the NIST-traceable calibration when you order your product precalibrated.

Specifications

CE 3 year warranty

Resolution: 0.1°F/°C between –199.9 to 999.9°, 1° below –99.9° and above 999.9°

Accuracy
Type J, K, T, E, and N: ±0.25% of reading ±2°F (±1°C) below –148°F (–99.9°C), ±0.1% of reading ±0.7°F (±0.4°C) above –238°F (–150°C)
Type R, S, and B: ±0.1% of reading ±2°F (±1°C)

Data logging: 2000 real-time readings, with time-and-date stamp

Logging interval: 1 second to 60 minutes

Output: USB

Display: 4-digit, custom dot matrix display; ¼" x ½" digits, 2¼" x 1½" backlit viewing area

Power: three AA batteries (included) or optional AC adapter

Battery life: 400 hours with sleep mode (without use of backlighting, buzzer, and USB)

Dimensions (W x H x D): 4" x 7" x 2" (10.2 x 17.8 x 5.1 cm) with protective boot

Type	Range	Meter		Precalibrated meter	
		Catalog number	Price	Catalog number	Price
Dual input; J, K, T, E, R, S, N, B	Type J: –346 to 3192°F (–210 to 1200°C) Type K: –418 to 2501°F (–250 to 1372°C) Type T: –418 to 752°F (–250 to 400°C) Type E: –418 to 1832°F (–250 to 1000°C) Type R: 32 to 3214°F (0 to 1768°C) Type S: 32 to 3214°F (0 to 1768°C) Type N: –418 to 2372°F (–250 to 1300°C) Type B: 392 to 3272°F (200 to 1800°C)	TW-91427-50		TW-91427-51	

TW-35427-85 **Oakton "Hands-Free" option** includes two magnets and hook-and-loop strap

TW-35427-80 **Replacement boot** with built-in stand

TW-09376-01 **Replacement batteries,** AA. Pack of 4

TW-91427-99 **Adapter,** 115/230 VAC

TW-17002-10 **NIST-traceable calibration** for thermocouple system (meter with probe)

Exclusive "3-WAY HANDS-FREE" capability

Distributed by: Fiedler Scientific Instruments, s.r.o.
info@lab-eu.com info@pristroje.cz

Thermometer 93000-00

Probe 08516-55

OAKTON® Thermocouple Thermometer

Simple and easy-to-use, three-button design

- Hold function freezes reading
- °F/°C selectable

This type K thermocouple meter has a easy-to-read ⅞" high display. The splash-resistant membrane keypad is easy to clean and wipe down. Auto power-off feature turns meter off after 17 minutes of nonuse. Easily calibrate meter in the field. Meter features low-battery indicator. Accepts any type K thermocouple probes with miniconnectors (not included; order separately below).

What's included: four AAA batteries.

Specifications

CE 3 year warranty

Resolution: 0.1/1 °F/°C
Accuracy: ±0.25% of reading plus 2°F (1°C)
Display: 3½-digit LCD, ⅞" H
Power: four AAA batteries (included)
Battery life: 400 hours
Dimensions (W x H x D): 2¾" x 5½" x 1¼" (7.0 x 14.0 x 3.2 cm)

Catalog number	Type	Range	Price
TW-93000-00	Single input, K	–418 to 1832°F (–250 to 1372°C)	

TW-35627-80 **Protective rubber boot** with stand
TW-09376-00 **Replacement batteries,** AAA. Pack of 12
TW-08516-55 **General-purpose thermocouple type K probe;** 5"L, 1652°F (900°C) max
TW-17000-10 **NIST-traceable calibration** with data for thermocouple meter
TW-17002-10 **NIST-traceable calibration** with data for thermocouple system (meter with probe)

Find MORE!
For probes compatible with our wide selection of thermocouple meters, see **pages 1747–1771**.

35627-00 meter shown with probe 08517-55 (probe sold separately)

Thermometer includes protective rubber boot.

OAKTON® Acorn® Thermocouple Thermometer

Included protective rubber boot has a built-in stand for benchtop use

- Splash-resistant membrane keypad makes cleanup easy

Features Min/Max function to display the highest/lowest temperature measurement reading since the meter was turned on. Hold button freezes the display. °F/°C selectable. Meter can be calibrated in the field by simply putting the probe in a bucket of ice water (32°F/0°C) and pressing the calibration button. Accepts type J, K, or T thermocouple probes with miniconnectors (sold separately). Order thermocouple probes separately.

What's included: protective rubber boot, four AAA batteries.

Specifications

CE 3 year warranty

Resolution: 0.1°F/°C from –99.9 to 299.9 (°F or °C); 1°F/°C outside this range
Accuracy: ±0.25% of reading plus 2°F (1°C) for temp ≤ 99.9°F/°C, ±0.25% of reading plus 0.9°F (0.5°C) for temp ≥ 99.9°F/°C
Display: 3½-digit LCD, ⅞"H
Power: four AAA batteries (included)
Battery life: 750 hours

Type	Range	Meter		Precalibrated meter	
		Catalog number	Price	Catalog number	Price
Single input; J, K, T	J: –328 to 1832°F (–200 to 1000°C) K: –418 to 2501°F (–250 to 1372°C) T: –418 to 752°F (–250 to 400°C)	TW-35627-00		TW-35627-11	

TW-35627-80 **Protective rubber boot** with stand
TW-08516-55 **General-purpose thermocouple type K probe;** 5"L, 1652°F (900°C) max
TW-08517-55 **General-purpose thermocouple type J probe;** 5"L, 1652°F (900°C) max
TW-09376-00 **Replacement batteries,** AAA. Pack of 12
TW-17000-10 **NIST-traceable calibration** with data for thermocouple meter
TW-17002-10 **NIST-traceable calibration** with data for thermocouple system (meter with probe)

Cole-Parmer® Remote-Monitoring Thermocouple Thermometers

Ultra-thin cable lets you measure within doored equipment

- For use in remote measurement applications
- High-impact, chemical-resistant ABS plastic case
- NIST-traceable

This meter has a 4-ft (1.2-m) ribbon micro-cable that allows you to place the probe within an area and close the door without affecting the probe or the door seal. Accurately monitor temperature within freezers, water baths, heating blocks, incubators, refrigerators, and other areas. The meter includes a fast-response type K probe that can be used for general-purpose applications. You can also choose from a wide variety of probes for surface, liquid, air, or semisolid materials.

What's included: one beaded-wire type K probe, leatherette case, one 9 V battery, and NIST-traceable calibration report supplied by the manufacturer.

86460-05

Specifications

CE

Display: 4-digit LCD, 1"H
Power: one 9 V battery (included)
Battery life: >100 hours
Dimensions (W x H x D): 2¾" x 4¼" x ¾" (7.0 x 10.8 x 1.9 cm)

Catalog number	Scale	Type	Range	Resolution	Accuracy	Price
TW-86460-03	Fahrenheit	Single input, K	–58 to 1382°F	0.1°F	±(2°F + 0.75%) between 32 to 932°F, and ±(2°F + 1%) between 933 to 1382°F. Below 32°F accuracies are –4 ± 8°F, –40°F ± 8°F, and –58°F ± 10°F	
TW-86460-05	Celsius	Single input, K	–50 to 750°C	0.1°C	±(1°C + 0.75%) between 0 to 500°C, and ±(1°C + 1%) between 500 to 750°C. Below 0°C, accuracies are –20 ± 2°C, –40°C ± 4°C, and –50°C ± 5°C	

TW-08439-62 General-purpose thermocouple type K probe, 4.5"L
TW-08515-01 Thermocouple type K probe; flexible insulated-wire, 3-ft L
TW-09376-04 Replacement batteries, 9 V. Pack of 4
TW-17002-10 NIST-traceable recalibration with data for thermocouple system (meter with probe)

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Cole-Parmer® Workhorse Thermocouple Thermometer

Easy-to-use meter at an economical price—perfect for everyday use

- Front-panel adjustable offset
- NIST-traceable

The Workhorse thermometer provides a display that is easy to read in all types of lighting, and long battery life (150 to 200 continuous hours) making it an excellent choice as a basic meter. Adjustable offset allows you to adjust the thermometer exactly to a specific temperature, in-house calibration, or particular sensor for increased accuracy. Workhorse features a Hold button, °F/°C selectable units, and auto power-off. Accepts every type K thermocouple probe with miniconnector.

What's included: one type K probe (5"L x ⅛" dia tip), bench stand, carrying case, one 9 V battery, and NIST-traceable calibration report supplied by the manufacturer.

91210-45

Specifications

CE

Resolution: 0.1° between –50.0 to 200°C and 1° otherwise
Accuracy: ±(1°C + 0.75%) from 0 to 500°C; ±(1°C + 1%) from 500 to 750°C; ±(1°C + 2%) from 750 to 1000°C; ±(3°C + 4%) from 1000 to 1200°C; ±2°C at –20°C; ±3°C at –40°C; and ±4°C at –50°C
Display: 2¾"W x 2¼"H
Power: one 9 V battery (included)
Battery life: 150 to 200 hours
Dimensions (W x H x D): 2¾" x 5½" x 1¼" (7.0 x 14.0 x 3.2 cm)

Catalog number	Type	Range	Price
TW-91210-45	Single input, K	–58 to 2372°F (–50 to 1300°C)	

TW-08439-62 General-purpose thermocouple type K probe; 4½"L, –418 to 1650°F (–250 to 899°C)
TW-08515-01 Thermocouple type K probe; flexible insulated wire, 3-ft L, –418 to 221°F (–250 to 105°C)
TW-09376-04 Replacement batteries, 9 V. Pack of 4
TW-17002-10 NIST-traceable recalibration with data for thermocouple system (meter with probe)

94461-12

ENSURE ACCURACY
INNOCAL®
Have your new product calibrated.
See pages 198–206.

Economical Type J/K Thermocouple Thermometers

Accepts both type J and K probes

- Compact and lightweight design
- Available with single or dual input

These thermometers provide accurate and reliable temperature measurement in an economic and compact design. Features include Min/Max, Hold, °F/°C selectable units, relative temperature, and auto power-off after 30 minutes of inactivity to save on battery power. Accept both type K or J thermocouple probes with a miniconnector. Available in single and dual input, with results displayed on a large 1¼" x 1¾" LCD. The dual-input meter (94461-12) can read and display results from two probes simultaneously and track the difference between them (T1–T2). Order optional probes and other accessories separately.

What's included: beaded-wire probe (two probes for 94461-12) and one 9 V battery.

Specifications

CE

Resolution: 0.1°F (0.1°C)

Accuracy:
From –200 to 200°F/°C and above 400°F/°C:
±0.3% of reading + 2°F/1°C
All other temperatures: ±0.5% of reading + 2°F/1°C

Display: 5-digit LCD with backlighting, 1¼" x 1¾"

Power: one 9 V battery (included)

Dimensions (W x H x D): 2¼" x 5¼" x 1¼" (5.7 x 13.3 x 3.2 cm)

Catalog number	Type	Range	Price
TW-94461-11	Single input; J, K	J: –328 to 1922°F (–200 to 1050°C) K: –328 to 2498°F (–200 to 1370°C)	
TW-94461-12	Dual input; J, K		

TW-08439-60 **General-purpose thermocouple type J probe,** 4.5" (11.4 cm) L
TW-08439-62 **General-purpose thermocouple type K probe,** 4.5" (11.4 cm) L
TW-08515-00 **Thermocouple type J probe,** flexible insulated-wire, 3 ft (0.9 m) L
TW-08515-01 **Thermocouple type K probe,** flexible insulated-wire, 3 ft (0.9 m) L
TW-94461-25 **Water-resistant pouch**
TW-09376-04 **Replacement batteries,** 9 V, Pack of 4
TW-17002-10 **NIST-traceable calibration** for thermocouple system (meter and probe)

91210-55

Waterproof Thermocouple Thermometer

Waterproof design—ideal for working in adverse weather conditions

- Rugged, impact-resistant design that is economical and easy to use
- Back-lighting button permits reading in dark areas

This IP66-rated, ABS plastic thermometer has a 2.5-second sampling rate with a resolution of 1°F/°C. Features include Min/Max, relative temperature, Hold, autoranging, °F/°C selectable units, sleep mode, and auto power-off after inactivity to save on battery power. Accepts any type K thermocouple probe with miniconnector.

What's included: beaded-wire type K probe, hard carrying case, rubber cap, and one 9 V battery.

Specifications

CE IP66

Resolution: 1°F/°C

Accuracy: ±0.3% rdg +2°F from –58 to 1800°F (0.3% rdg +1°C from –50 to 1000°C); ±0.5% rdg +2° F from 1800 to 2000°F (0.5% rdg +1°C from 1000 to 1300°C)

Display: 3½-digit backlit LCD, 1½"H

Power: one 9 V battery (included)

Dimensions (W x H x D): 2¾" x 7" x 1½" (7.0 x 17.8 x 3.8 cm)

Catalog number	Type	Range	Price
TW-91210-55	Single input, K	–328 to 2372°F (–200 to 1300°C)	105.95

TW-08439-62 **General-purpose thermocouple type K probe,** 4.5" (11.4 cm) L
TW-08515-01 **Thermocouple type K probe,** flexible insulated-wire, 3 ft (0.9 m) L
TW-09376-04 **Replacement batteries,** 9 V. Pack of 4
TW-17002-10 **NIST-traceable calibration** for thermocouple system (meter and probe)

Find MORE!
For probes compatible with our wide selection of thermocouple meters, see **pages 1747–1771.**

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Entry-Level Single- and Dual-Input Thermocouple Thermometers

Basic temperature measurement with convenient one-handed side button control

- Available in single and dual input

NEW

These thermometers provide accurate and reliable temperature measurement in an economical, compact design.

Model 95001-25 is a single-input that accepts type J or K thermocouple probes with a miniconnector. Features include Min/Max, Hold, Avg, time stamp, °F/°C/K selectable units, and auto power-off to save on battery power.

Model 95001-35 is a dual-input that accepts type J or K thermocouple probes with a miniconnector. This meter offers the same features as 95001-25, plus an offset function for relative measurement temperature differential between two probes (T1–T2) and time of reading.

What's included: type K bead wire temperature probe. Model 95001-25 also includes one 9 V battery. Model 95001-35 also includes a carrying pouch and three AAA batteries.

95001-35

Specifications

CE

Resolution: 0.1°F (0.1°C)
Accuracy: ±0.15% of reading (1.8°F/1°C)
Display: 5-digit LCD

Power
Model 95001-25: one 9 V battery (included)
Model 95001-35: three AAA batteries (included)

Dimensions (W x H x D):
2½" x 8¼" x 1" (6.3 x 22.0 x 2.8 cm)

Catalog number	Type	Range	Price
TW-95001-25	Single input; J, K	Type J: –328 to 1922°F (–200 to 1050°C) Type K: –328 to 2498°F (–200 to 1370°C)	
TW-95001-35	Dual input; J, K		

TW-08439-60 General-purpose thermocouple type J probe, 4½" (11.4 cm) L
TW-08439-62 General-purpose thermocouple type K probe, 4½" (11.4 cm) L
TW-08515-00 Thermocouple type J probe, flexible insulated-wire, 3-ft (0.9-m) L
TW-08515-01 Thermocouple type K probe, flexible insulated-wire, 3-ft (0.9-m) L

TW-09376-00 Replacement batteries, AAA. Pack of 12
TW-09376-04 Replacement batteries, 9 V. Pack of 4
TW-17002-10 NIST-traceable calibration with data for thermocouple system (meter and probe)

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EasyView® Thermocouple Thermometers

Compact, rugged design features a large display

- Accepts any type K thermocouple probe with miniconnector

These meters offer the functionality to meet any temperature measurement need. Choose the thermometer with the feature that best fits your application.

Model 95001-05 is a single-input type K thermometer which features store/recall of 150 readings, Avg, relative functions, Min/Max, Hold, °F/°C selectable units, and auto power off.

Model 95001-06 is a dual-input type K thermometer which offers the same features as 95001-05; plus an offset function for relative measurement, temperature differential between two probes (T1–T2), timer, elapsed time, time of reading, min/max, backlit display, and °F/°C/K selectable units.

Model 95001-07 is a dual-input thermometer with data logger which offers the same features as 95001-06. This meter also includes a data logger that can store up to 16 data sets and 8800 data points manually or automatically with a programmable sample rate. Other advanced features include the ability to work with seven thermocouple types (J, K, T, E, R, S, and N), min/max/avg function, and bidirectional RS-232 interface.

What's included: one type K bead thermocouple probe, protective holster with built-in stand, and six AAA batteries. Model 95001-06 also includes two type K probes. Model 95001-07 also includes two type K probes, RS-232 cable, and software.

95001-06

Specifications

CE

Display: 4½-digit LCD (models 95001-06,-07 are backlit)
Power: six AAA batteries (included)

Dimensions (W x H x D): 2¾" x 6" x 1½" (7.0 x 15.2 x 3.8 cm)

Catalog number	Type	Data logger	Range	Resolution	Accuracy	Price
TW-95001-05	Single input, K	No	–58 to 1999°F (–50 to 1300°C)	0.1°F/°C below 200°, 1°F/°C above 200°	±0.3% of reading, +2°F (+1°C)	
TW-95001-06	Dual input, K	No	–200 to 1999°F (–200 to 1360°C)	0.1°F/°C below 200°, 1°F/°C above 200°	±0.3% of reading, +2°F (+1°C)	
TW-95001-07	Dual input; J, K, T, E, R, S, N	Yes	–200 to 1994°F (–200 to 1090°C)	0.1°F/°C below 200°, 1°F/°C above 200°	±0.05% of reading, ±1.5°F (0.75°C)	

Accessories

TW-08439-62 General-purpose thermocouple type K probe
TW-08439-92 Air/gas thermocouple type K probe
TW-08439-72 Surface thermocouple type K probe
TW-09376-00 Replacement batteries; AAA. Pack of 12
TW-17002-10 NIST-traceable calibration for thermocouple system (meter and probe)

Compact Foodservice Thermocouple Thermometers

Ideal for use in the food industry

- IP55-rated waterproof case
- NIST-traceable

These thermometers are constructed of ABS plastic and have an IP55 rating producing a waterproof and shock-resistant product ideal for use in the food industry. The use of an advanced internal microprocessor that updates every five seconds and a highly accurate type T thermocouple produces an accuracy of ±0.8%. The product features a Hold function, °F/°C selectable units, and auto power-off after 15 seconds of inactivity to save on battery power.

What's included: type T probe with penetration tip, one CR-2032 battery, and NIST-traceable calibration report supplied by the manufacturer.

91210-35 91210-36

Specifications

Resolution: 0.2°F (0.1°C) from –76 to 390°F (–60 to 199°C); 1°F/°C for remaining
Accuracy: ±1.4°F (±0.8°C) or ±0.8% whichever is greater
Display: 3½-digit LCD
Power: one CR-2032 battery (included)
Dimensions (W x H x D): 1¾" x 3½" x ¾" (4.4 x 8.9 x 1.9 cm)

Cat. no.	Type	Range	Price
TW-91210-35	Single input, T, remote	–58 to 660°F (–50 to 350°C)	
TW-91210-36	Single input, T, attached		

TW-09376-17 Replacement battery, CR-2032. Pack of 6
TW-17002-10 NIST-traceable recalibration for thermocouple system (meter and probe)

Cole-Parmer® Thermocouple Thermometer

Highly advanced, yet easy to use

- Fast-response microprocessor updates the display twice a second
- Water-resistant case
- NIST-traceable

The rugged ABS construction makes this meter shock-resistant, and is gasketed in order to seal out dirt, dust, fumes and water. Perfect for use in lab or plant environments. A microprocessor updates the display twice every second. The meter features Recall, Min/Max, Hold, °F/°C selectable units, count-up timer, and high/low alarm. Accepts type K thermocouple probes with miniconnector. Backlighting button permits reading in dark areas.

What's included: beaded-wire type K probe, PVC protective casing with flip-out stand, three AAA batteries, and NIST-traceable calibration report supplied by the manufacturer.

91210-30

Specifications

Resolution: 0.1°F/°C between –199 to 1369°F (–128 to 742°C) outside range resolution 1°F/°C
Accuracy: ±1° from –58 to 1364°F (–50 to 740°C), otherwise ±2°
Display: 3¾-digit backlit LCD, ⅝"H
Power: three AAA batteries (included)
Dimensions (W x H x D): 3¼" x 7" x 1¼" (8.3 x 17.8 x 3.2 cm)

Cat. no.	Type	Range	Price
TW-91210-30	Single input, K	–328 to 2498°F (–200 to 1370°C)	

TW-08439-62 General-purpose thermocouple type K probe, 4.5" (11.4 cm) L
TW-08515-01 Thermocouple type K; flexible insulated-wire probe, 3 ft (0.9 m) L
TW-09376-00 Replacement batteries, AAA. Pack of 12
TW-17002-10 NIST-traceable recalibration for thermocouple system (meter and probe)

Cole-Parmer® Two-Channel Thermocouple Thermometer

Front-panel offsets for temperature adjustment

- Rubberized case, wrist strap, and built-in stand
- NIST-traceable

This meter has adjustable offsets on the two channels allowing the user to adjust the thermometer exactly to a specific temperature, in-house calibration, or particular sensor for increased accuracy. Large LCD shows temperatures of probe 1, probe 2, or the difference (delta) of the two probes. Rubberized case makes the meter weather- and shockproof. Product features include Max, Hold, T1, T2, delta (T1–T2), °F/°C selectable units, and on/off buttons. Accepts type K thermocouple probes with miniconnector.

What's included: two beaded-wire type K probe, PVC protective casing with flip-out stand, one 9 V battery,and NIST-traceable calibration report supplied by the manufacturer.

91210-31

Specifications

Resolution: 1°F/°C
Accuracy: ±0.3% + 0.1°C
Display: ¾"H
Power: one 9 V battery (included)
Dimensions (W x H x D): 2¾" x 5¼" x 1¼" (7.0 x 13.3 x 3.2 cm)

Cat. no.	Type	Range	Price
TW-91210-31	Dual input, K	–58 to 2000°F (–50 to 1300°C)	

TW-08439-62 General-purpose thermocouple type K probe, 4.5"L (11.4 cm)
TW-08515-01 Thermocouple type K; flexible insulated-wire probe, 3 ft L (7.6 cm)
TW-09376-04 Replacement batteries, 9 V. Pack of 4
TW-17002-10 NIST-traceable recalibration for thermocouple system (meter and probe)

Foodservice Thermocouple Thermometer

Ideal for use in food-related applications

- IP67-rated case is water- and dustproof
- BioCote® antimicrobial protection
- NSF-approved

Designed to accept any type K thermocouple probe with miniature connection. This thermometer produces a high degree of accuracy, with a rapid response time, and exceptional battery life of up to 7000 hours. The meter features °F/°C selectable units, data hold, auto-off function, clock, multifunction countdown timer, and built-in protective boot.

The thermometer has an IP67-rated case with BioCote antimicrobial protection—ideal for use in the food industry and is an accepted part of HACCP standards. BioCote is an antimicrobial agent that is impregnated into the case during molding, effectively inhibiting the growth of micro-organisms.

What's included: protective boot, certificate of conformity, and two AA batteries.

90025-34

Specifications

CE NSF IP67 2 year warranty

Resolution
Below 100°F (100°C): 0.1°
Above 100°F (100°C): 1°

Accuracy: ±0.1% of reading, ±0.4°F/±0.2°C

Display: 4-digit LCD, ½"H
Power: two AA batteries (included)
Battery life: 7000 hours (approx)
Dimensions (W x H x D): 2¼" x 6" x 1" (5.7 x 15.2 x 2.5 cm)

Catalog number	Type	Range	Price
TW-90025-34	Single input, K	–328 to 1112°F (–200 to 600°C)	

TW-90025-41 **Wall bracket** for 90025-34
TW-09376-01 **Replacement batteries,** AA. Pack of 4
TW-17002-10 **NIST-traceable calibration** for thermocouple system (meter and probe)

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info@lab-eu.com info@pristroje.cz

Basic Foodservice Thermocouple Thermometer

Designed for use in today's busy kitchens

- Durable, water resistant, and easy to clean
- NSF-approved

Designed specially for the food industry as a simple-to-use, basic everyday thermometer. This water-resistant unit has an easily cleanable membrane keypad. The unit produces a high degree of accuracy, with rapid response time, and accepts a wide range of food-related type K thermocouple probes with a miniature connection. Other features include selectable unit of measure and auto-off function.

What's included: protective boot and 9 V battery. Model 90025-32 also includes a reduced-tip penetration probe.

90025-32

Specifications

CE NSF IP67 2 year warranty

Resolution: 0.1° to 374°F (190°C), 1° above
Accuracy: ±2°F (1°C) from –22 to 230°F (30 to 110°C), full range ±3% of reading
Display: 4-digit LCD, ½" (1.3 cm) H

Power: one 9 V battery (included)
Battery life: 300 hours (approx)
Dimensions (W x H x D): 3½" x 5" x 1½" (8.9 x 12.7 x 3.8 cm)

Catalog number	Type	Range	Price
TW-90025-31	Single input, K (probe not included)	–40 to 1000°F	
TW-90025-32	Single input, K (probe included)	(–40 to 500°C)	

TW-09376-01 **Replacement batteries,** 9 V. Pack of 4
TW-17002-10 **NIST-traceable calibration** with data for thermocouple system (meter and probe)

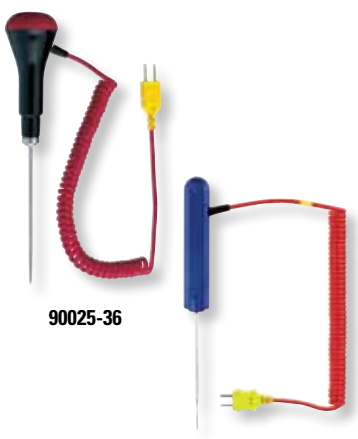
Foodservice Thermocouple Probes

- Most probes have a response time of under 0.5 seconds
- Include a 3-foot coil cord

These food probes are designed specifically for use in the food industry to ensure proper food preparation. Penetration probes are designed to be inserted directly into the food, typically poultry, beef or pork, to gauge the internal temperature and to ensure that the meat is cooked properly for safe eating. Surface probes are used to make sure the cooking surface is at the desired temperature before and during the cooking process.

Catalog number	Description	Range	Price
TW-90025-36	Food-penetration thermocouple type K probe with 1.6-mm penetration tip	–58 to 482°F (–50 to 250°C)	
TW-90025-37	Frozen food penetration thermocouple type K probe with 1.6-mm penetration tip	–58 to 482°F (–50 to 250°C)	
TW-90025-38	Food-penetration thermocouple type K probe with 1.1-mm penetration tip	–58 to 482°F (–50 to 250°C)	
TW-90025-39	Grill surface food thermocouple type K probe with 45° crank	–58 to 482°F (–50 to 250°C)	

TW-17001-10 **NIST-traceable calibration** for thermocouple probe; with test data


90025-36

90025-38


90025-39

90025-37

Compact J/K/T/E Thermocouple Thermometers

Available in single- and dual-channel models

- IP67-rated housing and keypad
- NIST-traceable

These thermometers are constructed of ABS plastic and have an IP67 rating producing a water- and shock-resistant product ideal for use in harsh environments. The use of an advanced internal microprocessor that updates every five seconds produces an accuracy of ±0.5°F . The meters are multifunctional featuring Max/Min, Hold, °F/°C selectable units, adjustable sampling rate, large LCD, and auto power-off after inactivity to save on battery power. Available in single- and dual-channel, both capable of accepting any type of J, K, T, and E thermocouple probes with miniconnector. Dual-channel model also features T1, T2, and delta (T1–T2). Probes are sold separately.

What's included: long-life lithium battery and NIST-traceable calibration report supplied by the manufacturer.

Specifications

Resolution
J: 0.2°F (0.1°C) from –140 to 374°F (–100 to 190°C)
T: 0.2°F (0.1°C) from –50 to 428°F (–50 to 220°C)
K: 0.2°F (0.1°C) from –330 to 482°F (–200 to 250°C)
E: 0.2°F (0.1°C) from –140 to 302°F (–100 to 150°C)
Remaining range: 1°F (1°C)

Accuracy
J: 0.5°F (0.3°C) from –58 to 374°F (–50 to 190°C)
T: 0.5°F (0.3°C) from –58 to 428°F (–50 to 220°C)
K: 0.5°F (0.3°C) from –140 to 482°F (–100 to 250°C)
E: 0.5°F (0.3°C) from –58 to 302°F (–50 to 150°C)
Remaining range: ±0.5% of reading

Display: 3½-digit LCD

Dimensions (W x H x D): 2" x 4½" x ¾" (5.1 x 11.4 x 1.9 cm)

Power: one 5-year lithium battery (included)

Catalog number	Type	Range	Price
TW-91210-39	Single input; J, K, T, E	J: –140 to 1470°F (–100 to 800°C) T: –50 to 570°F (–50 to 300°C) K: –330 to 2190°F (–200 to 1200°C) E: –140 to 1110°F (–100 to 600°C)	
TW-91210-40	Dual input; J, K, T, E		

TW-08515-00 **Thermocouple type J probe,** PVC insulated
TW-08515-01 **Thermocouple type K probe,** PVC insulated
TW-08515-02 **Thermocouple type T probe,** PVC insulated
TW-91210-38 **Replacement battery**
TW-17002-10 **NIST-traceable calibration** with data for thermocouple system (meter and probe)

Find MORE!
For probes compatible with our wide selection of thermocouple meters, see **pages 1747–1771.**

EconoTemp Thermocouple Thermometer

Designed to withstand harsh environments found in kitchens or food processing areas

- Powerful microprocessor delivers speed and reliability

The EconoTemp thermocouple thermometer is ergonomically designed with a curved back to fit nicely in the palm of your hand. The meter has a unique built-in memory feature that stores calibration settings, reducing the need for frequent recalibrations. The ABS housing provides impact and water resistance; it also has molded tabs on the side to hold and store most needle probes. Other features include °F/°C/K selectable units and auto power-off to save on battery. Meter accepts any type K thermocouple probe with a standard mini-connector.

What's included: needle probe, protective rubber boot, wall-mount bracket, lanyard, and three AAA batteries.

Specifications

Resolution: 1°F (1°C)
Accuracy: ±2°F (±1°C)
Display: 4-digit LCD
Power: three AAA batteries (included)
Battery life: 4500 hours
Dimensions (W x H x D): 2½" x 6¾" x 1" (6.4 x 17.1 x 2.5 cm)

5 year warranty Meter only

Catalog number	Type	Range	Price
TW-90025-17	Single input, K	–40 to 500°F (–40 to 260°C)	

TW-09376-00 **Replacement batteries,** AAA. Pack of 12
TW-17002-10 **NIST-traceable calibration** with data for thermocouple system (meter and probe)

Probes

Catalog number	Description	Range	Price
TW-90025-14	Micro-needle thermocouple type K probe with 0.085" (2.16 mm) dia penetration tip	–100 to 500°F (–73 to 260°C)	
TW-90025-13	Extra-rugged needle thermocouple type K probe with 0.043" (1.09 mm) dia penetration tip	–40 to 500°F (–40 to 260°C)	
TW-90025-16	Needle thermocouple type K probe with 0.125" (3.18 mm) dia penetration tip	–40 to 500°F (–40 to 260°C)	
TW-90025-09	Weighted griddle-surface thermocouple type K probe with 2½" (63.5 mm) dia head	500°F (260°C) max	
TW-90025-11	120° angled surface thermocouple type K probe with 0.5" (12.7 mm) dia tip	–40 to 500°F (–40 to 260°C)	
TW-90025-12	Pipe clamp thermocouple type K probe for pipe diameters from ¼" to 1⅜" (6.3 to 34.9 mm)	–20 to 300°F (–29 to 149°C)	

Waterproof Thermocouple Thermometer

Wraparound cord and probe storage

- Impact-resistant, waterproof design

This highly accurate, type K thermocouple thermometer has a two-second response time and can be used one handed or by detaching the probe for remote use. The probe is designed to snap in place onto the back of the meter, or can be unwound allowing the probe to reach areas up to three feet away. The meter features °F/°C selectable units, continuous sampling mode, battery indicator, auto power-off after inactivity to save on battery power, and the ability to be field calibrated. Meter is supplied with a probe, but will accept any type K thermocouple with a miniconnector.

What's included: integral type K probe with penetration tip, belt clip, and one 9 V battery.

Specifications

CE 3 year warranty

Resolution: 0.1°F/°C up to 199°F (99°C); 1°F/°C for rest of range
Accuracy: ±1°F/°C from 0 to 270°F (0 to 132°C), ±3°F from 270 to 500°F (132 to 260°C), ±1% remaining range
Display: 3½-digit LCD, 1"H
Power: one 9 V battery (included)
Dimensions (W x H x D): 2" x 7" x 1" (5.1 x 17.8 x 2.5 cm)

Catalog number	Type	Range	Price
TW-91210-50	Single input, type K	–40 to 500°F (–40 to 260°C)	

TW-09376-04 **Replacement batteries,** 9 V. Pack of 4
TW-17002-10 **NIST-traceable calibration** for thermocouple system (meter and probe)

91210-50

Probe snaps onto the back of the meter for one-handed measuring.

Find MORE!
For probes compatible with our wide selection of thermocouple meters, see **pages 1747–1771.**

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Dual-Input and Infrared Thermocouple Thermometer

Remote infrared probe allows for noncontact temperature measurement

- Accepts any type K thermocouple probe with a miniconnector
- Compact and rugged design featuring a large display

Compact meter offers dual input with the ability to compare direct measurements from two different probes and an infrared probe for measuring noncontact applications. The triple-line LCD simultaneously displays [T1, T2, T3(IR)], [T1–T2], [T1–T3], or [T2–T3] values. Meter features user-selectable 1°/0.1° resolution, offset function for relative measurement, Min/Max/Avg, data Hold, backlit display, °F/°C/K selection, and auto power off. Double-molded heavy-duty housing provides superior protection—ideal for tough applications. The meter has a built-in USB port and includes software for recording measurements to a PC.

What's included: Windows®-compatible software, USB cable, two type K wire probes, infrared probe, hard carrying case, and one 9 V battery.

Specifications

CE

Resolution: 0.1° below 200°, 1° above 200°
Accuracy: ±0.15%
Display: three-line backlit LCD
Power: one 9 V battery (included)
Dimensions (W x H x D): 3" x 8" x 2" (7.6 x 20.3 x 5.1 cm)

Catalog number	Type	Range	Price
TW-95001-30	Dual input, type K	328 to 2501°F (–200 to 1372°C)	

TW-08439-72 **Surface thermocouple type K probe;** 5" (12.7 cm) L, –418 to 1200°F (–250 to 649°C)
TW-08439-92 **Air/gas thermocouple type K probe;** 5" (12.7 cm) L, –418 to 572°F (–250 to 300°C)
TW-08439-62 **General-purpose thermocouple type K probe;** 4½" (11.4 cm) L, –418 to 1650°F (–250 to 899°C)
TW-09376-04 **Replacement batteries,** 9 V. Pack of 4
TW-17002-10 **NIST-traceable calibration** for thermocouple system (meter and probe)

95001-30

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Multi-Input Thermocouple Thermometers

Single- or four-input models, with or without data logging, suit any application

- Data logging models can store up to 16,000 data points

These unique portable thermometers can communicate with a computer via a bidirectional RS-232 port and displays data on a large LCD. Each meter features Min/Max, Hold, °F/°C selectable units, zero point adjustment, tripod screw, relative temperature (models 94461-30 and -45), and auto power-off to save on battery power.

Models 94461-30 and 94461-35 have the unique ability to simultaneously show data from up to four type K thermocouple probes. These meters also feature a clock and calculate temperature differential (T1–T2).

Models 94461-35 and 94461-45 can automatically data log up to 16,000 data points in the field which can later be downloaded to your computer. These models come complete with a RS-232 computer cable and software.

What's included: one type K beaded-wire thermocouple (two for models 94461-30 and -35), foam-lined case, and one 9 V battery. Models 94461-35 and -45 also include a RS-232 cable and software.

94461-35

Specifications

CE 3 year warranty

Resolution: 0.1°F (0.1°C)
Accuracy: ±2°F (±1°C) full-scale, ±0.5% of reading
Output: bidirectional RS-232
Display: backlit LCD
Power: one 9 V battery (included) or optional AC adapter
Dimensions (W x H x D): 2½" x 7¼" x 1¼" (6.4 x 18.4 x 3.2 cm)

Catalog number	Type	Data logger	Range	Price
TW-94461-45	Single input, K	Yes	–328 to 2498°F (–200 to 1370°C)	
TW-94461-30	Four inputs, K	No		
TW-94461-35	Four inputs, K	Yes		

TW-08516-55 **General-purpose thermocouple** type K probe; 5" (12.7 cm) L
TW-94461-25 **Water-resistant pouch**
TW-94461-61 **AC adapter,** 115 VAC
TW-01618-51 **Benchtop tripod**
TW-01618-52 **Field tripod**
TW-94461-60 **RS-232 cable** for 94461-30
TW-09376-04 **Replacement batteries,** 9 V. Pack of 4
TW-17002-10 **NIST-traceable calibration** for thermocouple system (meter and probe)

Waterproof Thermocouple and Thermistor Data Logging Thermometer

Waterproof, all-metal housing makes this meter ideal for harsh environments

- Watertight construction and probe connection for a completely IP67 rated system
- Real-time and logged data transfer to PC via USB docking station

Thermometer features watertight construction and uses Lumberg connection probes to ensure that water and dirt do not infiltrate the body. Rugged metal housing with over-molded boot further protects the instrument, ensuring a long life. Meter logs over 10,000 readings at intervals from 1 second to 24 hours. Stored data is transferred to docking station through an infrared port on the back of the meter; the data can then be uploaded to a PC via a USB cable.

Meter accepts both thermocouple and thermistor probes. The unit can also be field calibrated. Other features include two-line LCD, clock with alarm, alarm timer, over-temperature alarm, Min/Max, record, data hold, °C/°F selection, and auto off.

What's included: docking station and battery.

96001-80

96001-83

Specifications

CE

Resolution: 0.1°/1°
Accuracy: ±0.1% of reading + 0.4°F (0.2°C)
Data logging: 16,000 readings
Display: 4½-digit LCD
Power: two AA batteries
Battery life: 7000 hours
Dimensions (W x H x D): 6.4" x 2.3" x 1.3" (16.3 x 5.8 x 3.3 cm)

Catalog number	Type	Range	Price
TW-96001-80	Single input; K, T	Type K: –328 to 1112°F (–200 to 600°C), Type T: –328 to 752°F (–200 to 400°C), Thermistor: –58 to 302°F (–50 to 150°C)	

TW-96001-81 **Type T,** Lumberg connection probe; –148 to 500°F (–100 to 250°C)
TW-96001-82 **Type T,** Lumberg connection probe with taper end; –148 to 500°F (–100 to 250°C)
TW-96001-83 **Type T** Lumberg connection probe with alligator clip; –40 to 950°F (–40 to 510°C)
TW-96001-84 **Type K** Lumberg connection probe with taper end; –148 to 500°F (–100 to 250°C)
TW-96001-85 **Type K** stainless steel penetration, Lumberg connection probe; –58 to 500°F (–50 to 250°C)
TW-96001-86 **Type T** stainless steel braided wire, Lumberg connection probe; –40 to 950°F (–40 to 510°C)
TW-17002-10 **NIST-traceable calibration with data,** for thermocouple meter and probe
TW-17000-06 **NIST-traceable calibration with data,** for thermistor meter and probe

Waterproof Thermocouple Thermometers

Optimal choice for accuracy and maximum durability in foodservice applications

- Large, easy-to-read LCD

This thermometer is a waterproof instrument built specifically for the harsh environments found in a commercial kitchen or food processing plant. The ABS housing is ergonomically designed with a large easy-to-read display and a curved back that fits nicely in your hand. Powerful microprocessor delivers speed and reliability with a unique memory that stores the calibration settings and reduces the need for frequent recalibration.

Each instrument features selectable °F/°C units, on/off button with auto-off after 10 minutes of nonuse, and easy twist-open watertight battery hatch. Advanced model 90025-08 offers additional features including a back light, user-selectable resolution, hold function that freezes the current reading, and the ability to disable the auto-off function. The AquaTuff can be used with any type K thermocouple probe with a standard mini-connector; some food-industry-specific probes are listed below.

What's included: calibration document supplied by the manufacturer and two AAA batteries.

90025-07

90025-08


90025-11


90025-09

Specifications

CE NSF 5 year warranty

Resolution: 0.1°F/C (0.1, 1°F/C; user selectable for model 90025-08)
Accuracy: ±0.5°F (±0.3°C) across entire range at ambient from 68 to 86°F (20 to 30°C)
Display: 4-digit LCD
Power: two AAA batteries (included)
Battery life: 1800 hours
Dimensions (W x H x D): 2¾" x 6½" x 1¼" (7 x 16.5 x 3.2 cm)

Catalog number	Type	Range	Price
TW-90025-07	Single input, K	–100 to 999°F (–73 to 537°C)	
TW-90025-08	Advanced featured, single input, K		

TW-09376-00 **Replacement batteries,** AAA. Pack of 12
TW-17002-10 **NIST-traceable recalibration** with data for thermocouple meter and probe

Probes

Catalog number	Description	Range	Price
TW-90025-14	Micro-needle thermocouple type K probe with 0.085" (2.16 mm) dia penetration tip	–100 to 500°F (–73 to 260°C)	
TW-90025-13	Extra-rugged needle thermocouple type K probe with 0.043" (1.09 mm) dia penetration tip	–40 to 500°F (–40 to 260°C)	
TW-90025-16	Needle thermocouple type K probe with 0.125" (3.18 mm) dia penetration tip	–40 to 500°F (–40 to 260°C)	
TW-90025-09	Weighted griddle-surface thermocouple type K probe with 2½" (63.5 mm) dia head	500°F (260°C) max	
TW-90025-11	120° angled surface thermocouple type K probe with 0.5" (12.7 mm) dia tip	–40 to 500°F (–40 to 260°C)	
TW-90025-12	Pipe clamp thermocouple type K probe for pipe diameters from ¼" to 1⅜" (6.3 to 34.9 mm)	–20 to 300°F (–29 to 149°C)	

Waterproof Thermocouple Meter with Temperature Stabilization

Intelligent Temperature Stabilization (ITS) mode displays only the final stabilized temperature, eliminating any guesswork

- Store up to 250 readings in memory
- Fast-response probe with heavy-duty cable that is reinforced with Kevlar®

This thermometer is waterproof and features Intelligent Temperature Stabilization (ITS), preventing the temperature from being displayed until stabilized. While in the ITS mode, you have the option of recording the stabilized temperature into memory. The memory can store up to 250 readings, which can then be reviewed by scrolling. When ITS mode is not selected, the instrument functions as a standard thermocouple thermometer.

The ABS housing is ergonomically designed with a large easy-to-read display and a curved back that fits nicely in your hand. Powerful microprocessor delivers speed and reliability with a unique memory that stores the calibration settings and reduces the need for frequent recalibration. Other features include selectable °F/°C units, back light, user-selectable resolution, Hold function, auto-off, and watertight battery hatch.

What's included: needle probe and two AAA batteries.

NEW

90025-18

Specifications

CE 5 year warranty Meter only

Resolution: 0.1°F (0.1°C)
Accuracy: ±0.9°F (±0.5°C) total system between 68 to 86°F (20 to 30°C)
Display: 4-digit LCD
Power: two AAA batteries (included)
Battery life: 1800 hours
Dimensions (W x H x D): 2¾" x 7⅛" x 1⅜" (7.0 x 18.1 x 3.5 cm)

Catalog number	Type	Range	Price
TW-90025-18	Single input, K	–100 to 500°F (–73 to 260°C)	

TW-90025-14 **Replacement micro-needle thermocouple type K probe;** 6" (15.2 cm) shaft, 0.085" (2.2 mm) tip dia
TW-09376-00 **Replacement batteries,** AAA. Pack of 12
TW-17002-10 **NIST-traceable calibration** with data for thermocouple system (meter and probe)

Find MORE!
For probes compatible with our wide selection of thermocouple meters, see **pages 1747–1771.**

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Waterproof Thermocouple Thermometers

Ideal for use in food processing, HVAC, and industrial applications

- IP67-rated case is water- and dustproof
- Interactive menu allows for easy selection of all features

Thermometers are ideal for use in industrial, food processing, HVAC, refrigeration, and many more applications. They have a high degree of accuracy, rapid response time, and exceptional battery life. All models accept thermocouple probes with miniature connection, and feature an IP67-rated case, °F/°C selectable units, data Hold, and auto-off function. Each unit has BioCote® antimicrobial protection ideal for use in the food industry.

Model 90025-25 accepts only type K and T thermocouples, and includes a clock, countdown timer, and multiple alarm functions. This meter also features a long-life 10-year battery (nonreplaceable).

Model 90025-30 has dual inputs that accepts eight different thermocouple types, displays in °F, °C and °K and includes a min/max function and temperature differential for maximum versatility.

What's included: certificate of conformity and batteries.


90025-25


90025-30

Specifications

CE 2 year warranty

Resolution
Below 1832°F (1000°C): 0.1°
Above 1832°F (1000°C): 1°

Accuracy: ±0.1% of reading, ±0.4°F /±0.2°C

Display: 4-digit LCD, ½"H

Power
Model 90025-30: two AA batteries (included)
Model 90025-25: one long-life battery (included)

Battery life: 7000 hours (approx)

Dimensions (W x H x D): 3⅛" x 7¼" x 1¼" (7.9 x 18.4 x 3.2 cm)

Catalog number	Type	Range	Price
TW-90025-25	Single input; K, T	K: -328 to 2501°F (–200 to 1372°C) T: -328 to 752°F (–200 to 400°C)	
TW-90025-30	Dual input; B, E, J, K, T, R, S, N	B: 392 to 3272°F (200 to 1800°C) E: –328 to 1032°F (–200 to 1000°C) J: –328 to 2192°F (–200 to 1200°C) K: –328 to 2502°F (–200 to 1372°C) T: –328 to 752°F (–200 to 400°C) R: –58 to 3212°F (–50 to 1767°C) S: –58 to 3212°F (–50 to 1767°C) N: –328 to 2372°F (–200 to 1300°C)	

Accessories

TW-08500-55 General-purpose thermocouple type T probe; 5" (12.7 cm) L, 752°F (400°C) max

TW-08516-55 General-purpose thermocouple type K probe; 5" (12.7 cm) L, 1652°F (900°C) max

TW-08517-55 General-purpose thermocouple type J probe; 5" (12.7 cm) L, 1400°F (760°C) max

TW-90025-36 Food-penetration thermocouple type K probe; with 1.6-mm penetration tip, –58 to 482°F (–50 to 250°C)

TW-90025-37 Frozen food penetration thermocouple type K probe; with 1.6-mm penetration tip, –58 to 482°F (–50 to 250°C)

TW-90025-38 Food-penetration thermocouple type K probe; with 1.1-mm penetration tip, –58 to 482°F (–50 to 250°C)

TW-90025-39 Grill surface food thermocouple type K, probe; with 45° crank, –58 to 482°F (–50 to 250°C)

TW-90025-40 Protective rubber boot

TW-90025-45 Carrying case

TW-09376-01 Replacement batteries, AA. Pack of 4

TW-17002-10 NIST-traceable calibration for thermocouple system (meter and probe)

Professional Waterproof Foodservice Thermocouple Thermometer

Waterproof design is ideal for working in adverse conditions

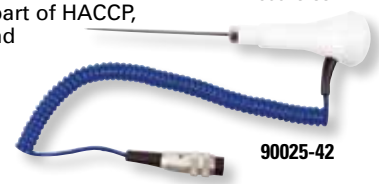
- IP68-rated case is water- and dustproof
- Exceptional battery life of up to 10 years
- Accepts both thermocouple and thermistor probes

Designed specifically for the food industry, this thermometer has a high degree of accuracy, rapid response time, and exceptional battery life. The unit accepts thermistor and type K and T thermocouple probes with Lumberg locking connectors, which ensures a waterproof seal between the meter and probe.

Interactive menu allows for easy selection of all features including temperature scale, min/max, data hold, clock, countdown timer, multiple alarm functions, and auto-off. The meter case is impregnated with an antimicrobial agent (BioCote™) which effectively inhibits the growth of a wide range of microorganisms. BioCote and its protection are accepted as part of HACCP, due diligence, and health and safety procedures to reduce cross-contamination.

What's included: certificate of conformity and batteries.


90025-33


90025-42

Specifications

CE 2 year warranty

Resolution
Below 1832°F (1000°C): 0.1°
Above 1832°F (1000°C): 1°

Accuracy
Type K or T: full range 0.1% ± 0.4°F (0.2°C)
Type T: ±0.9°F (0.5°C) from 32 to 158°F (0 to 70°C)
Thermistor <±0.6°F/0.3°C between 32 to 158°F (0 to 70°C)

Display: 4-digit LCD, ½" (1.2 cm) H

Power: two AA 3.6 V lithium cell batteries, nonreplaceable

Battery life: 10 years (4 hours use per day, 365 days per year)

Dimensions (W x H x D): 3⅛" x 7¼" x 1¼" (7.9 x 18.4 x 3.2 cm)

Catalog number	Type	Range	Price
TW-90025-33	Single input; K, T, and thermistor	K: –328 to 2501°F (–200 to 1372°C) T: –328 to 752°F (–200 to 400°C) Thermistor: –58 to 302°F (–50 to 150°C)	

TW-90025-43 Food-penetration thermocouple type T probe, with Lumberg connection and 1.1-mm penetration tip; –148 to 482°F (–100 to 250°C)

TW-90025-42 Food-penetration thermocouple type T probe, with Lumberg connection and 3.3-mm penetration tip; –148 to 482°F (–100 to 250°C)

TW-90025-40 Protective rubber boot

TW-90025-45 Carrying case

TW-17002-10 NIST-traceable calibration with data for thermocouple system (meter and probe)

Compact Waterproof Thermocouple Thermometer

Ideal for use in harsh environments including the food industry

- IP67-rated housing and keypad is dishwasher safe
- Compact size allows for convenient storage
- NIST-traceable

This meter has a robust splash/impact-resistant ABS food-safe housing, with a large LCD which is dishwasher safe. The use of an advanced internal microprocessor that updates every five seconds and a highly accurate type T thermocouple produces a high level of accuracy. Remote probe has a 2-ft (0.6-m) cable and corrosion-resistant stainless steel penetration tip. The meter features the ability to adjust the sampling intervals, °F/°C selectable units, battery-life indicator, and auto shutoff.

What's included: integral type T probe, one long-life lithium battery, and NIST-traceable calibration report supplied by the manufacturer.

91210-37

Specifications

Resolution: 1°F/°C full range
Accuracy: ±0.9°F (±0.5°C) from –60 to 250°F (–50 to 120°C)
Display: 3½-digit LCD
Power: one 5-year lithium battery (included)
Dimensions (W x H x D): 2" x 4½" x ¾" (5.1 x 11.4 x 1.9 cm)

Catalog number	Type	Range	Price
TW-91210-37	Single input, T	–60 to 570°F (–50 to 300°C)	

TW-91210-38 Replacement battery
TW-17002-10 NIST-traceable recalibration with data, for thermocouple meter and probe

Data Logging 4-Channel Thermocouple and RTD Thermometer with SD Card Memory

Records data onto an SD card in Excel® format for easy transfer to a PC for analysis

- Data logging capability up to 20,000 records using a 2G SD card
- User programmable sampling rate from 1 to 3600 seconds
- Manual store and recall of up to 99 records
- Records readings with real-time/date stamp

NEW

Four-channel data logging thermometer accepts both thermocouple and RTD probes. Data is recorded onto a standard SD memory card, instead of a built-in memory; the advantage is that when the memory is full, the SD card can be simply changed out for unlimited data storage.

The removable SD card is easy to transport and inserts into a computer's memory card slot or SD card reader for upload. The data is provided in Excel, allowing you to easily analyse the information without the need for additional software. Data can also be streamed directly to a computer using the RS-232 port on the meter.

Features include min/max and hold functions, temperature differential, offset adjustment, time-and-date stamp, auto power off, and low-battery indication.

What's included: type K beaded wire temperature probe, 2 GB SD card, USB cable, carrying case, and six AA batteries.

95001-32

Specifications

Resolution: 0.1°F (0.1°C)
Accuracy
Types J, K, T, E: ±0.4% rdg (+1.8°F/+10°C)
Types R, S: ±0.5% rdg (+2°F/+1°C)
Data logging: manual store/recall of up to 99 records; auto store up to 20,000 records using 2G SD card
Output: SD card and RS-232 interface
Display: 5-digit LCD
Power: six AA batteries
Dimensions (W x H x D): 2¾" x 7" x 2" (6.8 x 17.7 x 4.5 cm)

Cat. no.	Type	Range	Price
TW-95001-32	Four inputs; J, K, T, E, R, S, RTD	Type J: –346 to 2012°F (–210 to 1100°C); Type K: –328 to 2501°F (–200 to 1372°C); Type T: –58 to 752°F (–50 to 400°C); Type E: –58 to 1652°F (–50 to 900°C) Type R: 32 to 3092°F (0 to 1700°C); Type S: 32 to 2732°F (0 to 1500°C) RTD (100 Ω Pt): –327 to 162°F (–200 to 850°C)	

TW-37803-70 SD card reader with USB interface
TW-08439-60 General-purpose thermocouple type J probe, 4½" (11.4 cm) L
TW-08439-62 General-purpose thermocouple type K probe, 4½" (11.4 cm) L
TW-08515-00 Thermocouple type J probe; flexible insulated-wire, 3-ft (0.9-m) L
TW-08515-01 Thermocouple type K probe; flexible insulated-wire, 3-ft (0.9-m) L
TW-09376-01 Replacement batteries, AA. Pack of 4
TW-17002-10 NIST-traceable calibration with data for thermocouple system (meter and probe)

Find MORE!
For probes compatible with our wide selection of thermocouple meters, see **pages 1747–1771.**

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12-Channel Thermocouple Thermometer with SD Card Memory

Accurately measures 12 channels of temperature independently

- Records data onto an SD card in Excel® format for easy transfer to a PC for analysis
- Data logging capability up to 20,000 records using a 2G SD card

This 12-channel meter has automatic temperature compensation and is designed to work with the six most popular thermocouple types: J, K, T, E, S, and R. Data logging capability up to 20,000 records using a 2G SD card, with user-programmable sampling rate from one second up to one hour.

Data is recorded onto a standard SD memory card instead of the built-in memory, offering unlimited data storage. The data on the SD card is provided in an Excel format. Data can also be streamed directly to a computer using the RS-232 port on the meter.

Additional meter features include a large 2½" backlit display, min/max, hold, offset adjustment, loop data recording, sampling interval, date-and-time stamp, selectable units of measure, period or comma decimal point division, auto power off, and low-battery indication. The unit operates on either battery or AC power.

What's included: two type K beaded wire temperature probes, 2G SD card and hand carrying case.

NEW

37803-08

Specifications

Resolution
Types J, K, T, E: 0.1° below 1000°F (537°C) and 1° above 1000°F (537°C)
Types R, S: 1°

Accuracy
Types J, K, T, E: ±0.4% of reading + 2° max
Types R, S: ±0.5% of reading + 2° max

Data logging: manual store/recall of up to 99 records; auto store up to 20,000 records using 2G SD card

Output: SD card and RS-232 interface

Display: 5-digit LCD

Power: eight AA batteries (not included) or 110 VAC adapter (not included)

Dimensions (W x H x D): 5" x 8¾" x 2½" (12.5 x 22.5 x 6.4 cm)

Cat. no.	Type	Range	Price
TW-37803-08	Twelve inputs; J, K, T, E, N, R, S, B	Type J: –148 to 2102°F (–100 to 1150°C); Type K: –148 to 2372°F (–100 to 1300°C) Type T: –148 to 752°F (–100 to 400°C); Type E: –148 to 1652°F (–100 to 900°C) Type R: 32 to 3092°F (0 to 1700°C); Type S: 32 to 2732°F (0 to 1500°C)	

TW-37803-70 **SD card reader** with USB interface
TW-37803-09 **Power adapter** for 110 VAC power supply, 9 VDC
TW-09376-01 **Batteries,** AA. Pack of 4
TW-17000-10 **NIST-traceable calibration** with data for meter
TW-17002-10 **NIST-traceable calibration** with data for thermocouple system (meter and probe)

Digi-Sense® 12-Channel Thermocouple Scanning Thermometer

Store and recall up to 4680 sets of readings with time and date

- Automatically or manually display, record, and output temperature readings
- Field calibrate each probe separately

This 12-channel scanning thermometer is your best choice when monitoring temperatures during different processes. Meter functions as a data logger which later can be download to your printer or PC. Link in series to expand the number of channels you can scan. Each of the 12 thermocouple inputs are programmable to scan from every four seconds to every hour. Graph in real time with software (included). Includes a real-time clock and accepts thermocouple probes with miniconnectors.

Back view

Benchtop 12-channel scanning thermometer 92000-00

Specifications

Resolution: 0.1°/1° selectable up to 999.9°; 1° above 1000° and below –150°F/°C

Accuracy
J, K, T, E, N: ±0.1% of reading, ±0.8°F (±0.5°C) above –240°F (–150°C); ±0.25% of reading, ±2°F (±1°C) below –240°F (–150°C)
R, S, B: ±0.1% of reading, ±4°F (±2°C)

Digital output: RS-232, ASCII format, baud rate 19.2 K, RJ11 connector and parallel printeroutput; DB25F connector

Display: 12-character alphanumeric LCD

Display update rate: 3 seconds/channel

Scan rate: from 4 seconds/12 channels to 99 minutes 59 seconds/12 channels

Dimensions (L x W x H): 7½" x 10½" x 3½" (19.1 x 26.7 x 8.9 cm)

Power: 115/230 VAC, 10 to 24 VDC, 7 to 20 VAC; 50/60 Hz

Cat. no.	Type	Range	Power	Price
TW-92000-00	Twelve inputs; J, K, T, E, N, R, S, B	J: –392 to 1832°F (–200 to 1000°C) K: –418 to 2501°F (–250 to 1372°C) T: –418 to 752°F (–250 to 400°C) E: –418 to 1832°F (–250 to 1000°C) N: –418 to 2372°F (–250 to 1300°C) R: 32 to 3214°F (0 to 1768°C) S: 32 to 3214°F (0 to 1768°C) B: 392 to 3272°F (200 to 1800°C)	115 VAC, 50/60 Hz	
TW-92000-05			230 VAC, 50/60Hz	

TW-22050-04 **Parallel printer cable**
TW-17002-10 **NIST-traceable calibration with data,** for thermocouple meter and probe

US Toll-free: 800-323-4340 • Outside the US: 1-847-549-7600 • www.coleparmer.com
Canada 800-363-5900 • India 91-22-6716-2222 • UK 0500-345-300

InnoCal® provides services that ensure the accuracy of your Temperature Measurement Instruments

- **New Instrument Calibrations:** Our A2LA-accredited metrology lab provides NIST-traceable calibrations so your new purchase is ready to use as soon as you receive it—right out of the box! No need to waste time sending it to a third party or waiting for your calibration department to get to it. Your new product investment meets quality standards and regulatory requirements the first time you use it!
- **Recalibration Services:** Ship your existing instrument to our lab for recalibration. We clean, calibrate, and quickly return your equipment—with documentation—to keep your business running smoothly.
- **Maintenance and Repair Services:** Keep your valuable equipment up and running with scheduled preventive maintenance and repair. Our experienced service technicians are factory trained to provide factory-authorized service for both laboratory and industrial process equipment and instruments.

Choose the best option for you. One call to **1-847-549-7600** puts you on the way to ensuring the accuracy of your instrumentation.

Plus! Receive convenient reminders when it is time to recalibrate or service your instruments.

Trust InnoCal®, our accredited laboratory, to satisfy your calibration and equipment repair needs

Calibration Traceable to NIST

Calibration Report with test data includes:

- Description and identification of the item
- Condition of the item as received
- Identification of calibration procedure
- Calibration date
- As found/as left test data
- Electronic signature of technician
- Statement of measurement uncertainty
- Test uncertainties (TURs)
- List of standards used to perform calibration (including their calibration dates)

InnoCal conforms to*

A2LA ACCREDITED CALIBRATION CERT 1746.01™

ANSI/ISO/IEC 17025:2005 accredited
NIST Handbook 150, 2000 Edition
ANSI/NCSL Z540-2-1997
NIST Technical Note 1297
ISO 9000:2000

*Please check our scope of accreditation for any limitations.

MORE online!

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- Scope of accreditation
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And **now** be audit-ready all the time with

INNOTRAK™

Easy 24/7 on-line retrieval of your instrument's NIST-traceable calibration documentation.
ColeParmer.com/INNOTRAK

Glass Thermometers Calibrations

InnoCal can calibrate any type of liquid-in-glass thermometer including spirit and mercury-filled. We service all major brands of thermometers and are the largest authorized service center for recalibration of Thermo Scientific ERTCO® glass thermometers.

Calibrations on glass thermometers are performed using direct comparison in high-stability liquid baths using high-precision PRT's and SPRT's and displays. Thermometers are inspected for cracks and liquid-column separations before testing. Measurements are performed at specified points between –197°C and 550°C (–322°F to 530°F).

Catalog number	NIST-traceable report for:	Price
TW-17006-01	One test point. For bottle freezer/refrigerator glass thermometer only.	
TW-17006-03	Two to four points.	
TW-17006-05	Five to nine test points.	
TW-17006-06	Ten to fifteen test points.	
TW-17006-10	Certificate of accuracy. Not an NIST-traceable service.	

Temperature Calibrator Calibrations

InnoCal can calibrate most any brand of temperature bath, dry-well, dry block, and metrology well. Multiple test points are taken across the range of the instrument.

Catalog number	NIST-traceable report for:	Price
TW-17002-16	Dry-well calibrator. Single well from –40 to 500°C (–40 to 932°F).	
TW-17002-17	Dry-well calibrator. Dual well from –40 to 500°C (–40 to 932°F).	
TW-17002-18	Dry-well calibrator. Single well; high-temperature from 500 to 1100°C (932 to 2012°F).	
TW-17002-24	Metrology well. High accuracy of better than 1°C	
TW-17002-19	Infrared calibrator. From –30 to 1000°C (–22 to 1832°F).	

Infrared (IR) Temperature Calibrations

NIST-traceable infrared thermometer calibrations are performed by using black-body calibration sources with defined emissivities.

Catalog number	NIST-traceable report for:	Price
TW-17004-00	Infrared thermometer. Four test points across range, –15 to 500°C (5 to 932°F)	
TW-17101-62	Infrared temperature sensor (transducer). Range per manufacturer's specifications.	
TW-17004-20	Infrared thermometer and probe. Four test points across range, –15 to 500°C (5 to 932°F)	
TW-17002-19	Infrared calibrator. Mulitple test points accross range, from –30 to 1000°C (–22 to 1832°F)	

Temperature Meter Calibrations

InnoCal calibrates all major brands of handheld and benchtop temperature meters including thermocouples, thermistors, RTDs, and bimetal thermometers.

Calibrations on handheld digital indicators are performed using direct comparison in high-stability liquid and dry baths using high-precision PRT's and SPRT's and displays. Measurements are performed at four points across the range of the instrument or system.

Thermometry type	NIST-traceable report for:	Meter only calibration		System (meter and probe calibration)	
		Catalog number	Price	Catalog number	Price
Thermocouple, standard types	Four points across the range of the instrument. Meter: –270 to 2316°C (–454 to 4200°F) Probe and System: –80 to 1300°C (–112 to 2372°F) dependent on probe	TW-17000-10		TW-17002-10	
Thermocouple, cryogenic	Low temperature to –197°C (–322°F)	—	—	TW-17103-25	
Thermistor	Four points across the range of the instrument. Meter and system: –80 to 150°C (–112 to 302°F) dependent on probe	TW-17000-06		TW-17002-06	
RTD	Four points across the range of the instrument. Meter: –200 to 1000°C (–328 to 1832°F) Probe and System: –80 to 1000°C (–112 to 1832°F) dependent on probe	TW-17000-04		TW-17002-04	
Bimetal or dial	Four test points across range, –197 to 1000C°(320 to 1832F°)	—	—	TW-17003-00	
Pocket digital indicator	Four test points across range, –80 to 150°C (–112 to 302°F)	—	—	TW-17101-61	
Scanning thermometer	Meter only: four test points across range of instrument.	TW-17101-79		—	—
Scanning thermometer, 12-channel	System: four test points with probes, –80 to 1300°C (–112 to 2372°F)	—	—	TW-17103-12	
Scanning thermometer, 24-channel	System: four test points with probes, –80 to 1300°C (–112 to 2372°F)	—	—	TW-17103-24	

Temperature Probe Calibrations

InnoCal can calibrate all standard type of thermocouples, thermistors, RTDs, and HART®-style PRTs. Calibrations on probes are performed using direct comparison in high-stability liquid and dry baths using high-precision PRT's and SPRT's and displays.

Catalog number	NIST-traceable report for:	Price
TW-17001-10	Thermocouple, all standard types, probe only: –80 to 1300°C (–112 to 2372°F)	
TW-17001-06	Thermistor probe only: –80 to 150°C (–112 to 302°F)	
TW-17001-04	RTD probe only: –80 to 1000°C (–112 to 1832°F)	
TW-17001-11	HART®-style PRT. Range per manufacturer's specifications.	
TW-17004-10	Infrared probe: –15 to 500°C (–5 to 923°F)	

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Tech Insights

What is a Thermistor?

Thermistor thermometry is based on the principle that metal oxides change resistance with a change in temperature. Thermistors decrease in resistance as the temperature increases. This resistance change is detected by the meter where it is converted and displayed as a temperature reading.

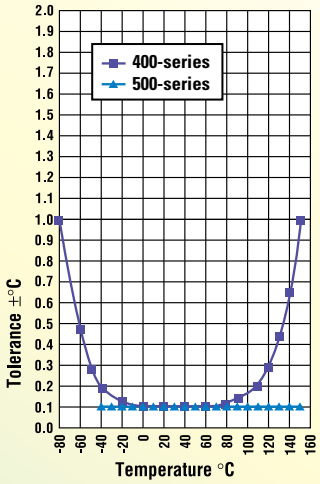
Why Choose a Thermistor?

Thermistors have excellent accuracy over the biological or ambient temperature ranges when compared to RTDs or thermocouples. Response times are generally faster than RTD probes.

Differences Between 400-Series and 500-Series Probes

The 400-series probes have a resistance of 2252 Ω at 25°C and maintain a tolerance of ±0.1°C in the range of 32 to 167°F (0 to 75°C). See the chart at right for tolerances outside this range.

The 500-series probes are recommended where small size is a requirement. A conversion chart is supplied with each 500-series probe to correct the readings for use with a 400-series meter.



OAKTON® Acorn® Thermistor Thermometers

Splashproof sealed membrane keypad makes cleanup easy

- Protective rubber boot with built-in stand included

These accurate thermometers feature °F/°C selection, Hold button to freeze readings, and auto power-off function after 17 minutes. The Min/Max keys momentarily display the lowest/highest values since the meter was powered on. Model 35626-10 comes complete with probe (meter is not compatible with any other probes). Model 35626-00 is compatible with all 400- and 500-series probes and the general-purpose probe 35626-60 (sold separately below).

Specifications

CE 3 year warranty

Range: –40.0 to 257.0°F (–40.0 to 125.0°C)
Resolution: 0.1°F/°C
Accuracy: ±0.4°F (±0.2°C)
Display: 3-digit LCD, 7/8"H
Power: four AAA batteries (included)
Battery life: >200 hours
Dimensions (W x H x D): 2 3/4" x 5 1/2" x 1 1/2" (7.0 x 14.0 x 3.8 cm)

Description	Meters		Precalibrated meters	
	Catalog number	Price	Catalog number	Price
Thermistor includes standard probe with 2.5-mm phone jack connector	TW-35626-10		TW-85000-06	
Thermistor accepts all 400- and 500-series probes (not included)	TW-35626-00		TW-85000-04	

TW-35626-50 Replacement probe for 35626-10 meter; 316 SS with 3-ft (1-m) cable
TW-93824-00 General-purpose probe for 35626-00 meter; 316 SS with 5-ft (1.5-m) cable
TW-35606-80 Replacement protective rubber boot with built-in stand
TW-09376-00 Replacement batteries; AAA. Pack of 12
TW-17002-06 NIST-traceable calibration with data for thermistor system (meter and probe)

Model 35626-10 includes a standard probe.

Thermometers include protective rubber boot.

Calibrate NOW & SAVE!
INNOCAL®
Save 10% off the NIST-traceable calibration when you order your product precalibrated.

Find MORE!
For probes compatible with our thermistor meters, see **pages 1761–1762**.

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OAKTON® Standard and Data Logging Thermistor Thermometers

Heavy-duty thermometer offers versatility and accuracy in a compact design

- 3-way hands-free operation
- Large, easy-to-read screen with backlight
- Rugged armor is built to withstand the toughest conditions
- Easy-to-use automatic field calibration ensures accurate readings
- Temp-340 can log up to 2000 sets of readings in real time with time-and-date stamp

These robust and reliable meters work in any environment from the lab to the production floor. The sturdy armored construction protects against knocks and jars. Meters are ergonomically designed for both large and small hands alike. The sealed keypad and ABS plastic case meet IP54 standards for splash resistance. Automatic field calibration is easily performed: simply place the probe in a container packed with ice, fill with water, then press the "CAL" button—meter automatically recognizes the freezing point.

Temp-14 Thermometer features a five-button control panel, Min/Max and Hold functions, °F/°C selection, auto shutoff, and low-battery indicator.

Temp-340 Thermometer features real-time data logging and a USB data output. The seven-button control panel and intuitive on-screen menus guide you in choosing your desired functionality. Additional meter features include Min/Max, Hold, and average functions; °F/°C selection; time stamp/clock; countdown timer; out-of-range alarm with audible/visible indicator; auto shutoff; and low-battery indicator. Manually store or automatically log up to 2000 sets of readings in real time. Log interval is selectable from 1 second to 60 minutes. Order an optional AC adapter to conserve battery life during extended operation.

OAKTON's exclusive "3-WAY HANDS-FREE" capability allows "hands-free" operation—use the built-in stand on a table top, attach the meter to metal objects through magnets inserted into the armor boot, or hang from a pipe or belt using the hook-and-loop strap. Meter comes standard with the integral stand; the "hands-free" option adds magnets and strap (order separately below).

What's included: protective rubber armor boot with built-in stand and three AA batteries.

Temp-340 data logging thermometer 91426-50

Exclusive "3-WAY HANDS-FREE" capability

Calibrate NOW & SAVE!
INNOCAL®
Save 10% off the NIST-traceable calibration when you order your product precalibrated.

Specifications

CE IP54 3 year warranty

Display: 4-digit, custom dot matrix display; ¼" x ½" (0.6 x 1.3 cm) digits, 2¼" x 1½" (5.7 x 3.8 cm) backlit viewing area

Power: three AA batteries (included) or optional AC adapter

Battery life
Temp-14: 700 hours continuous (without use of backlighting)
Temp-340: 400 hours with sleep mode (without use of backlighting, buzzer, and USB)

Dimensions (W x H x D): 4" x 7" x 2" (10.2 x 17.8 x 5.1 cm), with protective boot

Model 91426-50 only
Data logging: 2000 real-time readings, with time-and-date stamp
Logging interval: 1 second to 60 minutes
Output: USB

Type	Range	Resolution	Accuracy	Meters		Precalibrated meters	
				Cat. no.	Price	Cat. no.	Price
Temp-14 single-input thermistor thermometer	–40.0 to 302.0°F (–40.0 to 150.0°C)	0.1°F/°C	From –40.0 to 257.0°F (–40.00 to 125.0°C): ±0.4°F (±0.2°C) From 257.0 to 302.0°F (125.0 to 150.0°C): ±0.9°F (±0.5°C)	TW-91426-00		TW-91426-01	
Temp-340 single-input thermistor data logging thermometer	–40.00 to 302.0°F (–40.00 to 150.0°C)	0.01 or 0.1°F/°C; auto-ranging to 0.1° above +99.99°	From –40.00 to 99.99°F (–40.00 to 99.99°C): ±0.06°F (±0.03°C) From 100.0 to 257.0°F (100.0 to 125.0°C): ±0.1°F (±0.1°C) From 257.0 to 302.0°F (125.0 to 150.0°C): ±0.9°F (±0.5°C)	TW-91426-50		TW-91426-51	

TW-35427-85 **Oakton "Hands-Free" option** includes two magnets and hook-and-loop strap

TW-35427-80 **Replacement boot** with built-in stand

TW-09376-01 **Replacement batteries,** AA. Pack of 4

TW-91427-99 **Adapter,** 115/230 VAC (for model 91426-50 only)

TW-17002-06 **NIST-traceable calibration** with data for thermistor system (meter with probe)

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Cole-Parmer® Kangaroo™ Thermistor Thermometer

Probe cable stores in a built-in compartment in the back of the meter

- Perfect "carry-around" portable thermometer fits in a shirt pocket
- High-impact ABS plastic case

86460-01

This pocket-sized meter comes with a 42" (106.7 cm) L probe cable that stores in the "Kangaroo Pouch" located in the back of the meter. Unwrap the desired length of cable required for your application and simply close the pouch door to lock the cable in place. The cable is attached to a highly accurate stainless steel probe that can be used from general-purpose to semi-caustic applications. Meter automatically captures and recalls minimum and maximum temperature readings over any time period. High and low alarm may be programmed in 1° increments, with the alarm sounding every minute until temperature returns to a non-alarm condition. The meter features selectable temperature scale; on/off, Min/Max, and Hold functions and alarm buttons.

What's included: Integral probe, NIST-traceable calibration report supplied by manufacturer, and one silver-oxide battery.

Specifications

Range: –58.0 to 572°F (–50.0 to 300°C)
Resolution: 0.1°F (0.1°C)
Accuracy: ±2°F between –22 and 482°F, otherwise ±4°F (±1°C between –30 and 250°C, otherwise ±2°C)
Display: 4-digit LCD, 1" (2.5 cm) H
Power: one silver-oxide coin cell battery (included)
Battery life: 1 year
Dimensions (W x H x D): 2½" x 4¾" x ½" (63 x 120 x 13 mm)

Catalog number	Description	Price
TW-86460-01	Single-input, type K	

TW-09376-14 Replacement batteries; 357 coin cell. Pack of 6
TW-17002-06 NIST-traceable recalibration with data for thermistor system (meter and probe)

Cole-Parmer® Continuous-Use Thermistor Thermometer

Always on—monitors temperature around the clock

08402-61

This thermometer can be used in foods, soils, cuvettes, water baths, wastewater, and incubators. Never again worry about leaving unit on—it's always on. Single battery runs continuously for one year. A high and low alarm may be programmed in 1° increments. When temperature exceeds set points, a 1-minute audible alarm signals an out-of-range condition. Alarm automatically resets when temperature returns to "in-range" reading. Alarm mode may be switched off when not required. Meter features Max/Min readings, countdown timer, and °F/°C selection. Comes with a flip-open stand for benchtop use, and the probe clips to unit for handy storage.

What's included: NIST-traceable calibration report supplied by manufacturer, probe, and one AAA battery.

Specifications

Range: –58 to 500°F (–50 to 260°C)
Resolution: 0.1°F (0.1°C)
Accuracy: ±2°F (±1°C) full range
Probe: 7¼" (18.4 cm) L x 0.14" (0.4 cm) dia, with 3-ft (1-m) cable
Display: 4-digit LCD, 0.4" (0.1 cm) H
Power: one AAA battery
Battery life: one year
Dimensions (W x H x D): 2" x 4" x ½" (5.1 x 10.2 x 1.3 cm)

Catalog number	Description	Price
TW-08402-61	Continuous-use thermistor thermometer	

TW-09376-00 Replacement batteries, AAA. Pack of 12
TW-17002-06 NIST-traceable recalibration with data for thermistor system (meter and probe)

Find MORE!
For probes compatible with our thermistor meters, see **pages 1761–1762.**

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Cole-Parmer® Mini-Thermistor Thermometer

The size of a business card—perfect to carry with you

Small but powerful unit reads across a wide temperature range, with a high degree of accuracy. Designed to easily fit in a tool box or coat pocket. Features an easy-to-read display, °F/°C selection, Hold button, on/off switch, and stainless steel probe.

What's included: NIST-traceable calibration report supplied by manufacturer, probe, and one silver-oxide coin cell battery.

08402-60

Specifications

CE

Range: –58 to 302°F (–50 to 150°C)
Resolution: 0.1° between –20 and 200°F (–28 to 93°C)
Accuracy: ±4.0°F (±2.0°C) full range and ±2°F (1°C) from 32 to 200°F (0 to 100°C)
Probe: 7" (17.8 cm) L x 0.14" (0.4 cm) dia stainless steel probe, with 18" (45.7 cm) L cable
Display: 4-digit LCD, 0.3" (0.8 cm) H
Power: one silver-oxide coin cell battery
Battery life: one year
Dimensions (W x H x D): 2" x 3" x ½" (5.1 x 7.6 x 1.3 cm)

Catalog number	Description	Price
TW-08402-60	Mini-thermistor thermometer	

Accessories

TW-09376-14 Replacement batteries; 357 coin cell. Pack of 6
TW-17002-06 NIST-traceable recalibration with data for thermistor system (meter and probe)

Quick-Action Penetration Thermistor Thermometer

Compact, practical, and always ready for use

- Monitors limit values

Ideal for quick, uncomplicated core temperature checks for use in food-related industries. Meter is designed to provide fast measurements without leaving visible penetration marks by using a special thin but robust food probe. Features an audible and visual limit alarm, Hold button, on/off switch, auto off, °F/°C selection, and a waterproof IP67-rated case. (Most features can be enabled or disabled on demand.)

What's included: waterproof case, holding clip, and two lithium batteries.

37803-62

Specifications

CE IP67 2 year warranty

Range: –58 to 530°F (–50 to 275°C)
Resolution: 0.1°F (0.1°C)
Accuracy: ±1% of reading
Probe: 2¾" (7.0 cm) L x 0.08" (0.2 cm) dia tip
Display: 4-digit LCD, ½" (1.3 cm) H
Power: two lithium batteries
Battery life: 350 hours
Dimensions (W x H x D): 1¼" x 8½" x ¾" (3.2 x 21.6 x 1.9 cm)

Catalog number	Description	Price
TW-37803-62	Quick-action penetration thermistor thermometer	

Accessories

TW-09376-17 Replacement batteries, CR2032. Pack of 6
TW-17002-06 NIST-traceable calibration with data for thermistor system (meter and probe)

Cole-Parmer® Water-Resistant Thermistor Thermometer

Perfect for use in the worst environments

Water/shock-resistant ABS plastic case is sealed to stop dirt, dust, fumes, and water. Reads both °F and °C on a jumbo, ¾" (1.9 cm) H LCD. Thermometer monitors temperature continuously for three years and features a selectable display update rate of 1 second or 10 seconds.

A high and low alarm may be programmed in 1° increments. When temperature rises above or falls below the set points, a 1-minute audible alarm signals an out-of-range condition, and a symbol flashes on the LCD. The alarm mode may be switched off for use as a non-alarm thermometer.

At the touch of a button, memory recalls highest and lowest temperature readings over any time period. Countdown timer function may be programmed in 1-minute increments from 99 hours 59 minutes.

What's included: NIST-traceable calibration report supplied by manufacturer, probe, soft carrying case, and two AAA batteries.

08402-62

Specifications

CE

Range: –58 to 500°F (–50 to 260°C)
Resolution: 0.1°F (0.1°C)
Accuracy: ±1% of reading or ±1°C
Probe: 4¼" (10.8 cm) L x 0.14" (0.4 cm) dia, with 4-ft (1.2-m) cable
Display: 4-digit LCD, ¾" (1.9 cm) H
Power: two AAA batteries
Battery life: one year
Dimensions (W x H x D): 2½" x 6½" x 1" (6.4 x 16.5 x 2.5 cm)

Catalog number	Description	Price
TW-08402-62	Water-resistant thermistor thermometer	

Accessories

TW-08402-63 Replacement probe
TW-09376-00 Replacement batteries; AAA. Pack of 12
TW-17002-06 NIST-traceable recalibration with data for thermistor system (meter and probe)

Thermistor Thermometer with Wireless Capability

Highly accurate and versatile—designed for taking measurements in rough conditions, such as refrigerated rooms

- Meter requires the probes to be ordered separately from an impressive range of optional probes

Features user-adjustable audible alarm limits, Min/Max/Hold, a large two-line backlit display, and basic status such as battery life. In addition to standard probes with a wire, this meter can be easily upgraded anytime to wireless probes for use up to a minimum guaranteed distance of 20 meters. A maximum of one wired and one wireless probe can be read and displayed by the meter. To add this feature, order wireless upgrade kit 37486-02 (includes one wireless handle and module) along with the wireless thermistor probe.

What's included: Certificate of conformance supplied by manufacturer and one 9 V battery.

37803-54

37803-58

Specifications

CE 2 year warranty

Range: –58 to 530°F (–50 to 276°C)
Resolution: 0.1°F (0.1°C)
Accuracy: ±0.4°F (–4 to 120°F), ±0.5°F full range
Probe: order separately below
Display: dual-line 4-digit LCD, backlit, 1" (2.5 cm) H
Power: one 9 V battery
Battery life: >200 hours
Dimensions (W x H x D): 2½" x 7" x 1½" (6.4 x 17.8 x 3.8 cm)

Meter

Catalog number	Description	Price
TW-37803-54	Thermistor thermometer with wireless capability	

Probes

Catalog number	Type	Range	Price
TW-37803-56	Air temperature	–58 to 300°F (–50 to 148°C)	
TW-37803-57	Waterproof surface	–58 to 300°F (–50 to 148°C)	
TW-37803-58	Waterproof penetration	–58 to 300°F (–50 to 148°C)	
TW-37803-59	T-handle food penetration	–58 to 300°F (–50 to 148°C)	
TW-37803-60	Corkscrew frozen food penetration	–58 to 280°F (–50 to 138°C)	
TW-37803-61	Wireless thermistor penetration; must be used with kit 37486-02	–58 to 530°F (–50 to 276°C)	

Accessories

TW-37486-02 **Wireless upgrade kit** includes one wireless handle and one wireless module. Use with wireless probe 37803-61
TW-10323-12 **Protective carrying case,** includes benchstand
TW-37486-12 **Wireless infrared printer,** includes one roll of paper
TW-92600-46 **Replacement printer paper.** Pack of 6 rolls
TW-09376-04 **Replacement battery,** 9 V. Pack of 4
TW-17002-06 **NIST-traceable recalibration** for thermistor system (meter and probe)

Cole-Parmer® Scientific Thermistor Thermometer

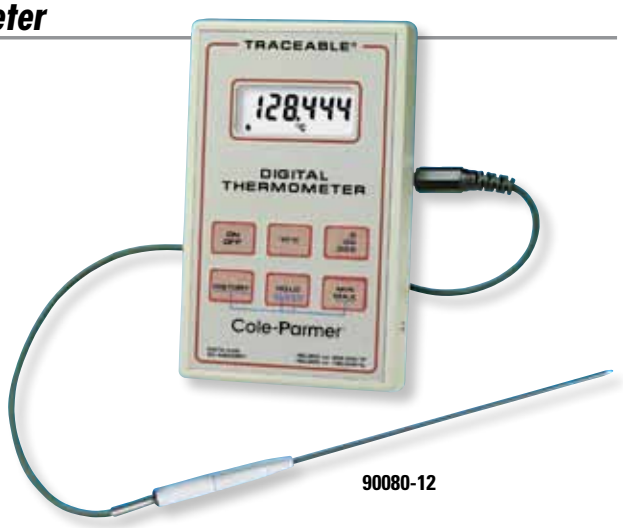
A highly accurate thermometer that is simple to use

- Resolution of 0.001°F/°C

This high-precision thermometer is ideal for measuring temperatures in gas systems, reagents, chemical solutions, soil, water baths, ovens, incubators, pharmaceuticals, foods, and wastewater. Designed for years of reliable service even in severe environments, the meter features a splashproof membrane keypad. A high-contrast ½"-high LCD makes the thermometer easy to read in all types of light.

The meter features Memory and Hold functions, an internal data logger that captures the Min/Max temperature every hour for a 24-hour period, and °F/°C selection. For easy reading, the meter can be changed to display one, two, or three significant numbers after the decimal point. The fast-response general-purpose penetration probe (included) displays even the slightest temperature change instantly. Readings are updated three times a second. The internal memory can be downloaded into a computer using optional software 90080-17.

What's included: NIST-traceable calibration report supplied by manufacturer, general-purpose penetration probe, plastic carrying case, and one 9 V battery.



90080-12

Specifications

CE

Range: –58 to 302°F (–50 to 150°C)
Resolution: 0.001°F (0.001°C)
Accuracy: ±0.05°C from 0 to 100°C
Probe: 6" (15.2 cm) L x 0.125" (0.3 cm) dia, with 5-ft (1.5-m) cable
Display: 6-digit LCD, 0.4" (1.0 cm) H
Power: one 9 V battery (included)
Battery life: 450 hours
Dimensions (W x H x D): 3½" x 5½" x 1⅛" (8.9 x 14.0 x 2.8 cm)

Catalog number	Description	Price
TW-90080-12	Scientific thermistor thermometer	

Accessories

TW-90080-13 **Replacement general-purpose penetration probe;** 6" (15.2 cm) L, –58 to 302°F (–50 to 150°C)
TW-90080-14 **Micro probe;** 5" (12.7 cm) L, –58 to 302°F (–50 to 150°C)
TW-90080-15 **Surface probe;** 6" (15.2 cm) L, –40 to 300°F (–40 to 149°C)
TW-90080-16 **Air probe;** 4" (10.2 cm) L, –40 to 300°F (–40 to 149°C)
TW-90080-17 **Data acquisition software and AC adapter**
TW-09376-04 **Replacement batteries,** 9 V. Pack of 4
TW-17002-06 **NIST-traceable recalibration** with data for thermistor system (meter and probe)

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Tech Insights

Resistance Temperature Detectors (RTDs) measure temperature by measuring the change in electrical resistance across a metal wire.

Why Choose an RTD?

RTDs are more accurate and stable than thermocouples, but cannot be used to measure extremely high temperatures. Compared to thermistors, RTDs are more rugged and can measure higher temperatures.

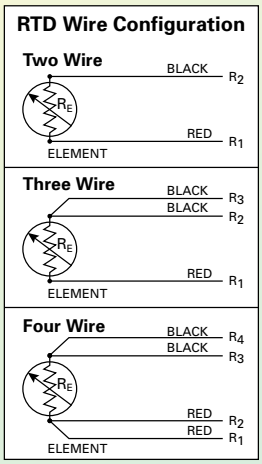
While the RTD wire can be made of any metal, platinum is the metal of choice due to its excellent repeatability, stability, and resistance to corrosion and chemicals. Platinum RTDs are available in 100, 200, 500, and 1000 Ω (nominal values at 0°C)—with the 100 Ω being the most popular.

Differences Between Two-, Three-, and Four-Wire Configurations

The two-wire configuration is good for any application where the sensor is connected directly to the receiver to prevent lead length resistance errors.

Select the three-wire configuration when there is a significant distance between the sensor and the receiver. Although the accuracy is less than that of a four-wire configuration, it is sufficient for most industrial applications.

The four-wire configuration offers the most accurate measurement. One pair of leads provides the excitation current to the RTD while the other pair measures the voltage across it.



Cole-Parmer® Remote-Monitoring RTD Thermometer

Ultra-thin cable lets you measure within doored equipment

- For use in remote measurement applications
- NIST-traceable

This meter has a 10-ft ribbon micro-cable that allows you to place the probe within an area and close the door without affecting the probe or the door seal. Accurately monitor temperature within freezers, water baths, heating blocks, incubators, refrigerators, and other areas. The fast-response, 100 Ω platinum RTD probe can be used in liquids, air/gas, or frozen material. Magnetic strips and adjustable probe holder are provided for mounting of both thermometer and probe.

What's included: probe, probe holder, NIST-traceable calibration report supplied by manufacturer, mounting strips, carrying case, and 9 V battery.

86460-06

Clip-on probe holder

Specifications

Resolution: 0.1°C
Accuracy: ±2°C
Display: 4-digit LCD, 1" (2.5 cm) H
Power: one 9 V battery (included)
Battery life: >100 hours
Dimensions (W x H x D): 2¾" x 4¼" x ¾" (7.0 x 10.8 x 1.9 cm)

Catalog number	Probe	Range	Price
TW-86460-06	100 Ω RTD (included)	(–99 to 199°C)	

TW-09376-04 Replacement batteries, 9 V. Pack of 4
TW-17002-04 NIST-traceable recalibration with data for RTD system (meter and probe)

OAKTON® Acorn® RTD Thermometer

Splashproof sealed membrane keypad makes cleanup easy

- Displays minimum and maximum readings
- Protective boot with built-in stand included

This thermometer offers the high accuracy of RTDs at an economical price. Features hold function that freezes measurement, °F/°C selection, auto-off function, low-battery indication and can be field-calibrated. Accepts one RTD probe with Digi-Sense® three-pin connector, sold separately below.

What's included: protective rubber boot and four AAA batteries.

Thermometer includes protective rubber boot.

Model 35626-20 shown with probe 08117-70 (sold separately).

Specifications

Resolution: 0.1°F (0.1°C)
Accuracy: ±0.4°F (±0.2°C)
Display: LCD, ⅞" (2.2 cm) H
Power: four AAA batteries (included)
Battery life: >200 hours
Low-battery indicator: yes
Dimensions (W x H x D): 2¾" x 5½" x 1½" (7.0 x 14.0 x 3.8 cm)

Catalog number	Probe	Range	Price
Thermometer			
TW-35626-20	100 Ω RTD with 3-pin connector (not included)	–320 to 1562°F (–200 to 850°C)	
Precalibrated thermometer			
TW-85000-02	100 Ω RTD with 3-pin connector (not included)	–320 to 1562°F (–200 to 850°C)	

TW-35626-60 Oakton RTD probe; 316 SS with 5-ft (1.5-m) cable
TW-08117-70 General-purpose RTD probe with integral handle, 10" (25.4 cm) L; –58 to 932°F (–50 to 500°C)
TW-35606-80 Replacement protective rubber boot
TW-17002-04 NIST-traceable calibration with data for RTD system (meter and probe)

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OAKTON® Standard and Data Logging Precision RTD Thermometers

Heavy-duty thermometer offers versatility and accuracy in a compact design

- 3-way hands-free operation
- Large, easy-to-read screen with backlight
- Rugged armor is built to withstand the toughest conditions
- Easy-to-use automatic field calibration ensures accurate readings
- Temp-360 can log up to 2000 sets of readings in real time with time-and-date stamp

Temp-360 data logging thermometer 91426-60

These robust and reliable meters work in any environment from the lab to the production floor. The sturdy armored construction protects against knocks and jars. Meters are ergonomically designed for both large and small hands alike. The sealed keypad and ABS plastic case meet IP54 standards for splash resistance. Each thermometer is individually factory calibrated. Automatic field calibration is easily performed: simply place the probe in a container packed with ice, fill with water, then press the "CAL" button—meter automatically recognizes the freezing point.

Temp-16 Thermometer features a five-button control panel, Min/Max and Hold functions, °F/°C selection, auto shutoff, and low-battery indicator.

Temp-360 Thermometer features real-time data logging and a USB data output. The seven-button control panel and intuitive on-screen menus guide you in choosing your desired functionality. Additional meter features include Min/Max, Hold, and average functions; °F/°C selection; time stamp/clock; countdown timer; out-of-range alarm with audible/visible indicator; auto shutoff; and low-battery indicator. Order an optional AC adapter to conserve battery life during extended operations. Manually store or automatically log up to 2000 sets of readings in real time. Log interval is selectable from 1 second to 60 minutes.

OAKTON's exclusive "3-WAY HANDS-FREE" capability allows "hands-free" operation—use the built-in stand on a table top, attach the meter to metal objects through magnets inserted into the armor boot, or hang from a pipe or belt using the hook-and-loop strap. Meter comes standard with the integral stand; the "hands-free" option adds magnets and strap (order separately below).

What's included: protective rubber armor boot with built-in stand and three AA batteries.

Exclusive "3-WAY HANDS-FREE" capability

Stand it

Hang it

Stick it

Calibrate NOW & SAVE!
INNOCAL®
Save 10% off the NIST-traceable calibration when you order your product precalibrated.

Find MORE!
For probes compatible with our wide selection of RTD meters, see **pages 1763–1766**.

Specifications

CE 3 year warranty

Display: 4-digit, custom dot matrix display; ¼" x ½" (0.6 x 1.3 cm) digits, 2¼" x 1½" (5.7 x 3.8 cm) backlit viewing area

Power: three AA batteries (included) or optional AC adapter

Battery life
Temp-16: 700 hours continuous (without use of backlighting)
Temp-360: 400 hours with sleep mode (without use of backlighting, buzzer, and USB)

Dimensions (W x H x D): 4" x 7" x 2" (10.2 x 17.8 x 5.1 cm) (with protective boot)

Model 91426-60 only
Data logging: 2000 real-time readings, with time-and-date stamp
Logging interval: 1 second to 60 minutes
Output: USB

Description	Range	Resolution	Accuracy	Meters		Precalibrated meters	
				Cat. no.	Price	Cat. no.	Price
Temp-16 single-input RTD thermometer	–328 to 1562°F (–200 to 850.0°C)	–328 to –148°F (–200 to –100°C): 1°F/°C –148 to 392°F (–99.9 to 199.9°C): 0.1°F/°C 392 to 1562°F (200 to 850°C): 1°F/°C	–328 to –148°F (–200 to –100°C): ±4°F (±2°C) –148 to 392°F (–99.9 to 199.9°C): ±0.4°F (±0.2°C) 392 to 1562°F (200 to 850°C): ±4°F (±2°C)	TW-91426-20		TW-91426-21	
Temp-360 single-input RTD data logging thermometer	–330 to 2210°F (–201 to 1210°C)	–330.0 to –100°F/°C: 0.1°F/°C –99.99 to 99.99°F/°C: 0.01°F/°C 100.0 to 999.9°F/°C: 0.1°F/°C Above 1000°F/°C: 1°F/°C	–330.0 to –100 °F/°C: ±0.1°F/°C –99.99 to 99.99 °F/°C: ±0.06°F/±0.03 °C 100.0 to 999.9°F/°C: ±0.1°F/°C Above 1000°F/°C: ±1°F/°C	TW-91426-60		TW-91426-61	

TW-35427-85 **Oakton "Hands-Free" option** includes two magnets and hook-and-loop strap
TW-35427-80 **Replacement boot** with built-in stand
TW-09376-01 **Replacement batteries,** AA. Pack of 4

TW-91427-99 **Adapter,** 115/230 VAC (for model 91426-60 only)
TW-17002-04 **NIST-traceable calibration** with data for RTD system (meter with probe)

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Platinum RTD Thermometer with Data logging Capability

Continuous data logging capacity—use stand-alone or with a PC

- Read and record up to 97 sets of data
- Log up to 4200 data points with time-and-date stamp

This meter has advanced features include memory, settable alarm, °F/°C/K switchable temperature scale, data hold, min/max readings, low-battery indication, auto-off power, and jumbo backlit dual LCD.

The data logging function allows you to set the sampling rate from 3 to 255 seconds. A low/high alarm can be set to warn when the temperature goes beyond the set threshold. The software gives you the ability to chart your data on a graph showing the time of the readings and the values measured. The data can be isolated by looking at the min/max and average readings during a certain time frame.

What's included: PC software, RS-232 cable, and six AAA batteries. Order probes separately below.

Thermometer 86460-21 includes software and RS-232 cable.

Specifications

Resolution: 0.1°F (0.1°C)
Accuracy: ±0.5% of reading
Display: dual-line 4-digit LCD, backlit
Power: six AAA alkaline batteries (included)
Battery life: >50 hours
Dimensions (H x W x D): 6" x 2¾" x 1½" (15.2 x 7.0 x 3.8 cm)

Catalog number	Probe	Range†	Price
TW-86460-21	RTD	–310 to 1454°F (–190 to 790°C)	

†Range depends on the probe being used.

Find MORE!
For probes compatible with our wide selection of RTD meters, see **pages 1763–1766**.

TW-08117-70 **General-purpose RTD probe** with integral handle, 10" (25.4 cm) L; –58 to 932°F (–50 to 500°C)
TW-08117-75 **Surface RTD probe** with integral handle, 8.1" (20.5 cm) L; –58 to 932°F (–50 to 500°C)
TW-08117-85 **Penetration RTD probe** with integral handle, 4"(10.2 cm) L; –58 to 932°F (–50 to 500°C)
TW-09376-00 **Replacement batteries** AAA. Pack of 12
TW-17002-04 **NIST-traceable calibration** with data for RTD system (meter and probe)

Compact Waterproof RTD Thermometers

Ideal for use in harsh environments and in food industry applications

- IP67-rated case
- NIST-traceable

These meters feature a robust waterproof, impact-resistant ABS plastic housing; corrosion-resistant stainless steel probe; battery-life indicator; auto shutoff; and a large LCD. Multifunction models offer Max/Min and Hold functions, plus a 100 Ω sensor for greater accuracy. Available with a choice of pre-installed probes: blunt tip for general-purpose use, penetration tip for semisoft materials, or remote sensor with penetrating tip for increased flexibility.

What's included: probe, NIST-traceable calibration report supplied by manufacturer, and one lithium battery.

90111-11 **90111-15**

Specifications

Display: 4-digit LCD, 0.3"H
Power: one 3.0 V lithium battery (included)
Battery life: 5 years
Dimensions (W x H x D): 2¼" x 4½" x ¾" (5.7 x 11.4 x 1.9 cm) without probe

Catalog number	Probe	Range	Resolution	Accuracy	Price
Compact RTD thermometers					
TW-90111-10	1000 Ω RTD; blunt tip	–58 to 572°F (–50.0 to 300°C)	0.2°F (0.1°C)	±0.3°F ±1 digit (±0.2°C ±1 digit)	
TW-90111-11	1000 Ω RTD; penetration tip				
TW-90111-12	1000 Ω RTD; remote sensor with penetration tip				
Multifunction compact RTD thermometers					
TW-90111-13	100 Ω RTD; blunt tip	–148 to 932°F (–100 to 500°C)	0.02°F (0.02°C) from –148 to 212°F (–99.98 to 99.98°C); 0.1°F (0.1°C) from 212 to 932°F (100 to 500°C)	±0.2°F (±0.1°C) from –58 to 146°F (–50 to 99.99°C); ±0.3°F (±0.2°C) for remaining range	
TW-90111-14	100 Ω RTD; penetration tip				
TW-90111-15	100 Ω RTD; remote sensor with penetration tip				

TW-17002-04 **NIST-traceable recalibration** with data for RTD system (meter and probe)

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Precision RTD Thermometer

Heavy-duty RTD thermometer offers versatility and accuracy in a compact design

- Measures down to 0.01°F/°C resolution over wide temperature ranges

Measure in either °F or °C from –199.99 to 1562°F or –199.99 to 800°C. The Record and Recall buttons on the front-panel display store the maximum and minimum readings. Press the Hold button to freeze the displayed value. Built-in RS-232 interface and optional software allow you to store data on PC.

What's included: protective rubber holster and 9 V battery.

Specifications

CE

Resolution:
0.01°F/°C up to 392°F;
0.1°F from 392 to 1562°F

Accuracy: 0.1% + 0.4°F over (0.1% + 0.2°C)

Display: 4½-digit LCD, ½" (1.3 cm) H

Output: RS-232

Power: 9 V battery (included)

Low-battery indicator: yes

Dimensions (W x H x D):
2¹³⁄₁₆" x 7¹⁄₁₆" x 1⅛"
(7.1 x 17.9 x 2.8 cm)

Catalog number	Probe	Range	Price
TW-26842-40	100 Ω RTD, 4-pin connector (not included)	–199.9 to 1562°F (–199.9 to 850°C)	

TW-26842-42 General-purpose RTD probe; stainless steel with DIN plug, –200 to 500°C
TW-26842-44 Surface RTD probe; stainless steel, –200 to 250°C
TW-26842-46 Air RTD probe; stainless steel, –200 to 400°C
TW-10200-10 Data acquisition software
TW-09376-04 Replacement batteries, 9 V. Pack of 4
TW-17002-04 NIST-traceable calibration with data for RTD system (meter and probe)

Meter 26842-40 shown with probe 26842-42 (probe sold separately).

RTD/Thermistor Thermometer

Designed for the lab, but rugged enough for industrial use

- Accepts both RTD and thermistor probes
- Select from an impressive range of optional probes

The wide measuring range and accurate four-wire technology make this single-channel thermometer an ideal instrument for everyday laboratory work. The meter accepts a wide range of optional probes (order probes separately) that can measure temperature within seconds. Features user-adjustable audible alarm limits, Min/Max/Hold functions, a large two-line backlit display, and basic status such as battery life.

Optional protective case 10323-12 with magnetic bench stand provides maximum hands-free operation and protection against water, dirt, and impact. Readings can be printed on-site with optional wireless printer 37486-12 to provide a permanent record.

What's included: certificate of conformance supplied by manufacturer and one 9 V battery.

Specifications

CE 2 year warranty

Display: dual-line 4-digit LCD, backlit

Power: one 9 V battery (included)

Battery life: >100 hours

Low-battery indicator: yes

Dimensions (W x H x D):
2½" x 7" x 1⅔"
(6.4 x 17.8 x 4.2 cm)

Probe	Range†	Resolution	Accuracy
RTD	–150 to 1472°F (–100 to 800°C)	0.1°F (0.1°C)	±0.2% from 0 to 800°F (0 to 399°C), ±0.4° remainder of range
Thermistor	–58 to 302°F (–50 to 150°C)	0.1°F (0.1°C)	±0.4° from –13 to 104°F (–25 to 40°C), ±0.5° from 104 to 180°F (40 to 80°C), ±0.7° from 180 to 260°F (80 to 125°C), ±0.9° remainder of range

†Range depends on the probe being used.

Meter

Catalog number	Description	Price
TW-86460-07	RTD/Thermistor thermometer	

Probes

Catalog number	Type	Range	Price
TW-86460-08	Air temperature probe (RTD)	–58 to 750°F (–50 to 399°C)	
TW-86460-09	Waterproof surface probe (RTD)	–58 to 750°F (–50 to 399°C)	
TW-86460-13	Food penetration probe (RTD)	–58 to 750°F (–50 to 399°C)	
TW-37803-58	Waterproof penetration probe (RTD)	–58 to 302°F (–50 to 148°C)	
TW-86460-10	Waterproof penetration probe (RTD)	–58 to 750°F (–50 to 399°C)	
TW-86460-11	Laboratory glass-coated/ corrosion-resistant probe (RTD)	–58 to 750°F (–50 to 399°C)	
TW-86460-12	Replacement glass tube for probe 86460-11	—	

86460-10 86460-07

Accessories

TW-10323-12 Protective carrying case
TW-37486-12 Wireless infrared printer, includes one roll of paper
TW-92600-46 Replacement printer paper. Pack of 6 rolls (10-year legibility)
TW-09376-04 Replacement batteries, 9 V. Pack of 4
TW-17002-04 NIST-traceable recalibration with data for RTD system (meter and probe)
TW-17002-06 NIST-traceable recalibration with data for thermistor system (meter and probe)

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Multichannel RTD and Thermocouple Thermometers with Wireless Capability

Professional and reliable, measure up to five temperatures simultaneously

- Accepts both RTD and thermocouple probes
- Data logging model 86460-16 stores up to 10,000 readings

These robust, reliable meters work in tough environments. The IP54 rating protects against splashes and dust. The sturdy construction protects against knocks and jars. The large illuminated display is slightly set back in the housing for better protection. The carrying strap is designed for safe transport, and the magnets on the back of the unit provide a secure means of attachment to a metal object.

When fully equipped, five temperature probes can be registered: three wireless probes and two attachable probes. For classic probes with a wire, there are two inputs available for fast thermocouple probes (type K/T) and one input for high-precision RTD (100 Ω) probes. Two freely selectable temperature values are shown in the display. The differential temperature between any temperature values can be calculated. The display of min or max values is possible for all temperature channels. Easy-to-use menu offers such functions as timed and multipoint mean calculation, differential temperature measurement, Max/Min value, Hold, and audible alarm settings.

Model 86460-16 also features three user-selectable profiles—Standard, Route, and Longterm—each tailored to suit typical applications. For measurements made at different locations, the user profile "Route" provides the advantage of being able to select measurement locations. "Longterm" provides direct access to the definition of the measurement program, such as the number of measurements and the measurement rate.

In addition to standard probes with a wire, these meters can be easily upgraded anytime to wireless probes for use up to a minimum guaranteed distance of 65 feet (20 meters). A maximum of three wireless probes can be read and displayed by the meter; requires wireless upgrade kit and type K thermocouple adapter head (sold separately below).

What's included: certificate of conformance supplied by manufacturer and three AA batteries. Model 86460-16 also includes PC software and cable.

86460-15

Wireless penetration probe 37486-04

Specifications

CE IP54 2 year warranty

Display: multiline 4-digit LCD, backlit
Power: three AA batteries (included)
Battery life: >200 hours
Low-battery indicator: yes
Dimensions (W x H x D): 3" x 9" x 1¾" (7.6 x 22.9 x 4.4 cm)

Probe	Range†	Resolution	Accuracy
RTD	–328 to 1472°F (–200 to 800°C)	0.05°F (0.05°C)	±0.2% of rdg from –148 to 390°F (–100 to 199°C), ±0.4°F (±0.2°C) for remaining range
Type K thermocouple	–328 to 2498°F (–200 to 1370°C)	0.1°F (0.1°C)	±0.3°F (±1.5°C) from –140 to 140°F (–60 to 60°C), ±0.5% of mv for remaining range
Type T thermocouple	–58 to 750°F (–50 to 399°C)		

†Range depends on the probe being used.

Meters

Catalog number	Description	Price
TW-86460-15	Multichannel temperature meter with wireless capability	
TW-86460-16	Multichannel temperature meter with data logging and wireless capabilities	

Probes

Catalog number	Type	Range	Price
TW-86460-08	Air temperature probe (RTD)	–58 to 750°F (–50 to 399°C)	
TW-86460-09	Waterproof surface probe (RTD)	–58 to 750°F (–50 to 399°C)	
TW-86460-13	Food penetration probe (RTD)	–58 to 750°F (–50 to 399°C)	
TW-37803-58	Waterproof penetration probe (RTD)	–58 to 300°F (–50 to 148°C)	
TW-86460-10	Waterproof penetration probe (RTD)	–58 to 750°F (–50 to 399°C)	
TW-86460-11	Laboratory glass-coated/corrosion-resistant probe (RTD)	–58 to 750°F (–50 to 399°C)	
TW-86460-12	Replacement glass tube for probe 86460-11	—	
TW-86460-17	Air temperature probe (type K thermocouple)	–76 to 750°F (–60 to 400°C)	
TW-37486-08	Waterproof penetration probe (type K thermocouple)	–76 to 750°F (–60 to 400°C)	
TW-86460-19	Waterproof penetration probe (type T thermocouple)	–58 to 662°F (–50 to 350°C)	
TW-37486-04	Wireless penetration probe (type K thermocouple); use with adapter head 37486-03	–76 to 750°F (–60 to 400°C)	

Wireless infrared printer 37486-12

TW-37486-02 **Wireless upgrade kit** includes one wireless handle and one wireless module (must order thermocouple adapter head for wireless function)
TW-37486-03 **Wireless thermocouple adapter head,** accepts any type K mini-thermocouple. Must be used with wireless upgrade kit 37486-02
TW-37486-12 **Wireless infrared printer,** includes one roll of paper
TW-92600-46 **Replacement paper,** 10-year legibility. Pack of 6 rolls
TW-86460-20 **Protective carrying case,** metal
TW-09376-01 **Batteries;** AA. Pack of 4
TW-37486-12 **NIST-traceable recalibration** with data for thermocouple system (meter and probe)
TW-17002-04 **NIST-traceable recalibration** with data for RTD system (meter and probe)

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Have your new product calibrated. See pages 198–206.

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Tech Insights

When choosing an infrared thermometer, consider the temperature range required; size, material, environment, and distance of the measured object; and its spectral response. Portable infrared thermometers are most often used for preventative maintenance, troubleshooting, and quality control. Choose an on-line sensor to continuously monitor or control your process. To order a NIST Traceable Calibration Report for your thermometer, see our "Calibration Services" section on pages 198–206.

How Infrared Thermometers Work:

All objects emit infrared energy. The hotter an object is, the more active its molecules are, and the more infrared energy it emits. An infrared thermometer houses optics that collect the radiant infrared energy from the object and focus it onto a detector. The detector converts the energy into an electrical signal, which is amplified and displayed.

Emissivity: An object's ability to emit or absorb energy. Perfect emitters have an emissivity of 1. An object with an emissivity of 0.8 will absorb 80% and reflect 20% of the incident energy. Emissivity may vary with temperature and spectral response (wavelength).

Spectral Response: The specific wavelength region where an infrared thermometer responds (in the 0.7 to 20 µm band of the electromagnetic spectrum). Instrument response is dependent on the emissivity, reflectance, and transmission of infrared energy. A spectral response in the range of 8 to 14 µm is good for general use.

Distance-to-Target-Size Ratio: The infrared thermometer focuses infrared energy from an object onto its detector at this ratio. For example, a 4:1 distance-to-target-size ratio means that the infrared thermometer will read a 1" (2.5 cm) dia area 4" (10.2 cm) away. The object must fill the entire area for accurate readings.

Laser Sighting Class: Class II (FDA and Class II IEC) lasers use less than 1 mW of power and project up to 50 feet away; Class IIIa (FDA) lasers use less than 5 mW of power and project up to 100 feet away. Look for either the Class II or Class IIIa icon on ads that feature laser models.

Emissivity of Common Materials

Material	Emissivity
Asphalt	0.93 to 0.95
Ceramics and brick	0.80 to 0.95
Cloth	0.95
Concrete	0.94 to 0.95
Glass	0.76 to 0.85
Metals, unoxidized	0.02 to 0.21
Painted surfaces	0.74 to 0.96
Paper	0.50 to 0.95
Rubber	0.95
Sand	0.90
Snow	0.82 to 0.89
Soil	0.90 to 0.98
Steel, iron, oxidized	0.65 to 0.95
Steel, stainless	0.10 to 0.80
Water	0.93
Wood	0.89 to 0.94

Special Considerations:

- Infrared thermometers have difficulty taking accurate temperature measurements of reflective metal surfaces unless compensation is made for the very low emissivity.
- Measuring an object through glass generally gives the surface temperature of the glass, unless the glass is made of a special infrared transmitting material such as germanium.
- Most infrared thermometers are limited to a measuring distance of approximately 100 ft (30 m) due to atmospheric considerations.
- Plastic films under 15-mm thick are difficult to measure using standard infrared thermometers, depending on the plastic's thickness, chemical composition, and other physical characteristics. Choose a thermometer specifically designed for measuring thin-film plastics (see page 1715).

OAKTON® Super-Mini TempTestr® Infrared Thermometer

Infrared thermometry at its most basic, but does just about everything you need!

- Built-in battery-life indicator
- Comes with wrist strap and built-in pocket clip

Just aim the unit, press the button on top, and either hold it to take a continuous temperature reading or release the button to hold the temperature on the display for 15 seconds. It measures temperature from –27 to 230°F (–33 to 110°C); under the back cover there is a switch which can be pressed to display the temperature in either Fahrenheit or Celsius.

What's included: built-in pocket clip and two batteries.

39642-01

CE

Catalog number	TW-39642-01
Range	–27 to 230°F (–33 to 110°C)
Resolution	0.5°F (0.2°C) of reading
Accuracy	±2.5% of reading or 3.6°F (2.0°C)
Response time	Less than one second for 95% of reading
Emissivity	0.95 fixed
Distance-to-target ratio	1:1
Display	LCD
Power	Two LR44/359 batteries (included)
Dimensions (H x dia)	3½" x ¾" (8.9 x 1.9 cm)
Price	

OAKTON® Mini TempTestr® Infrared Thermometer

Economical noncontact thermometer fits right in your pocket!

39642-00

This pocket-sized infrared thermometer takes surface temperature readings of any liquid, solid, or semi-solid in less than one second. Operation is simple—turn it on, point at sample, and take reading.

Features include switchable °F/°C display, hold function to freeze readings for 7 seconds, continuous monitoring function, adjustable emissivity, minimum/maximum memory readings, flip-open stand, and soft touch keypad.

What's included: metal case, wrist strap, and spare battery.

CE

Catalog number	TW-39642-00
Range	–30.0 to 430°F (–33.0 to 220°C)
Resolution	0.5°F (0.2°C) of reading
Accuracy	±2% of rdg or ±4°F (2°C)
Response time	Less than one sec
Emissivity	Adjustable from 0.01 to 1.00
Distance-to-target-size ratio	1:1
Display	LCD
Power	One 3 V battery (included)
Dimensions (W x H x D)	1½" x 2½" x ½" (3.8 x 6.4 x 1.3 cm)
Price	

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39643-00

OAKTON® Palm-Sized Infrared Thermometer

Laser sighting and adjustable emissivity at an economical price

- Compact, ergonomic design provides a comfortable fit during use

This infrared thermometer provides quick and accurate temperature measurements. View the current temperature, temperature scale (°F or °C), and battery life icon on the large LCD. Other features include selectable °F/°C, min/max measurements, lock function for continuous monitoring, automatic data hold, auto off, and battery life icon.

What's included: two CR2032 batteries.

Catalog number	TW-39643-00
Range	–67 to 662°F (–55 to 350°C)
Accuracy	±2% or ±3.6°F (±2°C)
Response time	1 sec, 90% response
Emissivity	Adjustable from 0.5 to 1
Laser sighting	Single point, offset Class II
Distance-to-target ratio	6:1
Display	LCD
Power	Two CR2032 batteries (included)
Dimensions (L x W x H)	4½" x 2" x ¾" (11.4 x 5.1 x 1.9 cm)
Price	

TW-09376-17 **Replacement batteries,** 3 V CR2032. Pack of 6
TW-17004-00 **NIST-traceable calibration report** with data for infrared thermometers

35625-41

OAKTON® "2-in-1" Waterproof Infrared Thermometer

A combination contact/noncontact thermometer for all applications

- Go/no-go LEDs provide quick check of HACCP food zones
- IP65-rated waterproof housing

This ultra-thin "2-in-1" waterproof contact/noncontact thermometer features a HACCP food safety LED warning. LEDs rapidly indicate if food temperature is within a safe or unsafe range. Green light indicates safe temperatures below 40°F (4°C) and above 140°F (60°C). Red light indicates the HACCP danger zone of 40 to 140°F (4 to 60°C). The built-in stainless steel type K thermocouple probe swings out for internal temperature checks, then folds in for storage. IR mode provides quick, noncontact surface measurements.

Bright white LED pointer illuminates the target measurement area and is ideal for close working distances of 2" to 12" (5.1 to 30.5 cm). Product also features adjustable emissivity, Fahrenheit or Celsius selectable units, min/max, auto data hold, lock function for continuous scanning, and auto off.

What's included: two AAA batteries.

Catalog number	TW-35625-41	
Mode	Infrared	Contact (thermocouple)
Range	–67 to 482°F (–55 to 250°C)	–67 to 626°F (–55 to 330°C)
Resolution	0.5°F (0.2°C)	0.5°F (0.2°C)
Accuracy	±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)	±0.5°F from 15 to 212°F (–9 to 100°C), remaining ±0.9% of reading
Emissivity	Preset at 0.95 (adjustable from 0.10 to 1.00)	—
Sighting	White LED (non-laser)	—
Distance-to-target ratio	2.5:1	—
Contact probe	—	Type K input (integral probe)
Display	4-digit LCD, ¾"W x 1"H	
Power	Two AAA batteries (included)	
Dimensions (W x H x D)	Overall: 1½" x 6½" x ¾" (3.8 x 16.5 x 1.9 cm), Contact probe: 4"L x ⅛" dia (10.2 x 0.3 cm)	
Price		

TW-86106-10 **Antimicrobial sanitizing wipes.** Box of 100
TW-09376-00 **Replacement batteries,** AAA. Pack of 12
TW-17004-00 **NIST-traceable calibration report** with data for infrared thermometers

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OAKTON® Food TempTestr® Infrared Thermometer and Kit

Ideal for food inspections and HACCP programs

- Noncontact measurement eliminates the risk of cross-contamination
- Choose from IR meter only or IR meter kit

Temperature measurement is essential when ensuring proper food storage, cooking, and serving environments. Quick checks with a noncontact thermometer can remove the hazard of cross-contamination and reduce the time a traditional probe requires.

TempTestr IR Food Thermometer 35625-15 provides safe, noncontact readings in ½ second. It has a compact design for easy one-handed operation. Other features include a laser sighting to pinpoint your exact target, selectable °F/°C display, steam interference filter, and a hold function that freezes display for 7 seconds after button release. Accuracy of ±2°F (±1°C) over the HACCP critical temperature range of 40 to 140°F (4 to 60 °C).

TempTestr IR Food Thermometer Kit 35625-30 contains two separate products, noncontact IR thermometer (35625-15, described above) for contamination-free surface measurements and a contact thermometer (90003-00) for testing the internal temperature of foods. The contact thermometer features a heat-resistant, stainless steel penetration probe, min/max recall, selectable °F/°C display, and water resistant housing. Sterilize contact thermometer between uses with one of the 20 antimicrobial wipes (included). All kit contents are packed in a shock-resistant, foam-lined case with handle for easy transportation.

TempTestr 35625-15 eliminates interference from steam.

MORE info!

- Measure food surfaces in the Temperature Danger Zone (40 to 140°F)—the critical range where harmful bacteria grow most rapidly
- Check surface temperatures of products moving on conveyors or in hard-to-reach places
- Scan numerous foods quickly and easily—no need to clean thermometer between measurements
- Monitor food equipment such as ovens, rotisseries, deep fryers, and dishwashers—from a distance

Measuring mode	Infrared thermometer (35625-15)	Contact thermometer (90003-00)
Range	–31 to 572°F (–35 to 275°C)	–40 to 392°F (–40 to 200°C)
Resolution	0.2°F (0.2°C)	0.2°F (0.2°C)
Accuracy	From 32 to 150°F (0 to 65°C): ±2°F (±1°C)	From 23 to 150°F (–5 to 65°C): ±1°F (±0.5°C)
Response time	500 msec	5 sec
Emissivity	Preset at 0.97	None
Laser sighting	Single point, offset Class II	None
Distance-to-target-size ratio	4:1	None
Display	LCD	LCD
Power	9 V battery (included)	3 V button cell (included)
Dimensions (L x W x H)	7" x 1¾" x 1½" (17.8 x 4.4 x 3.8 cm)	6" x 1¾" x ⅜" (15.2 x 4.4 x 1.0 cm)

Catalog number	Description	Price
TW-35625-15	TempTestr IR food thermometer (IR)	
TW-35625-16	TempTestr IR food thermometer (IR) with NIST-traceable report	
TW-35625-30	TempTestr IR food thermometer kit contains thermometers 35625-15 (IR) and 90003-00 (contact)	

TW-35625-80 **Optional carrying case** for TempTestr thermometer 35625-15 with belt loop

TW-09376-04 **Replacement batteries,** 9 V. Pack of 4

TW-86106-10 **Replacement antimicrobial sanitizing wipes.** Pack of 100

TW-17004-00 **NIST-traceable calibration** for infrared thermometer

OAKTON® Food TempTestr® Plus Infrared Thermometer

Ideal for food inspections and HACCP programs

- Noncontact measurement eliminates the risk of cross-contamination
- Scan numerous surfaces quickly and easily
- Sealed, hand-washable IP54 housing

Temperature measurement is essential when ensuring proper food storage, cooking, and serving environments, and is required by the FDA. Quick checks with a noncontact thermometer can remove the hazard of cross-contamination and reduces cycle time over a traditional penetration probe. This thermometer provides this safe, noncontact reading in under a second.

Use the TempTestr meter to monitor HACCP danger zone temperature standards for food (40 to 140°F or 4 to 60°C), the critical range where harmful bacteria grows most rapidly. LEDs on the meter quickly indicate if the food temperature is within a green or red bacterial growth zone. A green LED light indicates food-safe hot and cold holding temperatures. A red LED light indicates that food is exposed to potentially dangerous temperatures and within the food temperature danger zone. Investigate further with a probe thermometer for internal temperatures. LED target system illuminates the exact measurement area. Compact design allows for easy one-handed operation.

What's included: one 9 V battery and wrist strap.

35625-45

Calibrate NOW & SAVE!
INNOCAL®
Save 10% off the NIST-traceable calibration when you order your product precalibrated.

Specifications

Range	–20 to 400°F (–30 to 200°C)
Accuracy	±2°F (±1°C) between 32 to 150°F (0 to 65°C)
Resolution	0.2°F (0.2°C)
Response time	500 msec, 95% response
Emissivity	0.97 fixed
Laser sighting	White LED (non-laser)
Distance-to-target ratio	2.5:1
Display	LCD, backlit
Power	One 9 V battery (included)
Dimensions (W x H x D)	1¼" x 6" x 2" (3.2 x 15.2 x 5.1 cm)

Cat. no.	Description	Price
TW-35625-45	TempTestr Plus IR thermometer	
TW-35625-46	TempTestr Plus IR thermometer with NIST-traceable report	

TW-09376-04 **Replacement batteries,** 9 V. Pack of 4

TW-17004-00 **NIST-traceable calibration** with data for infrared thermometer

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39641-20

Food Safety Infrared Thermometer

Pistol-grip handle is comfortable and easy to use

- Measure surface temperature quickly and accurately
- Noncontact measurement eliminates the risk of cross-contamination

This thermometer is calibrated to provide high accuracy (±2°F) throughout the HACCP critical temperature range of 40 to 140°F (4 to 60°C). Laser sighting pinpoints the center of the measurement area.

What's included: one 9 V battery.

Catalog number	TW-39641-20
Range	–25 to 400°F (–30 to 200°C)
Resolution	1°F (0.5°C)
Accuracy	Below 32°F (0°C): ±2°F (±1°C) + 0.1° per degree below 32°F (0°C) From 32 to 150°F (0 to 65°C): ±2°F (±1°C) Above 150°F (65°C): 1.5% of reading
Response time	≤500 msec, 95% of reading
Emissivity	preset at 0.97
Laser sighting	Single point, offset Class II
Distance-to-target-size ratio	4:1
Display	LCD
Power	One 9 V battery (included)
Dimensions (W x H x D)	4" x 6" x 1½" (10.2 x 15.2 x 3.8 cm)
Price	

TW-09376-04 **Replacement batteries,** 9 V. Pack of 4
TW-39641-95 **Carrying case,** belt-mount
TW-17004-00 **NIST-traceable calibration with data** for infrared thermometers

35625-40

Target illumination clearly indicates target area.

Contact penetration probe swings out for fast temperature checks.

OAKTON® Food Safety Infrared Thermometer

A combination contact/noncontact thermometer with timer for all food applications

- Go/no-go LEDs provide quick check of HACCP food zones
- Sealed IP65 housing—hand washable, even under a faucet stream

Check critical food temperatures and monitor HACCP food safety zones with this combination contact/noncontact thermometer. LED's rapidly indicate if food temperature is in the bacterial growth safety zone. Green lights indicate safe temperatures below 40°F (4°C) and above 140°F (60°C). Red light indicates the HACCP danger zone between 40 to 140°F (4 to 60°C). The contact penetration probe swings out for internal temperature checks, then folds in for storage. IR mode provides quick, noncontact surface measurements and stores maximum reading.

Target illumination indicates target measurement area and is ideal for close working distances of 2" to 12" (5.1 to 30.5 cm). Built-in countdown timer with alarm monitors cooking and cooling intervals and HACCP exposure times—set countdown timer to a maximum of 8 hours.

What's included: carrying case, 9 V battery, manual, and quick reference card.

Specifications

Measuring mode	Infrared	Contact
Range	–30 to 525°F (–35 to 275°C)	–40 to 390°F (–40 to 200°C)
Resolution	0.2°F/°C	0.2°F/°C
Accuracy	±2°F (±1°C) from 32 to 150°F (0 to 65°C)	±1°F (±0.5°C) from 32 to 150°F (0 to 65°C)
Response time	500 msec	5 sec
Emissivity	Preset at 0.97	
Laser sighting	White LED (non-laser)	
Distance-to-target-size ratio	2.5:1	
Display	LCD, backlit	
Power	One 9 V battery (included)	
Dimensions (W x H x D)	Overall: 1¼" x 6½" x 2" (3.2 x 16.5 x 5.1 cm), Contact probe: 3½"L x ⅛" dia (8.9 x 0.3 cm)	

Cat. no.	Description	Price
TW-35625-40	Food safety IR thermometer	
TW-35625-42	Food safety IR thermometer with NIST-traceable report	

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Save 10% off the NIST-traceable calibration when you order your product precalibrated.

TW-86106-10 **Antimicrobial sanitizing wipes.** Box of 100
TW-35625-70 **Replacement probe**
TW-09376-04 **Replacement batteries,** 9 V. Pack of 4
TW-17004-00 **NIST-traceable calibration** with data for infrared thermometers

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OAKTON® TempTestr® Infrared Thermometer

Laser sighting pinpoints the center of the measurement area

- Infrared measurement provides safe, noncontact readings—measure moving targets, targets too hot to touch, or targets in difficult-to-reach areas
- Extremely fast results—95% response in only 500 msec
- Hold function—freezes display for 7 seconds after button release

Taking temperature measurements has never been easier—just point the thermometer at your target and push one button! The TempTestr IR thermometer is ideal for use in the home, office, field, or lab—anywhere you need to quickly and accurately measure surface temperatures. Selectable °F/°C display.

What's included: one 9 V battery.

Laser sighting lets you pinpoint the center of the measurement area. 35625-10

Carrying case 35625-80

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Save 10% off the NIST-traceable calibration when you order your product precalibrated.

Specifications

Range	0 to 500°F (–18 to 260°C)
Resolution	0.2°F (0.2°C)
Accuracy	±2% or ±3°F (2°C) whichever is greater
Response time	500 msec, 95% response
Emissivity	Preset at 0.95
Laser sighting	Single point, offset Class II
Distance-to-target-size ratio	6:1
Display	LCD
Power	One 9 V battery (included)
Dimensions (L x W x H)	7" x 1¾" x 1½" (17.8 x 4.4 x 3.8 cm)

Cat. no.	Description	Price
TW-35625-10	TempTestr IR thermometer	
TW-35625-13	TempTestr IR thermometer with NIST-traceable report	

TW-35625-80 Carrying case

TW-09376-04 Replacement batteries; 9 V. Pack of 4

TW-17004-00 NIST-tracable calibration report for infrared thermometers

MORE info!

Applications

- Industrial/electrical: Monitor steam systems, boiler operations, and motor/engine cooling systems performance; detect hot spots in electrical systems, panels and bearings.
- Heating and air conditioning: Monitor furnace and duct leakage; detect insulation breakdown; check ceilings, walls, and floors for proper room temperatures.
- Food safety: Monitor food storage equipment; check food temperatures without cross contamination.
- Agriculture: Monitor plant temperatures for stress; monitor animal bedding to detect spoilage.

Exceptional Service

4 out of 5 customers would recommend us to their colleagues!

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Unique Products

Hard-to-find products you can't get anywhere else!

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Technical Support

Our team of experts is here to help you!

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39641-06

OAKTON® Mini-InfraPro™ Infrared Thermometers

Anywhere that temperature is a factor, an Oakton IR thermometer should be close at hand!

- Pistol-grip handle is comfortable and easy to use
- Measure surface temperatures quickly and accurately

Infrared thermometers have become the preferred tool for diagnostics and inspection where temperature is an indicator. Oakton infrared thermometers are valued by professionals in a variety of industries—from industrial maintenance to food service because they quickly, accurately and safely measure surface temperature. Since infrared meters do not contact the objects being measured, they are the safest way to measure hot, hard-to-reach, or moving parts while eliminating potential damage and contamination. All meters feature Fahrenheit or Celsius selectable units, current and maximum readings, seven second auto hold, continuous scanning, and power off.

What's included: one 9 V battery (and storage pouch with 39641-06).

Catalog number	TW-39641-04	TW-39641-06
Precalibrated cat. no.	TW-39641-08	TW-39641-12
Description	Mini-InfraPro 4	Mini-InfraPro 6
Range	0 to 750°F (–18 to 400°C)	–20 to 932°F (–30 to 500°C)
Resolution	±1% of reading or ±2°F (±1°C)	±1% of reading or ±2°F (±1°C)
Accuracy	±5°F (±3°C) from 0 to 30°F (–18 to –1°C), ±2% or 3.5°F (2°C) from 30 to 275°F (–1 to 525°C), whichever is greater	±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
Response time	500 msec, 95% response	500 msec, 95% response
Emissivity	0.95 fixed	0.95 fixed
Laser sighting	Single point, offset class II	Single point, offset Class II
Distance-to-target ratio	8:1	10:1
Display	LCD, backlit	
Power	One 9 V battery (included)	
Dimensions (W x H x D)	4" x 6" x 1½" (10.2 x 15.2 x 3.8 cm)	4" x 6" x 1½" (10.2 x 15.2 x 3.8 cm)
Price		
Precalibrated price		

TW-09376-04 **Replacement batteries;** 9 V. Pack of 4
TW-17004-00 **NIST-tracable calibration report** with data for infrared thermometers

Calibrate NOW & SAVE!
INNOCAL®
Save 10% off the NIST-traceable calibration when you order your product precalibrated.

35639-00

Laser targets your measuring area.

OAKTON® InfraPro® Infrared Thermometers

Easily measure moving objects and dangerous targets from a distance

- Single, extra-bright laser targets your measurement area

Rugged enough for industrial use, yet compact and lightweight enough to be carried around with you, these infrared thermometers are extremely easy to use: just aim, pull the trigger, and read the display. The 4½-digit backlit display shows temperature readings in °F or °C; low-battery indication; and hold, scan, and max. Display holds for 7 seconds. Underrange and overrange conditions are also indicated on the display. Extra-bright laser is visible in indoor and outdoor applications.

What's included: one 9 V battery and a hard carrying case.

Catalog number	TW-35639-00
Precalibrated catalog number	TW-35639-06
Range	–25 to 999°F (–32 to 535°C)
Resolution	0.5°F (0.2°C)
Accuracy	±1% of the reading or ±2°F (±1°C) whichever is greater
Response time	500 msec
Emissivity	Fixed at 0.95
Distance-to-target ratio	12:1
Contact probe	—
Display	LCD, backlit
Power	One 9 V battery (included)
Dimensions (L x W x H)	8" x 6" x 2" (20.3 x 15.2 x 5.1 cm)
Price	
Precalibrated price	

TW-35629-90 **Soft carrying case** with integral belt loop and Velcro® closure
TW-09376-04 **Replacement batteries;** 9 V. Pack of 4
TW-17004-00 **NIST-tracable calibration report** for IR thermometers

Infrared Thermometers

Convenient, tool-belt sized meters offer a wide temperature range

NEW

- Backlit display illuminates measurements in low light areas
- Measure surface temperatures quickly and accurately

Infrared thermometers have become the preferred tool for diagnostics and inspection where temperature is an indicator. Since infrared meters do not contact the objects being measured, they are the safest way to measure hot, hard-to-reach areas, or moving parts while eliminating potential damage and contamination. These portable IR thermometers are easy to use, just pull the trigger and the temperature will show in an instant on a large, backlit display.

Standard features include Fahrenheit or Celsius selectable units, current/min/max temperature readings, auto hold, continuous scanning, and auto power off.

Model 95001-21 has an 8-to-1 distance-to-target ratio.

Model 90415-14 has a 12-to-1 distance-to-target ratio, adjustable high/low set points with audible alarm when temperature exceeds the user-programmed set points, and adjustable emissivity.

Model 90415-15 has a 13-to-1 distance-to-target ratio, adjustable high/low set points with audible alarm when temperature exceeds the user-programmed set points, average and differential temperatures, automatic emissivity adjustment for temperatures above 212°F, type K thermocouple input with probe and built-in memory that stores up to 20 readings.

Model 90415-20 has a 16-to-1 distance-to-target ratio, adjustable high/low set points with audible alarm when temperature exceeds the user-programmed set points, average and differential temperatures and adjustable emissivity.

Model 90415-22 has a 30-to-1 distance-to-target ratio, adjustable high/low set points with audible alarm when temperature exceeds the user programmed setpoints, average and differential temperatures, adjustable and automatic emissivity, type K thermocouple input with probe, built-in memory that stores up to 20 readings, lock function for continuous measurements, transmitter base with tripod mount, remote receiver that transmits readings to a PC via USB cable (included), software, and 100 to 240 VAC power adapter.

Model 90415-21 has a high 50-to-1 distance-to-target ratio, adjustable high/low set points with audible alarm when temperature exceeds the user programmed setpoints, average and differential temperatures and adjustable emissivity.

Model 95001-18 has a high 50-to-1 distance-to-target ratio, adjustable high/low set points with audible alarm when temperature exceeds the user programmed setpoints, average and differential temperatures, adjustable emissivity, type K thermocouple input with probe, built-in memory that stores up to 100 readings, LCD with bar graph, dual-laser targeting, lock function for continuous measurements, USB interface (includes cable), tripod and software.

What's included: hard carrying case (except models 95001-21 and 90415-14 which have a storage pouch) and one 9 V battery.

90415-20

90415-15

Tripod 90415-32 for use with 90415-21 and 95001-18

CAUTION
LASER RADIATION
DO NOT STARE INTO BEAM
CLASS II LASER PRODUCT

CE 3 year warranty

Catalog number	TW-95001-21	TW-90415-14	TW-90415-15	TW-90415-20	TW-90415-22	TW-90415-21	TW-95001-18
Range	–4 to 630°F (–20 to 332°C)	–58 to 1200°F (–50 to 650°C)	IR: –58 to 1472°F (–50 to 800°C) Type K: –58 to 2498°F (–50 to 1370°C)	–58 to 1400°F (–50 to 760°C)	IR: -58 to 1922°F (–50 to 1050°C) Type K: –58 to 2498°F (–50 to 1370°C)	–58 to 1832°F (–50 to 1000°C)	IR: -58 to 2498°F (–50 to 1370°C) Type K: –58 to 2498°F (–50 to 1370°C)
Accuracy	±2% of reading + 4°F (2°C)	±1% of reading + 2°F (1°C)	IR: ±2% reading or ±4°F (2°C) Type K: ±(1.5% reading + 2°F /1°C)	±2% reading or 4°F (2°C) below 932°F (500°C); ±2.5% reading or 5° above 932°F (500°C)	IR: ±2% reading or ±4°F (2°C) Type K: ±1.5% reading ± 5°F (3°C)	±2% reading + 4°F (2°C)	IR: ±1% of reading + 2°F (1°C) Type K: ±1.5% reading or 2°F (1°C)
Response time	500 millisecond	500 millisecond	500 millisecond	500 millisecond	500 millisecond	500 millisecond	100 millisecond
Emissivity	Fixed at 0.95	Adjustable, 0.10 to 1.00	Adjustable, 0.10 to 1.00	Adjustable, 0.10 to 1.00	Adjustable, 0.10 to 1.00	Adjustable, 0.10 to 1.00	Adjustable, 0.10 to 1.00
Laser sighting	Class II laser	Class II laser	Class II laser	Class II laser	Class II laser	Class II laser	Class II laser
Distance-to-target ratio	8:1	12:1	13:1	16:1	30:1	50:1	50:1
Contact probe	—	—	Type K thermocouple input (probe included)	—	Type K thermocouple input (probe included)	—	Type K thermocouple input (probe included)
Display	LCD	LCD	LCD	LCD	LCD	LCD	LCD
Power	One 9 V battery (included)	One 9 V battery (included)	One 9 V battery (included)	One 9 V battery (included)	One 9V battery or AC adaptor (included)	One 9 V battery (included)	One 9 V battery (included)
Dimensions (L x W x H)	3¼" x 1½" x 6 ¼" (8.2 x 4.2 x 16 cm)	3¼" x 1½" x 6 ¼" (8.2 x 4.2 x 16 cm)	3¼" x 1½" x 6¼" (8.2 x 4.2 x 16 cm)	4" x 2¼" x 9" (10 x 5.6 x 23 cm)	4" x 2¼" x 9" (10 x 5.6 x 23 cm)	4" x 2¼" x 9" (10 x 5.6 x 23 cm)	8" x 6" x 2" (20.4 x 15.5 x 5.2 cm)
Price							

TW-90415-32 **Tripod** for use with 90415-21 and 95001-18
TW-08516-55 **General-purpose thermocouple type K probe**
TW-09376-04 **Replacement batteries,** 9 V. Pack of 4
TW-17004-00 **NIST-traceable calibration** with data for infrared thermometers

NEW

Dual-Laser Infrared Thermometers

Dual-laser targeting indicates the ideal measuring distance to ensure accuracy

- Fast 0.15-second response time
- Rugged, double-molded housing

These infrared thermometers feature dual lasers that converge to a 1" target spot to ensure accurate targeting and temperature measurements. All thermometers feature a backlit dual display for clear and easy reading. You can program the adjustable high/low set points with audible alarm to alert you when set point temperature is exceeded. Adjust emissivity for increased measurement accuracy on virtually any surface color, finish, or texture. Other features include Fahrenheit or Celsius selectable units, current and maximum readings, auto hold, continuous scanning, and auto power off.

Color alert model 90440-84 features a blue backlit dual display that changes and flashes to a red backlit display when the temperature reading exceeds the high or low set points. The display will continue to flash red until normal temperature is reached.

What's included: one 9 V battery and storage pouch.

CE 3 year warranty

Catalog number	TW-90440-84	TW-90440-69	TW-90440-64
Range	–4 to 950°F (–20 to 510°C)	–58 to 1100°F (–50 to 500°C)	–58 to 1832°F (–50 to 1000°C)
Accuracy	±(1% of reading + 2°F/1°C)		
Response time	150 millisecond		
Emissivity	Adjustable, 0.10 to 1.00		
Laser sighting	Class II laser		
Distance-to-target ratio	12:1	12:1	30:1
Display	LCD, backlit		
Power	One 9 V battery (included)		
Dimensions (L x W x H)	5 11/16" x 4" x 1 5/8" (14.6 x 10.4 x 4.3 cm)		
Price			

TW-09376-04 **Replacement batteries,** 9 V. Pack of 4
TW-17004-00 **NIST-traceable calibration report** with data for infrared thermometers

NEW

Scanning Infrared Thermometer with Star Burst Targeting Laser

Tricolor light bar and three-speed buzzer indicate if temperature is within or outside set range

- Unique STAR BURST laser targeting system
- Fast response time of 0.5 second

Ideal for conducting temperature audits. Infrared thermometer progressively scans an area and checks for temperature differentials which indicate changes in temperature. The "star burst" laser targeting system helps you determine the approximate target size and location, reducing possible false alarms.

This unique meter allows you to automatically acquire a reference temperature and then determine whether subsequent readings are above or below the set point. The built-in, tricolored light and audible alarm system flashes a red or blue light and a fast or slow buzzer to signal when the readings are within, above, or below the selected range. Additional features include a large backlit LCD, min/max, data hold, and auto power off.

What's included: one 9 V battery.

CE

Catalog number	TW-37803-69
Range	–40° to 428°F (–40 to 220°C)
Accuracy	±4°F/°C or ±2% of reading above 32°F (0°C); ±3°F/°C or ±3% of reading below 32°F (0°C)
Response time	500 milliseconds
Emissivity	Fixed at 0.95
Laser sighting	Class II laser
Distance-to-target ratio	8:1
Contact probe	—
Display	LCD, backlit
Power	One 9 V battery (included)
Dimensions (L x W x H)	5 5/16" x 1 5/8" x 6 13/16" (13.5 x 4.2 x 17.3 cm)
Price	

TW-09376-04 **Replacement batteries,** 9 V. Pack of 4
TW-17004-00 **NIST-traceable report** with data for infrared thermometers

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info@lab-eu.com info@pristroje.cz

Infrared/Thermocouple/RTD Ultimate Thermometer

A solution for every temperature measurement application

- One meter uses multiple sensor types
- Use the temperature sensor best suited to your application—noncontact or contact

This combination thermometer is a single meter with a solution for any temperature measurement application. For general-purpose applications, choose any type J, K, T, E, or R thermocouple probe; for precise readings, use the 100 Ω Pt RTD probe; for noncontact measurements, use the built-in IR thermometer with laser sighting. Thermometer records minimum/maximum temperatures, and features data hold, relative temperature calculations, backlit display, and RS-232 output. Thermometer is easily portable with included carrying case; use on benchtop with convenient tripod back (sold separately below). Meter accepts thermocouples with miniconnectors and 4-pin 100 Ω Pt RTD probes. Probes sold separately (see pages 1747–1771).

What's included: general-purpose RTD probe, 9 V battery, and hard carrying case.

Specifications

Temperature sensor	Type J	Type K	Type T	Type E	100 Ω Pt RTD	Infrared
Range	–148 to 2102°F (–100 to 1150°C)	–148 to 2372°F (–100 to 1300°C)	–148 to 752°F (–100 to 400°C)	–148 to 1652°F (–100 to 900°C)	–328 to 1562°F (–200 to 850°C)	–4 to 752°F (–20 to 400°C)
Resolution	0.1°F (°C)			0.1°F (°C)		1°F (°C)
Accuracy	±0.2% + 1°F (±0.2% + 0.5°C)			±0.2% + 2°F (±0.2% + 0.8°C)	±0.2% + 1°F (±0.2% + 0.5°C)	1°F (°C) ±3% rdg or ±5°F (3°C), whichever is greater

Catalog number	TW-35633-00
Emissivity	Adjustable from 0.20 to 1.00
Laser sighting	Single point, offset Class II
Distance-to-target- size ratio	7:1
Display	LCD, backlit
Power	One 9 V battery (included)
Dimensions (W x L x H)	2¾" x 7⅞" x 1¼" (7.0 x 20 x 3.2 cm)
Price	

TW-08516-55 **General-purpose thermocouple probe,** type K

TW-94461-25 **Carrying case,** water resistant

TW-01618-52 **Tripod,** floor mount

TW-35633-10 **Replacement RTD probe,** 4-pin connector

TW-09376-04 **Replacement batteries,** 9 V. Pack of 4

Infrared thermocouple/RTD thermometer 35633-00 shown with optional thermocouple probe 08516-55

INNOCAL®
INNOVATIVE CALIBRATION SOLUTIONS

TW-17004-00 **NIST-traceable calibration** with data for infrared thermometers

Pocket Temperature Meter

Measure air and surface temperature with one instrument

- Small, handy, and easy to operate
- Infrared can easily measure moving objects and dangerous objects from a safe distance

Rugged, pocket-sized meter can always be with you when you need it—ideal for making comparisons between surface and air temperatures in a noncontact format. Infrared is measured utilizing a 6–1 optical ratio, with a single-point targeting laser. Professional-grade sensors produce accuracies not common in a meter this size.

The menu-driven three-button design allows for easy selection of the meters function. Featuring differential temperature, adjustable emissivity, min/max/hold functions, °F/°C selection, and a large easy-to-read backlit display. Unique hard-shell protective cap snaps on and off the meter; when in use, the cap fully encases the meter, protecting everything including the display screen and sensors.

What's included: NIST-traceable calibration report supplied by the manufacturer, wrist strap, belt holder, and two AAA batteries.

2 year warranty

Catalog number	TW-10323-53	
Mode	Infrared	Ambient
Range	–22 to 572°F (–30 to 300°C)	–14 to 122°F (–25 to 50°C)
Resolution	0.1°F (0.1°C)	0.1°F (0.1°C)
Accuracy	±3.6°F between –22 to 212°F (±2°C between –30 to 100°C), otherwise ±2% of m.v.	±0.9°F (±0.5°C)
Response time	0.5 sec, 95% response	0.5 sec, 95% response
Emissivity	Adjustable	—
Laser sighting	Single-point offset, Class II	—
Distance-to-target ratio	6:1	—
Display	LCD, backlit	
Power	Two AAA batteries (included)	
Battery life	50 hours (typical with backlight off)	
Dimensions (L x W x H)	4½" x 1¾" x 1" (11.4 x 4.4 x 2.5 cm)	
Price		

TW-09376-00 **Replacement batteries,** AAA. Pack of 12

TW-17004-00 **NIST-traceable recalibration report** with data for infrared thermometer

10323-53

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Cole-Parmer® True Dimension Laser-Sighting Infrared Thermometers

Class II laser features a three-dot laser sighting system to indicate the true diameter of the target

- The circular laser sighting allows the user to see the exact measurement area
- Distance-to-target ratios up to 60:1 allow you to accurately measure target
- Ideal for process monitoring, preventative maintenance, and quality assurance programs

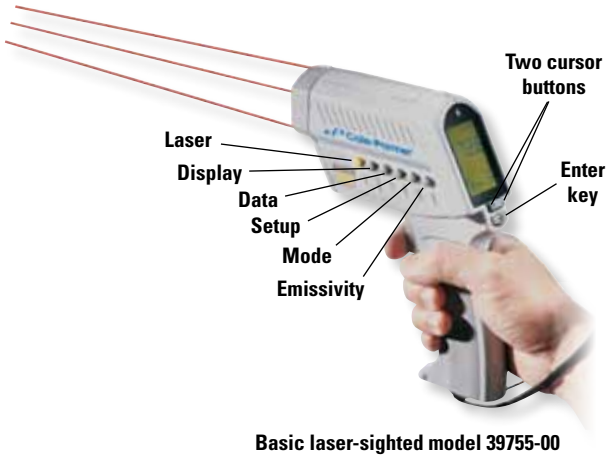
True Dimension™ is a coaxial three-dot laser sighting system which indicates the true diameter of a measurement spot. The target is highlighted at all distances with a center measurement dot and two accompanying diameter markers. At the focal point, where the measurement spot size is the smallest, the dots line vertically, rotating as the unit is moved closer or further from the target. Select the close-focus laser-sighted models for measuring small areas (such as circuit boards and cable connections) at close range. They can measure a target area as small as 0.24" (0.6 cm) dia at a 11.8" (30 cm) distance.

Use Class II models where regulations require low-power lasers and for distances up to 50 ft (15.25 m); use Class III model for maximum brightness and for distances up to 100 ft [30.50 m] (model 39755-10).

Basic Models are easy to use—just point, pull the trigger, and read. Meters feature adjustable emissivity, audible/visible high alarm, and current/MIN/MAX readings. Backlit graphical display shows data at a glance—see the last ten temperature points measured within the maximum and minimum range. Thermometers have a ¼–20 UNC tripod socket and include a hard carrying case and two AA batteries.

Deluxe Models have all of the features of the basic model plus audible/visible low alarm, DIF/AVG readings, RS-232 interface, 100-point memory, date/time, thermocouple input (type J or K), and a table with 30 preset material emissivity values. Thermometers include a type K thermocouple, software package, hard carrying case, power adapter and two AA batteries. Use the Windows®-based software to customize the emissivity table, plot graphs, set scales/limits, program time intervals, and export data to other spreadsheet programs.

Deluxe laser-sighted model 39755-20



Basic laser-sighted model 39755-00

Specifications

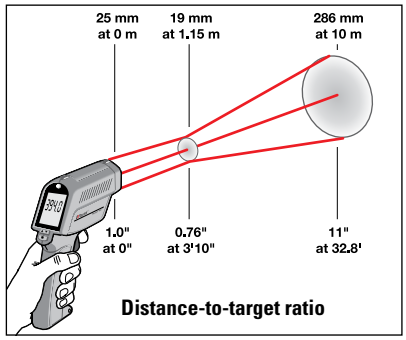
Standard thermometer range: –25 to 1600°F (–30 to 900°C)
Resolution: 0.2 to 999°F (0.1 to 900°C)
Accuracy: ±0.75% of reading or ±2°F (1°C), whichever is greater
Response time: 250 msec
Emissivity: adjustable from 0.1 to 1.5
Display: LCD, backlit

Distance-to-target ratio
Laser-sighted models: 60:1
Close-focus models: 50:1
Output (for deluxe and advanced models only):
1 mV per degree or RS-232, selectable
Low-battery indication: yes
Dimensions (L x W x H): 6" x 2" x 7½" (15.2 x 5.1 x 19.1 cm)

Cat. no.	Model	Laser sighting	Power	Price
Laser-sighted thermometers (60:1)				
TW-39755-00	Basic	3-point laser Class II	Two AA batteries	
TW-39755-10		Class III†		
TW-39755-20	Deluxe	3-point laser Class II	Two AA batteries or 115 VAC	
Close-focus laser-sighted thermometers (50:1)				
TW-39755-40	Basic	3-point laser Class II	Two AA batteries	
TW-39755-50	Deluxe	3-point laser Class II	Two AA batteries or 115 VAC	

†Has a single laser.

TW-09376-01 **Replacement batteries;** AA. Pack of 4
TW-17004-00 **NIST-traceable calibration report** with data, for infrared thermometers



Distance-to-target ratio

TRUE DIMENSION™ PRECISION

Unique laser pattern pinpoints precise measuring area.

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Cole-Parmer® High-Temperature Specialty Infrared Thermometers

Measure temperatures up to 3275°F (1800°C)

- Models 39800-30, -32, and -33 with 120:1 distance-to-target-size ratio provide accurate measurements over large distances
- Take temperature measurements in both bright-light and low-light areas with model 39800-35
- Specialty thermometers are designed specifically for glass, plastics, or metals applications

Thermometers display minimum, maximum, differential temperature, and average temperature in °F or °C. Other features include adjustable emissivity, recall, backlit display, and an audible and visual alarm. Lock the trigger for long-term monitoring. Store up to 100 temperature readings at selectable time intervals with built-in data logger. Adapters for 115 or 230 VAC use are available—order at right.

Scope Thermometers feature a through-the-lens optical system and a circular reticle to precisely define the target area.

Laser Sighting Thermometers are ideal for determining the center of the area you are measuring—laser spots on the target indicate the approximate diameter. Use single-laser models for long-range measurements; dual and crossed laser models have lasers that are aligned with the thermometer's optics. Choose from two laser types—Class IIIa for maximum brightness, or Class II when low-power lasers are required.

Specialty Thermometers are scope or laser sighting thermometers with optimized spectral responses for specific applications; each model provides a precise sighting system. The glass model is designed for use in glass manufacturing; the plastics models are ideal for thin film plastics applications (under 0.4 mm) such as lamination and film orientation; the metals models are ideal for forging, forming, and extruding operations. The metals models are not recommended for use with aluminum.

What's included: four AA batteries, padded nylon carrying case, shoulder strap, and manual.

Specialty infrared thermometer 39800-42 is designed for thin film plastics applications.

Model 39800-35 features scope and laser sighting.

Specifications

Resolution: 1°F/°C (0.1°F/°C in AVG mode up to 999°)

Accuracy: ±1% of reading or ±1.5°F (±1°C), whichever is greater at or above 32°F (0°C); ±4°F (±2°C) below 32°F (0°C)†

Response time: 700 milliseconds

Emissivity: adjustable from 0.10 to 1.00 in 0.01 increments

†Accuracies taken at 73°F ±9°F (23°C ±5°C) operating ambient.

Display: multidata, backlit, four-digit LCD, 0.38"H main readout

Output
Analog: 1 mV/°F or °C (order cable below)
Digital: RS-232, 9600 baud; output interval adjustable from 1 to 9999 seconds (order cable below)

Display: LCD, backlit

Power: four AA batteries (included) or optional AC adapter (order separately below)

Scope and Laser Sighting Thermometer

Range: –20 to 2200°F (–30 to 1200°C)

Dimensions (L x W x H): 10⅛" x 2¾" x 8¼" (25.7 x 7 x 21 cm)

Catalog number	Sighting type	Laser sighting	Maximum power	Distance-to-target size ratio	Price
TW-39800-00	Scope	—	—	75:1	
TW-39800-02	Dual lasers	FDA Class II	<1 mW	75:1	
TW-39800-03	Dual lasers	FDA Class IIIa	<5 mW		
TW-39800-22	Crossed lasers	FDA Class II	<1 mW	Close range: 75:1	
TW-39800-23	Crossed lasers	FDA Class IIIa	<5 mW		
TW-39800-30	Scope	—	—	120:1	
TW-39800-32	Single laser	FDA Class II	<1 mW		
TW-39800-33	Single laser	FDA Class IIIa	<5 mW		
TW-39800-35	Scope and single laser	FDA Class II	<1 mW	105:1	

Specialty Infrared Thermometers with Scope or Laser Sighting

Dimensions (L x W x H): Scope models: 10⅛" x 2¾" x 9⅝" (25.7 x 7 x 24.5 cm)
Laser models: 10⅛" x 2¾" x 8¼" (25.7 x 7 x 21 cm)

Catalog number	Application	Temperature range	Sighting type	Laser class	Maximum power	Spectral response	Distance-to-target size ratio	Price
TW-39800-40	Glass	300 to 3275°F (150 to 1800°C)	Scope	—	—	5 µm nominal	50:1	
TW-39800-42	Thin film plastics	50 to 1450°F (10 to 800°C)	Dual laser	FDA Class II	<1 mW	7.9 µm nominal	25:1	
TW-39800-43				FDA Class IIIa	<5 mW			
TW-39800-46	Metals	400 to 3275°F (200 to 1800°C)	Scope	—	—	1.6 µm nominal	90:1	
TW-39800-47			Single laser	FDA Class II	<1 mW			
TW-39800-48				FDA Class IIIa	<5 mW			

Accessories

Cat. no.	Description	Connection type	Price
TW-39800-80	5-ft (1.5-m) computer cable	9-pin connector and mini plug	
TW-39800-88	5-ft (1.5-m) analog cable for reading mV/°C	Banana plugs and mini plug	
TW-08406-50	AC adapter, 115 VAC	5-ft (1.5-m) cable with US plug	
TW-08406-55	AC adapter, 230 VAC	5-ft (1.5-m) cable with continental European plug	

TW-39800-90 Software package with RS-232 cable. Store up to 5000 readings; maximum transfer at 1 reading per second

TW-09376-01 Replacement batteries; AA. Pack of 4

MORE online!

For distance-to-target-size diagrams, select an infrared thermometer from this page and enter the Catalog Number into the online Search box, then click on "More Info."

ColeParmer.com

INNOCAL®
INNOVATIVE CALIBRATION SOLUTIONS

TW-17004-00 NIST-traceable calibration report with data for infrared thermometer

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KEY INFORMATION

Tech Insights

Controllers

Temperature Loops: Temperature controlled systems comprise four essential elements that are joined to form a closed loop.

1. Load: Object which is required to be maintained at a constant and specified temperature.

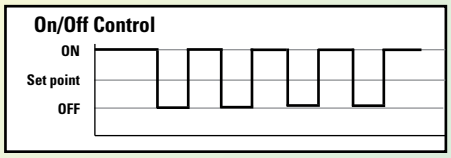
2. Heater or Cooler: Provides heating or cooling to the system.

3. Sensor: Measures the temperature of the system and feeds the information back to the controller.

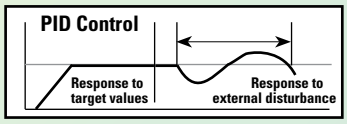
4. Controller: Compares the information it receives from the sensor (PV, or process value) with the desired temperature (SP, or set value). It then adjusts the power (MV, or manipulated variable) that is fed to the heater or cooler, to compensate for any tendency of the load temperature to drift up or down, closing the loop.

Types of Controllers

On/Off Control: A simple control system in which the heater or cooler is completely off as the temperature rises through the set point, and on as the temperature falls through the set point. This type of control continuously hunts around the set point, and should only be considered when the control requirements are not critical.



PID (Proportional-Integral-Derivative) Control: When more stable control is required, it is necessary to slow down the rate of temperature rise when approaching the set-point in order to avoid overshoot. PID control provides precise control and should be used for systems that may have frequent and unexpected disturbances.



Output Types

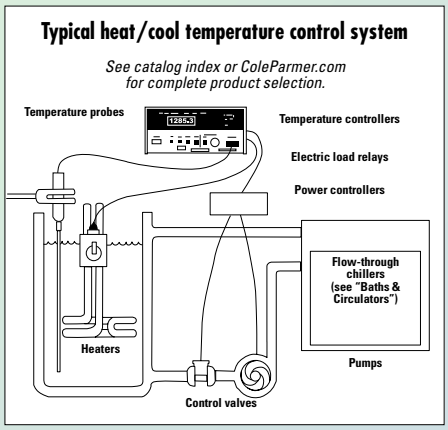
SPST Relay: Single pole, single throw relay. An electrically controlled mechanical switch that either opens or closes a circuit.

SPDT Relay: Single pole, double throw relay. An electrically controlled mechanical switch that in one position closes a circuit, and in the second position closes another circuit, breaking the first.

SSR: Solid state relay. An electrically controlled switch that has no moving parts. The switching action is done through a transistor. Silent operation and longer lifetime than a SPDT relay. External SSRs are used for systems that have a high current draw, which might be too high for a relay that is built into the controller.

Pulse Output for SSR: A logic signal that is used to actuate an external SSR.

Analog Output: Usually a 4 to 20 mA signal or a voltage signal that is proportional to the temperature reading.



Autotuning Benchtop Controller

Large dual-LED display—monitor set point and measured temperature values simultaneously

- Ramp and soak features up to 56 programmable segments
- Select reverse or direct control for heating or cooling
- Program alarm set point to track the process

This autotuning benchtop controller monitors process temperature and set point values simultaneously on two large LED displays. The autotuning feature will automatically adjust the proportional band, rate, and reset once you have entered a set point. The controller can be manually set for customized control. For more complex processes, the ramp and soak function provides up to 56 discrete programmable segments. The controller also features universal input, status lights that indicate output and alarm conditions, programmable alarms, pattern end functions that allow for endless program runs, and a SPDT relay that is connected to an audible alarm with adjustable volume.

The built-in security system protects set point and alarm values from accidental or unauthorized changes. Nonvolatile memory retains parameters during power failures. Programming and remote monitoring of the controller can be done through the built-in RS-485 port that accepts MODBUS® ASCII/RTU communication protocol. Connect easily to any USB capable computer by ordering the optional RS-485 to USB converter.

What's included: 5-ft (1.5-m) power cord.

Specifications

CE

Input type	Range	
J	–148 to 2192°F	–100 to 1200°C
K	–328 to 2372°F	–200 to 1300°C
T	–328 to 752°F	–200 to 400°C
100 Ω Pt RTD	–328 to 1472°F	–200 to 800°C

Control type: on/off, PID with auto-tune algorithm
Resolution: 1° or 0.1° selectable
Accuracy: ±0.25% of span, ±1 LSD
Display: two 4-digit LEDs, 0.56"H each
Load ratings
Relay: 5 A mechanical, 250 VAC
Alarm: one SPDT relay rated for 240 VAC, 3 A max
Operating temperature: 32 to 122°F (0 to 50°C)
Dimensions (W x H x D): 6" x 8½" x 8" (15.6 x 21.6 x 20.3 cm)

02110-81

Catalog number	Input type	Control output	Alarm output	Ramp/soak	Recorder output	Power (60 Hz)	Price
TW-02110-81	J, K, T, RTD	Solid-state relay	Yes	Yes	RS-485	115 VAC	

TW-02110-83 RS-485 to USB converter
TW-17101-63 NIST-traceable calibration with data for controller

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OAKTON® Standard On/Off and Advanced PID Benchtop Temperature Controllers

Outlet receptacle allows for direct plug-in of heating devices

- Advanced design allows for quicker and more reliable results
- Improved display with easy-to-use interface
- Advanced Temp 9500 model features USB output

These temperature controllers can be used for a wide variety of applications. Choose from standard or advanced models. Both controller models provide excellent control accuracy and power capabilities, making them ideal for pilot process plants, R & D labs, or for OEM requirements.

Probe type—Both models accept eight thermocouple types with miniconnectors. Advanced models also accept thermistor probes with 1/4" phono plugs, RTD probes with standard 3-pin connectors, and Oakton®/Digi-Sense® RTD probe connector.

Features—Rear panel output receptacle for direct plug-in of heaters and other resistive devices. Field calibrations help to improve system accuracy by entering the offset value to correct for individual probe error. Simultaneously view both the measured and set point on the two-line alphanumeric display. Temperature scale selectable to read in °F, °C, K (Kelvin), or °R (Rankine). Front panel LEDs indicate output and alarm conditions. Multiple control modes from simple On/Off control to sophisticated autotuning PID control. The 115 VAC models include a 1.8-m power cord and US standard plug and receptacle; the 230 VAC models feature an IEC cord set and universal receptacle. Built-in grid support bracket allows the unit to be mounted onto a laboratory frame or grid.

Safety features—Output power to load device is automatically shut down in the event of a broken sensor or control loop break. Over-temperature protection shuts down the system if the user- settable over-temperature or timer is exceeded. Outlet power receptacle is fused separately from the controller for added safety. Audible and visual out-of-range alarms are also included.

Advanced models have all the features of the standard controllers, plus higher heater output capacity of 1750/3450 watts max, ramp-and-soak profiling for more complicated processes, USB computer interface, free software that features real-time graphing and simple setup of ramp and soak progamming, alarm relay with adjusted hysteresis, and 4 to 20 mA and 1 to 5 V outputs† for connection to a recorder or data logger. In addition to thermocouple inputs, advanced models also accept RTD and thermistor inputs.

NEW and improved!

Standard temperature controller 89000-01

Find MORE!

For our complete selection of Heating Equipment products, see **pages 732-745**.

INNOCAL®
INNOVATIVE CALIBRATION SOLUTIONS

Ensure the accuracy of your temperature controller!

TW-17101-63 **NIST-traceable calibration** with data

Specifications

Input type	Range
J	–310 to 1832°F (–190 to 1000°C)
K	–328 to 2502°F (–200 to 1372°C)
T	–328 to 752°F (–200 to 400°C)
E	–328 to 1832°F (–200 to 1000°C)
N	–328 to 2372°F (–200 to 1300°C)
B	392 to 3272°F (200 to 1800°C)
R	32 to 3214°F (0 to 1768°C)
S	32 to 3214°F (0 to 1768°C)
Thermistor†	32 to 212°F (0 to 100°C)
100 Ω Pt RTD†	–328 to 1562°F (–200 to 850°C)

†Advanced models only
‡Use a 250 Ω resistor to convert to a 1 to 5 V signal

Control type
Standard models: on/off
Advanced models: on/off, programmable PID, autotune PID

Resolution: 0.1°; 1° above 999.9° and below –99.9°

Accuracy
Types J, K, T, E, and N: ±0.1% of reading, ±0.7°F (0.4°C) above –248°F (–100°C); ±0.1% of reading, ±2°F (1°C) below –248°F (–100°C)
Types B, R, and S: ±0.1% of reading, ±1.8°F (1.0°C)
Thermistors and RTDs†: ±0.1% of reading, ±0.7°F (0.4°C)

Display: LCD

Operating ambient: 32 to 104°F (0 to 40°C); 0 to 90% RH, noncondensing

Digital output‡: USB

Control output
Standard models: powered receptacle rated for 115/230 VAC, 10 A max
Advanced models: powered receptacle rated for 115/230 VAC, 15 A max

Alarm output‡: one SPDT relay rated for 230 VAC, 2 A max; resistive

Dimensions (W x H x D): 8" x 3 3/4" x 9" (20.3 x 9.5 x 22.9 cm)

Catalog number	Description	Communication	Control output	Alarm output	Ramp/soak	Recorder output	Power (49 to 61 Hz)	Price
TW-89800-01	Temp 9000 standard controller	None	1150 watts	No	No	No	115 VAC, 10 A max	
TW-89800-02			2300 watts				230 VAC, 10 A max	
TW-89800-03	Temp 9500 advanced controller	USB	1725 watts	Yes	Yes	4 to 20/20 to 4 mA, selectable, 1 to 5 VDC	115 VAC, 15 A max	
TW-89800-04			3450 watts				230 VAC, 15 A max	

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Digi-Sense® Benchtop Twin-Temperature Controllers

Combines two controllers into one, for controlling two independent temperature processes

- Set point is easily and securely changed with an interface key
- Models available for type J, K, or T thermocouples or RTD probes

These controllers are designed for controlling two independent temperature processes, and feature modern control technology for greater temperature stability. The space-saving design combines two controllers into one unit to maximize bench space. Each unit displays both the set point and process temperature. Auto-tune minimizes set point overshoot and features the ability to learn your process producing greater stability.

The controller also features an audible alarm function, selectable temperature scale, and two panel-mounted receptacles that accept a three-prong plug. Select from models for types J, K, or T thermocouples with miniconnectors, or 100 Ω Pt RTD probes. To save bench space, mount the unit to a support pole or lattice using the included bracket.

What's included: 6-ft (1.8-m) detachable power cord and lattice support bracket.

36225-71

Back View

Specifications

Input type	Range	
J	–328 to 2192°F	–200 to 1200°C
K	–328 to 2498°F	–200 to 1370°C
T	–328 to 752°F	–200 to 400°C
RTD	–328 to 1472°F	–200 to 800°C

Control type: PID with auto-tune algorithm
Resolution: 1°, 1.0°, or 1.00° selectable
Accuracy: 0.1% of span, ±1.0°F/°C

Display: LED
Load ratings: 1800 watts total resistive, 900 watts per channel
Operating temperature: 0 to 149°F (–18 to 65°C); 0 to 90% RH, noncondensing
Dimensions (W x H x D): 5⅞" x 6½" x 6⅛" (14.9 x 16.5 x 15.5 cm)

Catalog number	Input type	Control output	Alarm output	Ramp/rate	Recorder output	Power (60 Hz)	Price
TW-36225-71	J	Solid-state relay	Yes	Yes	None	120 VAC	
TW-36225-72	K						
TW-36225-73	T						
TW-36225-74	RTD						

TW-17101-63 **NIST-traceable calibration** with data

Digi-Sense® Benchtop Ramp/Soak Controllers

Easily program up to 40 steps for more complex processes

- Software allows for data point collection and custom-designed interface
- Models available for type J, K, or T thermocouples or RTD probes

These controllers are designed for controlling multiple steps in predetermined temperature processes. Modern control technology produces greater temperature stability. The ramp/soak feature allows up to a 40-step profile, which can be configured from the provided software. You can profile temperature, time, hold, soak, and end steps to create the ideal profile for your process. Auto-tune minimizes set point overshoot and features the ability to learn your process producing greater stability. The built-in adaptive control technology provides even tighter control for these demanding applications.

The controller also features an audible alarm function, selectable temperature scale, and one panel-mounted receptacle that accepts a three-prong plug. Select from models for types J, K, or T thermocouples with miniconnectors, or 100 Ω Pt RTD probes. To save bench space, mount the unit to a support pole or lattice using the included bracket.

What's included: software, 6-ft (1.8-m) detachable power cord, and lattice support bracket.

36225-66

Back View

Specifications

Input type	Range	
J	–328 to 2192°F	–200 to 1200°C
K	–328 to 2498°F	–200 to 1370°C
T	–328 to 752°F	–200 to 400°C
RTD	–328 to 1472°F	–200 to 800°C

Control type: PID with auto-tune algorithm
Resolution: 1°, 1.0°, or 1.00° selectable

Accuracy: 0.1% of span, ±1.0°F/°C
Display: LED
Load ratings: 1500 watts resistive, 12.5 amps
Operating temperature: 0 to 149°F (–18 to 65°C); 0 to 90% RH, noncondensing
Dimensions (W x H x D): 5⅞" x 4¼" x 6½" (14.9 x 10.8 x 16.5 cm)

Catalog number	Input type	Control output	Alarm output	Ramp/soak	Recorder output	Power (60 Hz)	Price
TW-36225-66	J	Solid-state relay	Yes	40 total steps	RS-232	120 VAC	
TW-36225-67	K						
TW-36225-68	T						
TW-36225-69	RTD						

TW-17101-63 **NIST-traceable calibration** with data

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Digi-Sense® Benchtop Temperature Limit Controllers

A secondary safety device that cuts power when set point is reached

A limit controller is a secondary safety device and a must for applications where temperature overshoot can cause serious problems. Used in conjunction with a primary temperature control, the limit controller will cut power to its output and turn off all resistive loads if your upper temperature set point is achieved.

36225-76

The controller also features an audible alarm function, selectable temperature scale, and one panel-mounted receptacle. Select from models for types J, K, or T thermocouples with miniconnectors, or 100 Ω Pt RTD probes. To save bench space, mount the unit to a support pole or lattice using the included bracket.

What's included: 6-ft (1.8-m) detachable power cord and lattice support bracket.

Specifications

Input type	Range	
J	–328 to 2192°F	–200 to 1200°C
K	–328 to 2498°F	–200 to 1370°C
T	–328 to 752°F	–200 to 400°C
RTD	–328 to 1472°F	–200 to 800°C

Control type: on/off
Resolution: 1°, 1.0°, or 1.00° selectable
Accuracy: 0.1% of span, ±1.0°F/°C
Display: LED
Load ratings: 1500 watts resistive, 12.5 amps

Operating temperature: 0 to 149°F (–18 to 65°C); 0 to 90% RH, noncondensing
Dimensions (W x H x D): 8" x 3⅜" x 6" (20.3 x 8.6 x 15.2 cm)

Catalog number	Input type	Control output	Alarm output	Ramp/ soak	Recorder output	Power (60 Hz)	Price
TW-36225-76	J	Solid-state relay	Yes	None	None	120 VAC	
TW-36225-77	K						
TW-36225-78	T						
TW-36225-79	RTD						

TW-17101-63 **NIST-traceable calibration** with data

Digi-Sense® Benchtop PID Temperature Controllers

Auto-tune feature minimizes set point overshoot

These temperature controllers display both the set point and process temperature, and feature modern control technology that produces greater temperature stability. The auto-tune feature minimizes set point overshoot and has the ability to learn your process producing greater stability. Changing your set point is easily done with the interface keys. The controller can perform ramp rate operations, allowing you to slowly raise the process temperature.

36225-61

The controller also features an audible alarm function, selectable temperature scale, and one panel-mounted receptacle. Select from models for types J, K, or T thermocouples with miniconnectors, or 100 Ω Pt RTD probes. To save bench space, mount the unit to a support pole or lattice using the included bracket.

What's included: 6-ft (1.8-m) detachable power cord and lattice support bracket.

Specifications

Input type	Range	
J	–328 to 2192°F	–200 to 1200°C
K	–328 to 2498°F	–200 to 1370°C
T	–328 to 752°F	–200 to 400°C
RTD	–328 to 1472°F	–200 to 800°C

Control type: PID with auto-tune algorithm
Resolution: 1°, 1.0°, or 1.00° selectable
Accuracy: 0.1% of span, ±1.0°F/°C
Display: LED
Load ratings: 1800 watts total resistive, 900 watts per channel

Operating temperature: 0 to 149°F (–18 to 65°C); 0 to 90% RH, noncondensing
Dimensions (W x H x D): 8" x 3⅜" x 6" (20.3 x 8.6 x 15.2 cm)

Catalog number	Input type	Control output	Alarm output	Ramp/ rate	Recorder output	Power (60 Hz)	Price
TW-36225-61	J	Solid-state relay	None	Yes	None	120 VAC	
TW-36225-62	K						
TW-36225-63	T						
TW-36225-64	RTD						

TW-17101-63 **NIST-traceable calibration** with data

Digi-Sense® Benchtop On/Off Temperature Controller

A basic on/off controller for processes where temperature stability is less critical

This controller is designed to turn the power on and off to the output receptacle based on the set temperature. Equipped with a dial control that allows you to set and regulate the desired temperature. Features a digital display, selectable temperature scale, and one panel-mounted receptacle. To save bench space, mount the unit to a support pole or lattice using the included bracket.

36225-90

What's included: 6-ft (1.8-m) detachable power cord and lattice support bracket.

Specifications

Input type	Range	
J	–328 to 2192°F	–200 to 1200°C

Control type: on/off
Display: LED set point only
Load ratings: 1800 watts total resistive, 900 watts per channel

Operating temperature: 0 to 149°F (–18 to 65°C); 0 to 90% RH, noncondensing
Dimensions (W x H x D): 8" x 3⅜" x 6" (20.3 x 8.5 x 15.2 cm)

Catalog number	Input type	Control output	Alarm output	Ramp/ rate	Recorder output	Power (60 Hz)	Price
TW-36225-90	J	Solid-state relay	None	None	None	120 VAC	

TW-17101-63 **NIST-traceable calibration** with data

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Digi-Sense® Benchtop Variable-Voltage Output Controller

Conveniently regulate the input voltage through the selector knob

36225-59

This solid-state proportional-voltage power controller provides manual control of heating mantles, tapes, cords, and other resistive leads. To operate, plug a resistive load into the receptacle on the back of the unit and adjust the control dial to the desired level. The higher the selected number on the dial, the higher the voltage and the hotter the load will get. To save bench space, mount the unit to a support pole or lattice using the included bracket.

What's included: 6-ft (1.8-m), three-wire attached power cord and lattice support bracket.

Specifications

Range: 5 to 100% of rated voltage
Control type: variable voltage
Display: reference knob, 0 to 100%
Load ratings: 1200 watts resistive, 10 amps
Operating temperature: 0 to 149°F (–18 to 65°C); 0 to 90% RH, noncondensing
Dimensions (W x H x D): 4" x 3⅜" x 4" (10.2 x 8.5 x 10.2 cm)

Catalog number	Input type	Control output	Alarm output	Ramp/rate	Recorder output	Power (60 Hz)	Price
TW-36225-59	None	Proportional voltage control	None	None	None	120 VAC	

TW-17101-63 **NIST-traceable calibration** with data

Digi-Sense® Variable-Time Power Controller

Easily control output wattage to a resistive load from 6 to 100%

36225-91

This timed controller turns the output load on and off and then repeats the cycle. Each position on the knob from low to high represents a specific cycle time where the "on" time ranges from 6 to 100 percent. For example, the low setting represents a total cycle of 60 seconds with an "on" time of 4 seconds. This type of control can be used to regulate the temperature of resistive loads. The pilot light on the front will glow when power is being supplied to the load.

What's included: Model 36225-91 has a 6-ft (1.8-m) cord with US plug; model 36225-92 has a 4-ft (1.2-m) cord without plug.

Specifications

Range: 6 to 100% of time
Control type: on/off percent timer
Display: reference knob, low to high
Load ratings
Model 36225-91: 1440 watts resistive
Model 36225-92: 2400 watts resistive
Operating temperature: 0 to 149°F (–18 to 65°C); 0 to 90% RH, noncondensing
Dimensions (W x H x D): 2½" x 2" x 4¼" (6.3 x 5 x 10.8 cm)

Catalog number	Input type	Control output	Alarm output	Ramp/soak	Recorder output	Power (60 Hz)	Price
TW-36225-91	None	Percent timer	None	None	None	120 VAC	
TW-36225-92						240 VAC	

Cole-Parmer® Temperature Controller with Timer

Turns equipment on or off at set temperature and at specified times

Relay accepts a US standard three-prong plug

94460-45

Use this plug-in controller to control heating elements, cooling blocks, hot plates, heating mantles, cooling systems, incubators or more. Program up to three pairs of on/off switchings per day at specified times. Easy to view ½" tall display shows both temperature and time. Back-up battery keeps settings safe from power outages.

What's included: relay, 3½-ft relay cable, 3½-ft (1.0-m) sensor cable with integral sensor, calibration document supplied by manufacturer, and two AAA batteries.

Specifications

Range
Time: 1 sec to 23 hr, 59 min, 59 sec
Temperature: –4 to 140°F (–20 to 60°C)
Resolution
Temp: 0.1°F/°C; Time: 1 sec
Accuracy: ±1.8°F (±1°C)
Control output: relay rated for 115 VAC, 1800 W, 15 A
Sensor: integral (in cable)
Dimensions (W x H x D): (relay and controller) 2¾" x 5½" x 1¼" (7.0 x 14.0 x 3.2 cm) each

Catalog number	Power (50/60 Hz)	Price
TW-94460-45	115 VAC or two AAA batteries (included)	

TW-09376-00 **Replacement batteries,** AAA. Pack of 12
TW-17101-63 **NIST-traceable recalibration** with data

Temperature Alarms

Built-in audible and visual alarms

10461-00

Designed to monitor temperatures from 0 to 50°F or –18 to 10°C, perfect for freezers and refrigerators. Alarms sound on a temperature rise above set point or temperature drop below set point, switch selectable. Flashing light and audible alarm alert you to alarm condition, relay output powers external device. "On" light indicates that power is being supplied to refrigerator or freezer. Analog set point adjustment.

The temperature sensor wire can be spliced and extended up to 200 feet using 22-gauge wire. Alarms have remote screw connections for external devices or remote alarms. Plastic case has screw holes for surface mounting.

What's included: a 6-ft probe and 6-ft (1.8-m) power cord with plug.

Specifications

Accuracy: ±2°F (±1°C)
Alarms: 50 dB audible alarm, light indicator
Alarm output: SPST relay (NO) rated for 0.5 A at 120 VAC
Sensor: encapsulated, solid-state sensor with 6-ft (1.8-m) lead
Dimensions (W x H x D): 3" x 4⅞" x 1⅝" (7.6 x 12.4 x 4.1 cm)

Catalog number	Temp range	Power	Price
TW-10461-00	–10 to 80°F	110 VAC	
TW-10461-10	–25 to 30°C	110 VAC	

TW-17101-63 **NIST-traceable calibration** with data

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Digital Environmental Monitors

Protect critical areas from destructive environmental conditions

- Simultaneously monitor critical environments for temperature, humidity, and water
- Tamper-proof lock settings prevent inadvertent changes
- Set high and low alarm points separately

REQUIRED SYSTEM Components
1 Console
2 Sensors

EnviroAlert systems monitor temperature, humidity, and water in critical environments such as laboratories, manufacturing plants, and computer rooms—and activate alarms, dialers, or transmitters when over-limit conditions occur. Consoles are available in three versions for monitoring up to eight distinct zones. Order sensors separately.

10450-21

The easy-to-use LCD console displays the current conditions and the high and low limits in each zone. Scan automatically or manually through all the active zones. All models have a programmable alarm per zone with a delay of up to 120 minutes to avoid nuisance alarms caused by common events. If a zone deviates from the preset limits, the console will display the event and send a signal to an optional external device such as an alarm panel or dialer. Programming is retained in memory if power is lost and settings can be locked to avoid tampering. White ABS plastic console can be surface mounted using a standard gang box.

Dual-Zone Console 10450-21 is capable of monitoring two distinct zones or one zone with two different parameters. The first zone or sensor is built into the console and monitors ambient temperature only; the second zone requires an optional remote sensor (temperature, humidity, or water) to be attached to the unit. The last eight alarm events with individual time-and-date stamp are stored in memory.

Four-Zone Console 10450-01 simultaneously monitors up to four distinct zones using any combination of remote temperature, humidity, and water sensors. The last eight alarm events with individual time-and-date stamp are stored in memory.

Eight-Zone Console 10450-31 can monitor up to eight distinctive zones and has data logging capability. Connect any combination of up to four wireless and up to four hard-wired sensors to monitor temperature, humidity, or water. Wireless sensors provide a solution where hard wire installation is impractical and can be located up to 1000 feet (305 meters) line-of-sight from the console; operate on either two AA batteries or 12 VDC line power. This unit also accommodates the ultralow temperature sensor for monitoring cryogenic applications. Console store up to 9000 data points that can be downloaded via an USB interface. Logging can be set from 30 seconds to two hours. Software is included to display and manage logged data. Unit has eight configurable and one nonconfigurable output relays, and can be customized to accept nonproprietary 4 to 20 mA sensors.

10450-31

1 Consoles

CE

Catalog number	TW-10450-21	TW-10450-01	TW-10450-31
Temperature range	–58 to 299°F (–50 to 148°C)		–112 to 299°F (–80 to 148°C)
Accuracy	±1°F/°C		±1°F/°C
Memory	Last 8 events		9000
Zones	1 to 2	1 to 4	1 to 8
Sensor inputs	1 internal / 1 wired external	4 wired external	4 wired external / 4 wireless external
Primary outputs	2 SPDT relays configurable	4 SPDT relays configurable	8 Form C relays configurable
Secondary output	1 SPDT relay nonconfigurable		1 Form C relay nonconfigurable
Scan rate	15 times per minute for all channels		
Wireless	No		Yes
Wireless frequency	—		2.405 to 2.480 GHz, 16 channels
Display	LCD		LCD
Operating temperature	32 to 122°F (0 to 50°C), indoor use only		
Power	12 or 24 VDC		11 to 26 VDC
Dimensions (W x H x D)	6" x 4¾" x 1¼" (15.2 x 12.1 x 3.2 cm)		8⅛" x 5½" x 2" (20.6 x 14.0 x 5.1 cm)
Price			

10450-71

10450-72

10450-74

2 Sensors

Catalog number	Description	Price
TW-10450-72	Waterproof high-temperature thermistor sensor, 32 to 299°F (0 to 148°C)	
TW-10450-73	Waterproof low-temperature thermistor sensor, –58 to 158°F (–50 to 70°C)	
TW-89551-71	Stainless steel high-temperature thermistor sensor, 32 to 299°F (0 to 148°C)	
TW-89551-65	Stainless steel low-temperature thermistor sensor, –58 to 158°F (–50 to 70°C)	
TW-10450-71	Stainless steel ultralow temperature sensor, –112 to 0°F (–80 to 32°C), for use with 10450-31 only	
TW-10450-74	Wireless temperature sensor, 32 to 122°F (0 to 50°C), for use with 10450-31 only	
TW-89551-63	Water presence surface sensor	
TW-10450-75	Water presence under-carpet sensor	
TW-89551-73	Humidity sensor, 5 to 95% RH, ±5% accuracy	
TW-10450-76	Wireless humidity sensor, 5 to 95% RH, ±5% accuracy, for use with 10450-31 only	

Accessories

TW-10450-50 **Power supply,** 12 VDC
TW-89551-78 **Remote annunciator;** 12 VDC, 90 dB
TW-17030-20 **NIST-traceable calibration** with data for consoles

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On/Off and Limit Switch Temperature Controllers

Digital display and adjustable deadband at an economical price

- Powerful 16 A, SPDT relay can run up to a ¾-hp compressor
- Feature password protection and error messages

These controllers are ideal for on/off control applications where a digital display and an adjustable deadband are needed over a limited temperature range. Use with packaging equipment, food cooling and chilling equipment, and more. Each controller has three push buttons for programming parameters including set point, deadband, cycle time, and ambient probe adjustment. Programmable password protection prevents accidental changes to settings. Multiple units can be set with the same program with the use of a "configuration key" (sold separately). The bright 3-digit LED display is easy to read even in dim areas Controllers are available with a thermocouple or thermistor input; the thermocouple version features two selectable alarm conditions and internal buzzer. The FM-approved limit models include field-selectable automatic or manual reset, as well as front-panel or external input reset option. Order probes separately.

93520-01

Specifications

Input type	Range
J K	32 to 999°F (0 to 700°C) 32 to 1770°F (0 to 999°C)
Thermistor	–58 to 300°F (–50 to 150°C) 1000 Ω at 25°C

Control type: on/off
Resolution: 1°F (1°C)
Accuracy: ±1°F (±1°C)

Display: 3-digit LED, ½"H
Operating temperature: 14 to 131°F (–10 to 55°C)

Control rating: SPDT, 16 A at 250 VAC
Housing: NEMA 4 (IP65) front panel

FM APPROVED (see table)

Catalog number	Input	Control output	Alarm	Overall dimensions (W x H x D)	Panel cutout (W x H)	Power (50/60 Hz)	Price
Fahrenheit models							
TW-93520-01 TW-93520-12	Thermocouple type J/K Thermistor	Relay	Audible None	76 x 34 x 60 mm	71 x 29 mm	110 VAC	
TW-93520-06 TW-93520-14	Thermocouple type J/K Thermistor	Relay	Audible None	76 x 34 x 60 mm	71 x 29 mm	230 VAC	
Celsius models							
TW-93520-02 TW-93520-13	Thermocouple type J/K Thermistor	Relay	Audible None	76 x 34 x 60 mm	71 x 29 mm	110 VAC	
TW-93520-07 TW-93520-16	Thermocouple type J/K Thermistor	Relay	Audible None	76 x 34 x 60 mm	71 x 29 mm	230 VAC	
FM-approved limit switch models							
TW-93520-19 TW-93520-20	Thermocouple type J/K, °F	Relay	Audible None	76 x 34 x 60 mm	71 x 29 mm	110 VAC 24 VDC	
TW-93520-21 TW-93520-22	Thermocouple type J/K, °C	Relay	Audible Audible	76 x 34 x 60 mm	71 x 29 mm	24 VDC 230 VAC	

TW-93520-17 **Configuration key**
TW-93520-23 **Thermistor probe;** 1000 Ω, 5-ft L
TW-17101-63 **NIST-traceable calibration** with data

Temperature Switches

Use to control system temperatures or to act as a final safety shutoff

Designed for use in rigorous industrial or laboratory conditions to control overheating of air compressors, distilling machines, and other equipment. Switches operate in pressurized systems up to 1000 psi. A bimetal snap disc reverses from convex to concave upon reaching temperature trip point, which activates a SPDT microswitch.

The three-wire design allows you to wire SPDT switch for either normally open (NO) or normally closed (NC) operation. Simple to install—switches require very little wiring and do not need shock mounts. Compact enough to easily thread into any ½" NPT opening. Stainless steel housing.

Specifications

Repeatability: ±3°F (±2°C) at standardized conditions
Control rating: SPDT switch rated for 28 VDC or 120 VAC, 5 A max, resistive, 3 A max, inductive; 220 VAC, 5 A max, resistive. 50,000 cycles

Dead band: 15°F, ±5°F (8°C, ±3°C), nonadjustable
Electrical connections: 3 wires, 12" (30.5 cm) L, 20 AWG stranded, PTFE insulation
Dimensions (L x dia): 1¼" x ⅝" (3.2 x 1.6 cm)

Catalog number	Temperature trip point	Price
TW-93880-52	100°F (38°C)	
TW-93880-54	125°F (52°C)	
TW-93880-56	150°F (66°C)	
TW-93880-58	200°F (93°C)	
TW-93880-62	250°F (121°C)	


93880-52

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Tech Insights

What types of temperature probes are there?

Temperature is one of the most commonly measured variables and it is therefore not surprising that there are many ways of sensing it. To measure temperature, heat is transferred by three methods: convection, conduction, and radiation. Temperature sensing can be done either through direct contact with the heating source, or remotely, without direct contact with the source using radiated energy instead. Contact sensors use conduction or convection, while remote sensing uses radiation as the primary method of heat transfer.

Today, there are three types of temperature sensors that are most commonly used: thermocouple, RTD, and thermistor. Thermocouples are the most versatile temperature transducers, RTDs the most stable, and thermistors the most sensitive.

Thermocouple Probes operate on the principle that an electromagnetic force (emf) is generated when heat is applied to the junction of two dissimilar metals (sensing junction). At the other end of the wires, usually as part of the input instrument, is another junction called the reference junction. The temperature is inferred based on the emf difference between the sensing junction and the reference junction, which is at a known temperature.

RTD Probes operate on the principle that the electrical resistance of a metal increases as its temperature increases. The RTD sensing element consists of pure metal (frequently platinum) and shows a small positive, linear change in resistance per degree of temperature change.

Thermistor Probes have a thermally active resistor composed of metal oxides normally encapsulated in epoxy or glass. A typical thermistor shows a large negative, nonlinear change in resistance per degree of temperature change.

The principal factors to determine what sensor probe to use are temperature range, accuracy, and the speed of response. Size and cost will usually be secondary factors.

Temperature Range

Thermocouples are suitable for use from –200 to 2000°C, depending on type. Linearity varies according to type and temperature range. Generally thermocouple linearity falls between thermistor and RTD characteristics.

Platinum RTDs are suitable for use from –50 to 550°C when long-term stability and repeatability is required. They offer virtually linear response over this range and are interchangeable to DIN specifications.

Thermistors are suitable for use from –40 to 200°C when accuracy and high sensitivity are required. Their response is nonlinear but can be linearized over short ranges (50°C or less) or computed by microprocessor.

Accuracy

Thermocouples offer the greatest temperature range and are more cost effective but are the least sensitive and accurate of these sensor types. Typical sensitivity is 50 µV/°C and accuracy in the range of ±2°C unless specially manufactured.

Thermistors have less stability and repeatability, but are more sensitive tha n RTDs. They are typically more expensive compared to RTDs.

RTDs offer the best stability and repeatability, but are less sensitive than thermistors. They usually can be purchased to higher calibrated accuracy than thermistors for equivalent cost.

Speed of Response

Sensor response time depends strongly on the mounting enclosure. A bare, unenclosed sensor will always respond faster than one in a tube or probe assembly, but is also more susceptible to damage.

Considerations

Extend Your Thermocouples up to 2000 feet without signal loss. Extension wire must be the same type as the thermocouple.

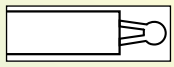
System Error becomes important when you select a probe and meter to make a complete temperature measurement system. For example: a meter has an accuracy of ±0.7°F; from the probe-error limits table below, type T probes with metal sheaths, straight cables, and stripped ends have an error limit of ±1.8°F at 400°F. Therefore, the probe-meter system accuracy will be (±0.7) + (±1.8) = ±2.5°F at 400°F.

NIST Traceability is required for many applications. See pages 254–260 for our calibration services. In order to make an item traceable to NIST standards, the item and the standard are exposed to the same conditions, the readings are noted, and the difference between the readings is recorded on a NIST calibration report. When taking future readings with the item, the value on the calibration report must be added or subtracted from the measured value.

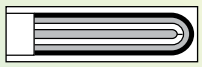
Thermocouple Probe Junction Types

Sheaths with small diameters have faster response times; sheaths with larger diameters have longer life and are better for measuring higher temperatures.

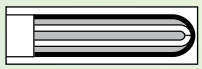
Exposed Junction has the fastest response time—ideal for measuring rapid temperature changes. Clear coating on most models provides a humidity barrier for the thermocouple. Do not use with corrosive fluids or atmospheres. See table at right for recommended atmosphere type for exposed-junction probes.



Ungrounded Junction has a welded junction insulated from the protective sheath and is electrically isolated. Longer response time; use for conductive solutions or where isolation of the measuring circuitry is required.



Grounded Junction has a junction welded to tip of sheath. Wires are completely sealed from contaminants. Good response time.



Probe Sheath Materials

Inconel® 600 Sheath are ideal for severely corrosive environments and at elevated temperatures. Resists progressive oxidation. Maximum operating temperatures: continuous— 2100°F, intermittent—2500°F.

304 SS Sheath are for general purpose use, are corrosion-resistant, and good for food service and biological applications. Maximum operating temperatures: continuous—1650°F, intermittent—2550°F.

316 SS Sheath have higher corrosion resistance than 304 SS. Withstands some strong acids. Maximum operating temperatures: continuous— 1650°F, intermittent—2500°F.

SS Sheath with coating of PFA with grounded junction is ideal with corrosive liquids and atmospheres. Longer response time. Temperatures to 500° F (260°C).

Definitions

Thermocouple Probes are composed of two dissimilar metals, joined to produce a voltage when the applied (measured) temperature differs from the reference temperature.

Thermocouple Thermometers measure, amplify, linearize, and display the proportional voltage signal generated by the thermocouple probe.

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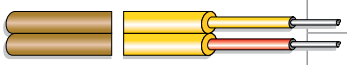
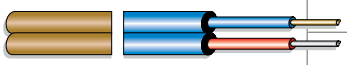
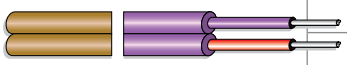
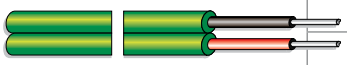
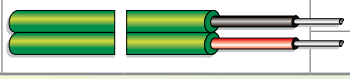
Application/Selection Guide

Physical Characteristics of Thermocouples

Type	Outer Insulation: Thermocouple grade	Outer Insulation: Extension grade	Wire insulation color	Polarity	Wire material of construction	Properties for identification	Atmosphere for exposed junction
J				+	Iron	Strongly magnetic	Reducing
				–	Constantan	—	
K				+	Chromel	Moderately magnetic	Clean oxidizing
				–	Alumel	—	
T				+	Copper	Copper color	Mildly oxidizing and reducing or with moisture
				–	Constantan	—	
E				+	Chromel	Greater stiffness	Vacuum, inert, mildly oxidizing or reducing
				–	Constantan	—	
R				+	87% Platinum 13% Rhodium	Greater stiffness	Resists oxidation and corrosion, but contaminated by hydrogen, carbon, and metal vapors
				–	Platinum	—	
S				+	90% Platinum 10% Rhodium	Greater stiffness	
				–	Platinum	—	

Maximum Thermocouple Probe Error Limits

Tolerances apply only to new thermocouples from –200°C to the recommended upper temperature limit of the probe. Tolerances change with use and it is up to the user to establish acceptable limits of error for used thermocouples. Calculated from ASTM tolerances.

Type	Maximum error limit
Probes with detachable handles	
J, K	±4.0°F (±2.2°C), or ±0.4% of reading above 32°F (0°C); ±2.0% of reading below 32°F (0°C)
T	±1.8°F (±1.0°C), or ±0.4% of reading above 32°F (0°C); ±0.8% of reading below 32°F (0°C)
E	±3.6°F (±2.0°C), or ±0.4% of reading above 32°F (0°C); ±0.5% of reading below 32°F (0°C)
Probes with metal sheath, coiled cord, and connector	
J, K	±7.9°F (±4.4°C), or ±0.4% of reading above 32°F (0°C); ±2.0% of reading below 32°F (0°C)
T	±3.6°F (±2.0°C), or ±0.4% of reading above 32°F (0°C); ±0.8% of reading below 32°F (0°C)
E	±6.7°F (±3.7°C), or ±0.4% of reading above 32°F (0°C); ±0.5% of reading below 32°F (0°C)
Probes with metal sheath, straight cable, and connector	
J, K	±5.9°F (±3.3°C), or ±0.4% of reading above 32°F (0°C); ±2.0% of reading below 32°F (0°C)
T	±2.7°F (±1.5°C), or ±0.4% of reading above 32°F (0°C); ±0.8% of reading below 32°F (0°C)
E	±5.4°F (±3.0°C), or ±0.4% of reading above 32°F (0°C); ±0.5% of reading below 32°F (0°C)
Probes with metal sheath, straight cable, and stripped ends	
J, K	±4.0°F (±2.2°C), or ±0.4% of reading above 32°F (0°C); ±2.0% of reading below 32°F (0°C)
T	±1.8°F (±1.0°C), or ±0.4% of reading above 32°F (0°C); ±0.8% of reading below 32°F (0°C)
E	±3.6°F (±2.0°C), or ±0.4% of reading above 32°F (0°C); ±0.5% of reading below 32°F (0°C)
Probes made of one piece of thermocouple wire with a connector	
J, K	±4.0°F (±2.2°C), or ±0.4% of reading above 32°F (0°C); ±2.0% of reading below 32°F (0°C)
T	±1.8°F (±1.0°C), or ±0.4% of reading above 32°F (0°C); ±0.8% of reading below 32°F (0°C)
E	±3.6°F (±2.0°C), or ±0.4% of reading above 32°F (0°C); ±0.5% of reading below 32°F (0°C)
Thermocouple wire only, no connector	
J, K	±2.0°F (±1.1°C), or ±0.4% of reading above 32°F (0°C); ±2.0% of reading below 32°F (0°C)
T	±0.9°F (±0.5°C), or ±0.4% of reading above 32°F (0°C); ±0.8% of reading below 32°F (0°C)
E	±1.8°F (±1.0°C), or ±0.4% of reading above 32°F (0°C); ±0.5% of reading below 32°F (0°C)

Selection Chart

Choose the right temperature probe for your application based on the following features:

Feature	Thermocouple	Platinum RTD	Thermistor
Temperature range	High	Medium	Low
Accuracy	Low	Medium	High
Long-term stability	Low	High	Medium
Repeatability	Low	High	Medium
Linearity	Average	Good	Poor
Size	Large	Small	Medium
Time response	2 to 5 sec	2 to 5 sec	1 to 2 sec

Probe Table of Contents

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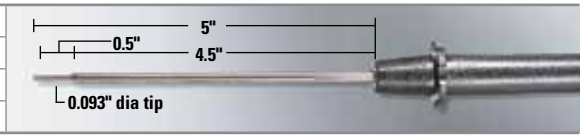
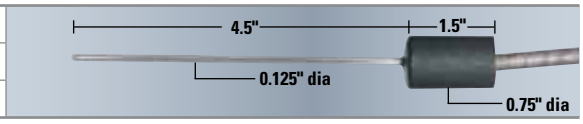
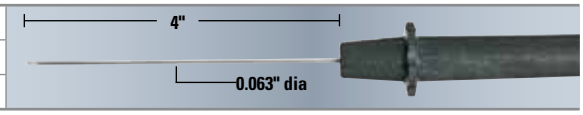
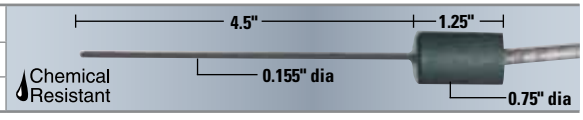
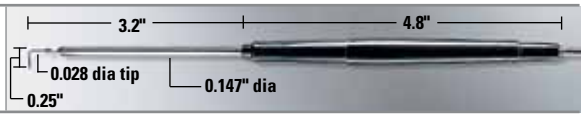
OAKTON® General-Purpose Thermocouple Probes with Miniconnector End

Choose from a wide variety of general-purpose standard, micro-, and heavy-duty probes. Probes with handle feature strain relief spring that protects the cable connection against damage due to repeated flexing and tugging. Standard glass-filled nylon handles measure 5.5"L. Feature color-coded ANSI miniconnectors: type J—black, type K—yellow, type T—blue, and type E—purple. Temperature range is for the probe only. Probes with a plastic handle have a maximum temperature of 275°F (135°C) before being affected.

Catalog number	Type	Temperature range °F (°C)	Description	Price	Photo/Dimensions†
Standard probes, 5"L; for use with liquids, gases, and semisolids. Include standard handle and 5-ft coiled cable.					
TW-08517-55	J	–310 to 1400 (–190 to 760)	Junction: grounded Time constant: 3 sec (liquids) Response time: 15 sec (liquids) 316 SS sheath; Miniconnector; Glass-filled nylon handle		
TW-08516-55	K	–418 to 1650 (–250 to 899)			
TW-08500-55	T	–418 to 752 (–250 to 400)			
TW-08512-55	E	–418 to 1600 (–250 to 871)			
Low-cost probes, 4.5"L; for use with liquids, gases, and semisolids. Include 5-ft coiled cable.					
TW-08439-60	J	–310 to 1400 (–190 to 760)	Junction: grounded Time constant: 6 sec (liquids) Response time: 30 sec (liquids) 304 SS sheath; Miniconnector; Glass-filled nylon handle		
TW-08439-62	K	–418 to 1650 (–250 to 899)			
TW-08439-64	T	–418 to 752 (–250 to 400)			
Small-diameter standard probes, 4"L; for use with liquids, gases, and semisolids. Include standard handle and 5-ft coiled cable.					
TW-08505-55	J	–310 to 1300 (–190 to 704)	Junction: grounded Time constant: 2 sec Response time: 10 sec 316 SS sheath; Miniconnector; Glass-filled nylon handle		
TW-08505-56	K	–418 to 1500 (–250 to 816)			
TW-08505-57	T	–418 to 650 (–250 to 343)			
Small-diameter probes with miniature stainless steel handles, 8"L. Ideal for checking food temperatures. Include 5-ft coiled cable.					
TW-08505-61	J	–310 to 1300 (–190 to 704)	Junction: grounded Time constant: 2 sec Response time: 10 sec 316 SS sheath; Miniconnector; SS handle		
TW-08505-62	K	–418 to 1500 (–250 to 816)			
TW-08505-63	T	–418 to 650 (–250 to 343)			
All stainless steel probes, 8"L; for added durability—ideal for food processing applications. Include 4.5"L SS handle and 4-ft STW-armored cable.					
TW-93600-02	J	–310 to 1400 (–190 to 760)	Junction: grounded Time constant: 6 sec Response time: 30 sec 316 SS sheath; Miniconnector; SS handle		
TW-93600-22	K	–418 to 1650 (–250 to 899)			
TW-93600-42	T	–418 to 752 (–250 to 400)			
Extra-long stainless steel probes, 10"L. Use with liquids, gases, and semisolids. Include standard handle and 5-ft coiled cable.					
TW-93756-00	J	–310 to 1400 (–190 to 760)	Junction: grounded Time constant: 3 sec (liquids) Response time: 15 sec (liquids) 316 SS sheath; Miniconnector; Glass-filled nylon handle		
TW-93756-20	K	–418 to 1650 (–250 to 899)			
TW-93756-40	T	–418 to 752 (–250 to 400)			
Extra-long stainless steel probes with ungrounded junction, 10"L. Use in electrically noisy environments. Include standard handle and 5-ft coiled cable.					
TW-93758-00	J	–310 to 1400 (–190 to 760)	Junction: grounded Time constant: 5 sec Response time: 25 sec 316 SS sheath; Miniconnector; Glass-filled nylon handle		
TW-93758-02	K	–418 to 1650 (–250 to 899)			
TW-93758-04	T	–418 to 752 (–250 to 400)			
Extra-long PFA-coated probes, 10"L; for use with corrosive chemicals and strong acids. Include standard handle and 5-ft coiled cable.					
TW-93812-00	J	–310 to 500 (–190 to 260)	Junction: grounded Time constant: 11 sec Response time: 55 sec 316 SS sheath; Miniconnector; Glass-filled nylon handle		
TW-93812-02	K	–418 to 500 (–250 to 260)			
TW-93812-04	T	–418 to 500 (–250 to 260)			
Low-cost PTFE-coated probes, 4.5"L; for use with corrosive liquids. Include 5-ft coiled cable.					
TW-08441-10	J	–310 to 302 (–190 to 150)	Junction: grounded Time constant: 11 sec (liquids) Response time: 55 sec (liquids) 304 SS sheath; Miniconnector; Glass-filled nylon handle		
TW-08441-12	K	–418 to 302 (–250 to 150)			
TW-08441-14	T	–418 to 302 (–250 to 150)			
Straight-shaft microprobes, 4"L. Include 4-ft straight PVC-insulated cable.					
TW-08116-60	J	–310 to 750 (–190 to 399)	Junction: grounded Time constant: 5 sec Response time: 25 sec 316 SS sheath; Miniconnector; Miniature SS handle		
TW-08117-60	K	–418 to 800 (–250 to 427)			
TW-08113-60	T	–418 to 450 (–250 to 232)			
Fast response microprobe with 90 -angle tip, 4"L. Include 5-ft straight PVC-insulated cable.					
TW-08506-95	T	–418 to 752 (–250 to 400)	Junction: grounded Time constant: 0.15 sec Response time: 0.75 sec 304 SS sheath; Miniconnector; PVC handle		

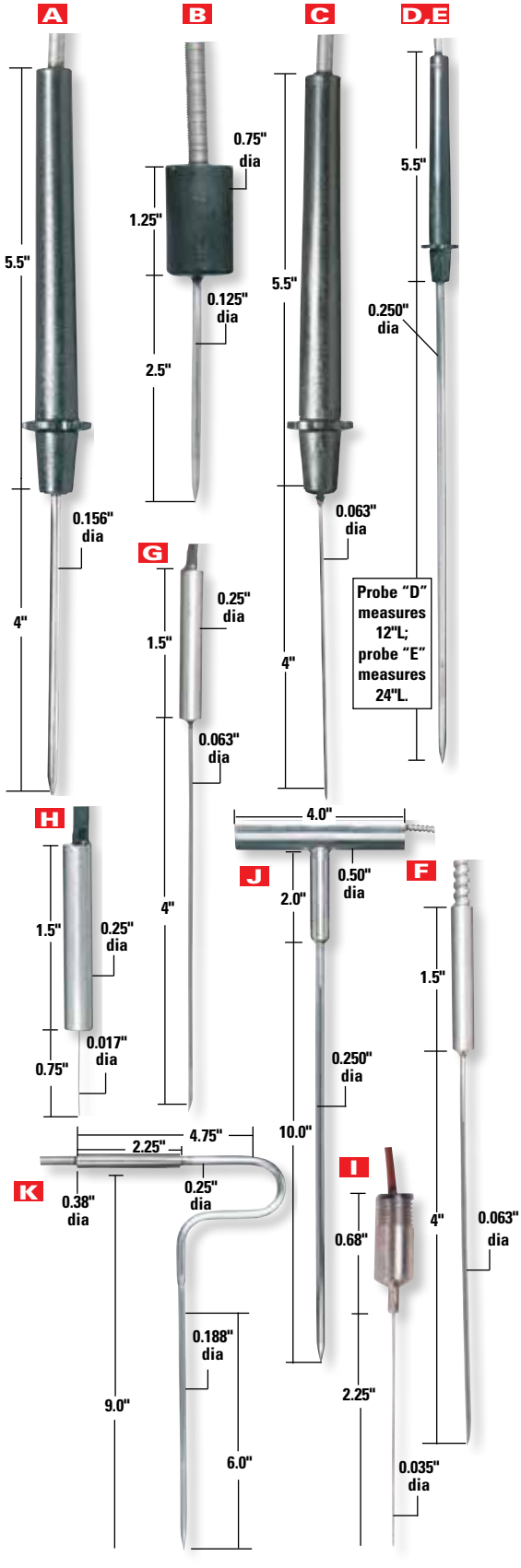
†Overall probe sheath lengths may vary up to ±0.25".

OAKTON® Penetration Thermocouple Probes with Miniconnector End

These probes are great for penetrating soft or semisoft materials. Choose from a variety of sharp penetration tip, hypodermic-tip, or heavy-duty probes. Probes include handle with strain relief spring and feature color-coded ANSI miniconnectors: type J—black, type K—yellow, type T—blue, and type E—purple. Temperature range is for the probe only. Probes with a plastic handle have a maximum temperature of 275°F (135°C) before being affected.

Key	Catalog number	Type	Temperature range °F (°C)	Description	Price
Standard probes, 4"L. Include 5-ft coiled cable. Ideal for soft or semisoft materials.					
A	TW-08517-65	J	–310 to 1400 (–190 to 760)	Junction: grounded Response time: 25 sec (liquids) 304 SS sheath; Miniconnector; Glass-filled nylon handle	
	TW-08516-65	K	–418 to 1650 (–250 to 899)		
	TW-08500-65	T	–418 to 752 (–250 to 400)		
Low-cost probes, 2.5"L. Include 5-ft coiled cable.					
B	TW-08439-80	J	–310 to 1400 (–190 to 760)	Junction: grounded Response time: 25 sec (liquids) 316 SS sheath; Miniconnector; Glass-filled nylon handle	
	TW-08439-82	K	–418 to 1650 (–250 to 899)		
	TW-08439-84†	T	–418 to 752 (–250 to 400)		
Small-diameter probes with hypodermic tip, 4"L. Include 5-ft coiled cord.					
C	TW-93601-02	J	–310 to 1300 (–190 to 704)	Junction: grounded Response time: 15 sec 316 SS sheath; Miniconnector; Glass-filled nylon handle	
	TW-93601-04	K	–418 to 1500 (–250 to 816)		
	TW-93601-06	T	–418 to 650 (–250 to 343)		
Heavy-duty probes, 12"L—extra length for large samples. Include 5-ft coiled cable. Ideal for use in soft ground and semifrozen materials.					
D	TW-93601-22	J	–310 to 1400 (–190 to 760)	Junction: grounded Response time: 50 sec 316 SS sheath; Miniconnector	
	TW-93601-24	K	–418 to 1652 (–250 to 900)		
	TW-93601-26	T	–418 to 700 (–250 to 371)		
Extra-long heavy-duty probes, 24"L—extra length for large samples. Include 5-ft coiled cable. Ideal for use in soft ground and semifrozen materials.					
E	TW-93601-42	J	–310 to 1400 (–190 to 760)	Junction: grounded Response time: 50 sec 316 SS sheath; Miniconnector	
	TW-93601-44	K	–418 to 1652 (–250 to 900)		
	TW-93601-46	T	–418 to 550 (–250 to 287)		
Food-service probes with hypodermic tip, 4"L. Include 4-ft straight armored cable.					
F	TW-93607-20	J	–310 to 700 (–190 to 371)	Junction: grounded Response time: 10 sec 316 SS sheath; Miniconnector; 316 SS handle	
	TW-93607-22	K	–418 to 700 (–250 to 371)		
	TW-93607-24	T	–418 to 700 (–250 to 371)		
Hypodermic probes, 4"L. Include 4-ft straight PVC-insulated cable and bendable sheath.					
G	TW-08116-65	J	–310 to 700 (–190 to 371)	Junction: grounded Response time: 10 sec 316 SS sheath; Miniconnector; 316 SS handle	
	TW-08117-65	K	–418 to 700 (–250 to 371)		
	TW-08113-65	T	–418 to 700 (–250 to 371)		
Needle microprobes, 0.75"L. Include 5-ft straight PVC-insulated cable. Use for liquids, soft materials, and semisolids.					
H	TW-08505-97	J	–310 to 392 (–190 to 200)	Junction: grounded Response time: 5 sec 316 SS sheath; Miniconnector	
	TW-08505-96	K	–418 to 392 (–250 to 200)		
	TW-08505-95	T	–418 to 392 (–250 to 200)		
Small-diameter hypodermic probes, 2.25"L. Include 2.5-ft straight PTFE-insulated cable. Hypodermic tip penetrates soft or semisoft materials without disturbing large sample areas.					
I	TW-08505-89	J	–310 to 600 (–190 to 315)	Junction: grounded Response time: 5 sec 316 SS sheath; Miniconnector; Miniature handle	
	TW-08505-92	K	–418 to 600 (–250 to 315)		
	TW-08505-93	T	–418 to 600 (–250 to 315)		
Heavy-duty stainless steel probes with T handle, 10"L. Include 4-ft SS armored cable for added durability. Rugged handle is ideal for use with all types of aggregates in the construction industry.					
J	TW-93601-82	J	–310 to 1400 (–190 to 760)	Junction: grounded Response time: 50 sec 316 SS sheath; Miniconnector	
	TW-93601-84	K	–418 to 1652 (–250 to 900)		
	TW-93601-86	T	–418 to 550 (–250 to 287)		
Heavy-duty stainless steel probes, 6"L. Include 5-ft coiled cable. Use for soft or semisoft materials such as semifrozen meats, liquids, or plastics. Sharp tip penetrates 6".					
K	TW-08517-67	J	–310 to 1400 (–190 to 760)	Junction: grounded Response time: 30 sec 316 SS sheath; Miniconnector	
	TW-08516-67	K	–418 to 1652 (–250 to 900)		
	TW-08500-67	T	–418 to 550 (–250 to 287)		

†Max error limit: ±7.9°F (±4.4°C) or ±0.4% of reading, above 32°F (0°C). ‡Overall probe sheath lengths may vary up to ±0.25".

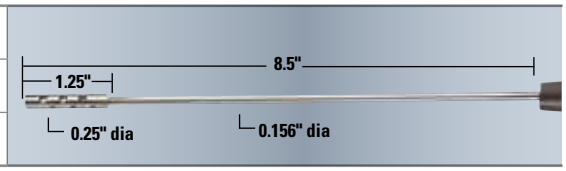
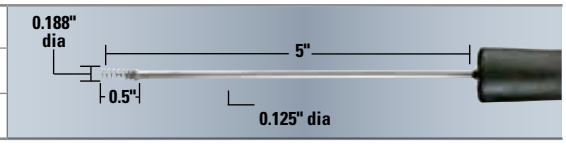


INNOCAL® INNOVATIVE CALIBRATION SOLUTIONS

TW-17001-10 NIST-traceable calibration for thermocouple probe

OAKTON® Air/Gas Thermocouple Probes with Miniconnector End

Air/gas probes feature a wire coil or perforated shield to minimize error from radiated heat. Probes include handle with strain relief spring and feature color-coded ANSI miniconnectors: type J—black, type K—yellow, and type T—blue. Temperature range is for the probe only. Probes with a plastic handle have a maximum temperature of 275°F (135°C) before being affected.

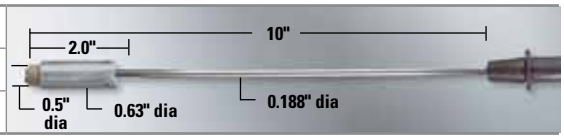
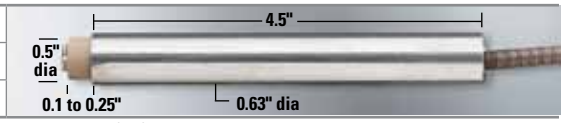
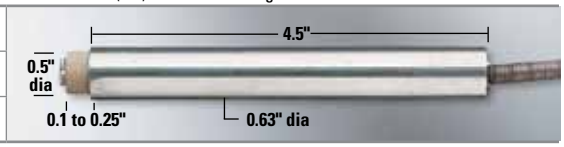
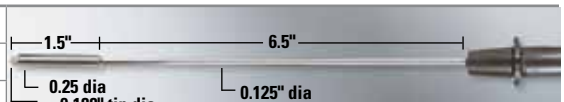
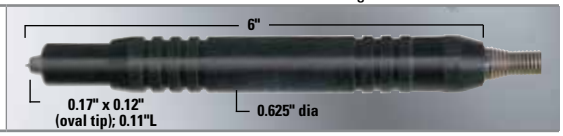
Catalog number	Type	Temperature range °F (°C)	Description	Price	Photo/Dimensions†
General-purpose air/gas probes, 8.5"L; for general-purpose air temperature measurement. Includes 5-ft coiled cable.					
TW-08517-75	J	–310 to 1000 (–190 to 537)	Junction: exposed; isolated Time constant: 45 s at 5 m/s airflow Response time: 225 s at 5 m/s airflow 316 SS sheath and radiation shield Miniconnector; nylon handle		
TW-08516-75	K	–418 to 1000 (–250 to 537)			
TW-08500-75	T	–418 to 1000 (–250 to 537)			
Low-cost air/gas probes, 5"L; for general-purpose air temperature measurement. Includes 5-ft coiled cable.					
TW-08439-90	J	–310 to 572 (–190 to 300)	Junction: exposed; isolated Time constant: 45 s at 5 m/s airflow Response time: 225 s at 5 m/s airflow 304 SS sheath and SS wire coil Miniconnector; nylon handle		
TW-08439-92	K	–418 to 572 (–250 to 300)			
TW-08439-94	T	–418 to 572 (–250 to 300)			

†Overall probe sheath lengths may vary up to ±0.25".

TW-17001-10 **NIST-traceable calibration** for thermocouple probe

OAKTON® Surface Thermocouple Probes with Miniconnector End

Probes are designed for monitoring a wide range of flat surfaces. Choose from a variety of surface probes—standard, angled for hard-to-reach areas, heavy-duty, or special-purpose surface probes for specific applications. These probes include a handle; strain relief spring on handle protects the cable connection against damage due to repeated flexing and tugging. Probes feature color-coded ANSI miniconnectors for easy identification: type J—black, type K—yellow, type T—blue. Temperature range is for the probe only. Probes with a plastic handle have a maximum temperature of 275°F (135°C) before being affected.

Catalog number	Type	Temperature range °F (°C)	Description	Price	Photo/ dimensions†
Standard straight probes, 10"L. Use to monitor such surfaces as hot plates, furnaces, and molds. Exposed junction is isolated from 316 SS shaft and aluminum housing with ceramic support. Includes a 5-ft coiled cable.					
TW-08517-60	J	–310 to 1200 (–190 to 649)	Junction: exposed; isolated Response time: 30 sec 316 SS shaft; aluminum housing Miniconnector; nylon handle		
TW-08516-60	K	–418 to 1200 (–250 to 649)			
TW-08500-60	T	–418 to 650 (–250 to 343)			
Low-cost probes, 4.75"L. Exposed junction is isolated from aluminum housing with ceramic support. Includes a 5-ft coiled cable.					
TW-08439-70	J	–310 to 1200 (–190 to 649)	Junction: exposed; isolated Response time: 30 sec Aluminum housing Miniconnector		
TW-08439-72	K	–418 to 1200 (–250 to 649)			
TW-08439-74‡	T	–418 to 700 (–250 to 371)			
Low-cost probes, 4.75"L. Exposed junction is isolated from aluminum housing with ceramic support. Includes 3-ft stainless steel (SS) braid over fiberglass wire.					
TW-08519-66	J	–310 to 1200 (–190 to 649)	Junction: exposed; isolated Response time: 30 sec Aluminum housing Miniconnector		
TW-08514-66	K	–418 to 1200 (–250 to 649)			
TW-08525-66‡	T	–418 to 750 (–250 to 399)			
Small-diameter probes, 8"L. Small diameter is ideal for confined areas. Exposed junction is isolated from 316 SS shaft and housing with ceramic support. Includes a 5-ft coiled cable.					
TW-08517-62	J	–310 to 1200 (–190 to 649)	Junction: exposed; isolated Response time: 15 sec 316 SS shaft and housing Miniconnector; nylon handle		
TW-08516-62	K	–418 to 1200 (–250 to 649)			
TW-08500-62	T	–418 to 650 (–250 to 343)			
Fast-response probes, 6"L. Ideal for small-scale stationary applications, including electronics. Exposed junction is isolated from 304 SS shaft.Includes a 3-ft straight PVC cable.					
TW-08533-96	K	–418 to 752 (–250 to 400)	Junction: exposed; isolated Response time: 0.5 sec 304 SS tip and shaft Miniconnector; nylon handle		

†Overall probe sheath lengths may vary up to ±0.25". ‡Max. error limit: ±7.9°F (±4.4°C) or ±0.4% of reading, above 32°F (0°C).

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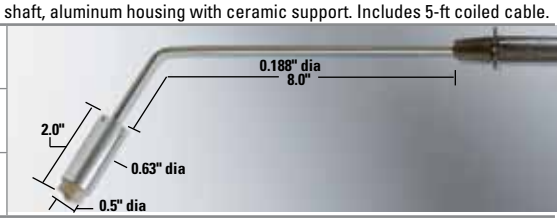
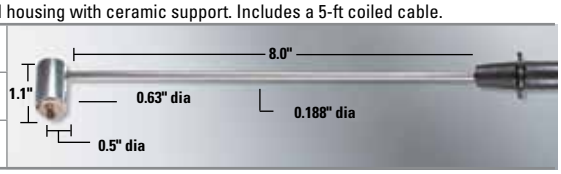
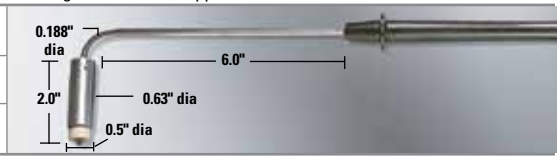
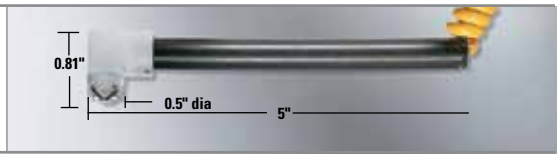
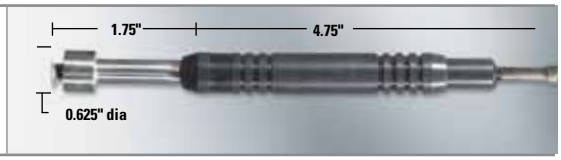
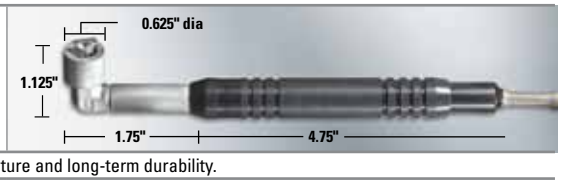
OAKTON® Surface Thermocouple Probes with Miniconnector End (continued from page 1751)

Temperature range is for the probe only. Probes with a plastic handle have a maximum temperature of 275°F (135°C) before being affected.

Catalog number	Type	Temperature range in °F (°C)	Description	Price	Photo/ dimensions†
45°-angle probes, 10"L. Angled probe for measuring hard-to-reach areas. Exposed junction is isolated from 316 SS shaft, aluminum housing with ceramic support. Includes 5-ft coiled cable.					
TW-08517-61	J	–310 to 1200 (–190 to 649)	Junction: exposed; isolated Response time: 30 sec 316 SS shaft; aluminum housing Miniconnector; nylon handle		
TW-08516-61	K	–418 to 1200 (–250 to 649)			
TW-08500-61	T	–418 to 650 (–250 to 343)			
Compact 90°-angle probes, 8.5"L. Ideal for hard-to-reach areas. Exposed junction is isolated from 316 SS shaft and housing with ceramic support. Includes a 5-ft coiled cable.					
TW-08517-63	J	–310 to 1200 (–190 to 649)	Junction: exposed; isolated Response time: 30 sec 316 SS shaft; aluminum housing Miniconnector; nylon handle		
TW-08516-63	K	–418 to 1200 (–250 to 649)			
TW-08500-63	T	–418 to 650 (–250 to 343)			
90°-angle probes, 8.5"L. Ideal for hard-to-reach areas. Exposed junction is isolated from 316 SS shaft and aluminum housing with ceramic support. Includes a 5-ft coiled cable.					
TW-08517-64	J	–310 to 1200 (–190 to 649)	Junction: exposed; isolated Response time: 30 sec 316 SS shaft; aluminum housing Miniconnector; nylon handle		
TW-08516-64	K	–418 to 1200 (–250 to 649)			
TW-08500-64	T	–418 to 650 (–250 to 343)			
90°-angle probe with guarded tip, 5"L. Ideal for hard-to-reach or difficult-to-contact areas. PTFE-guarded tip protects the exposed junction. Angled probe allows you to take measurements on hard-to-reach surfaces. Includes a 3-ft coiled cable.					
TW-08445-10	K	–418 to 500 (–250 to 260)	Junction: exposed; isolated Response time: 5 sec Guarded tip Miniconnector		
Stainless steel straight guard probes, 6.5"L. Durable precision construction offers high accuracy and extra-fast response—ideal for industrial applications. Exposed junction is isolated by 304 SS guard. Includes a 3-ft straight PVC-insulated cable.					
TW-08447-21	K	–418 to 932 (–250 to 500)	Junction: exposed; isolated Response time: 0.75 sec 304 SS shaft and guard Miniconnector		
Stainless steel 90°-angle guard probes, 6.5"L. Durable precision construction offers high accuracy and extra-fast response—ideal for industrial applications. Exposed junction is isolated by 304 SS guard. Includes a 3-ft straight PVC-insulated cable.					
TW-08447-41	K	–418 to 932 (–250 to 500)	Junction: exposed; isolated Response time: 0.75 sec 304 SS shaft and guard Miniconnector		
Self-adhesive probes, adhere to most surfaces, Kapton®-insulated wire and industrial adhesives for high temperature and long-term durability.					
TW-08519-50	J	–310 to 760 (–190 to 404)	Junction: grounded Response time: 5 sec 316 SS sheath Miniconnector; nylon handle Kapton tape glue is rated to 400°F (204°C)	/ pk of 3	
TW-08519-52	K	–418 to 760 (–250 to 404)		pk of 3	
TW-08519-54	T	–418 to 760 (–250 to 404)		/ pk of 3	

†Overall probe sheath lengths may vary up to ±0.25".

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TW-17001-10 NIST-traceable calibration
for thermocouple probe

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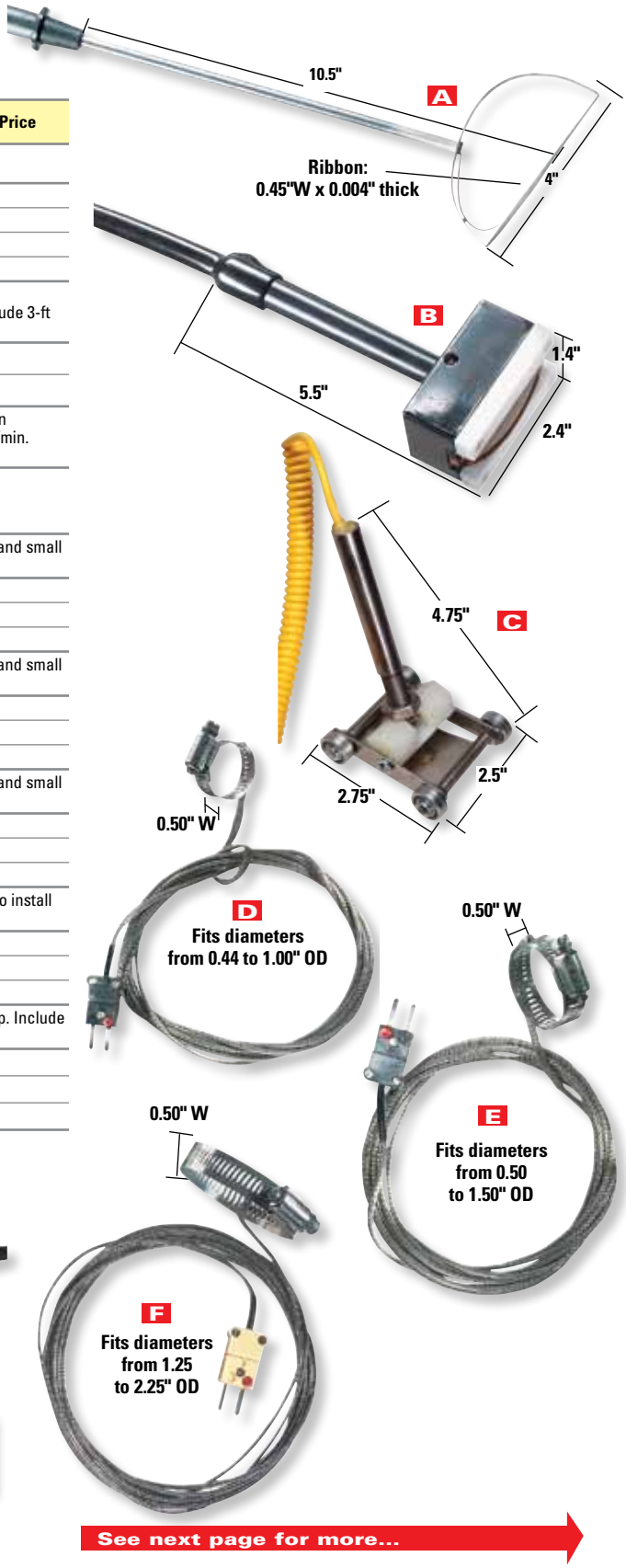
OAKTON® Specialty Surface Thermocouple Probes with Miniconnector End

Probes feature color-coded ANSI miniconnectors for easy identification: type J—black, type K—yellow, type T—blue, and type E—purple. Temperature range is for the probe only. Probes with a plastic handle have a maximum temperature of 275°F (135°C) before being affected.

Key	Catalog number	Type	Temperature range °F (°C)	Description	Price
Roller probes, 10.5"L with 4"L bow. Measure moving rollers and similar convex surfaces; feature a ribbon-mounted thermocouple stretched across a C-shaped bow. Include 5-ft coiled cable.					
A	TW-08517-95	J	–310 to 600 (–190 to 316)	Junction: exposed Response time: 75 sec (metals) 304 SS sheath and ribbon Miniconnector	
	TW-08516-95	K	–418 to 932 (–250 to 500)		
	TW-08500-95	T	–418 to 450 (–250 to 232)		
	TW-08512-95	E	–418 to 600 (–250 to 316)		
PTFE moving surface probes, 2.4"L x 1.4"W; for quick, precise temperature measurements of moving or stationary surfaces. Maximum surface speed is 2500 ft/min. PTFE guard protects exposed junction. Include 3-ft SS braided cable.					
B	TW-08533-69	J	–310 to 482 (–190 to 250)	Junction: exposed Response time: 2 sec PTFE guard; Miniconnector	
	TW-08533-63	K	–418 to 482 (–250 to 250)		
Rolling wheel moving surface probe. Measure temperature of rotary and other moving surfaces; use on 7" dia to flat surfaces. Feature adjustable handle for use at any angle. Maximum surface speed is 300 ft/min. Include 3-ft coiled cable.					
C	TW-08445-31	K	–418 to 500 (–250 to 260)	Junction: exposed Response time: 7.5 sec PTFE body; Miniconnector	
Hose clamp probes; fit diameters from 0.44 to 1.00" dia. Durable—permanently install on hoses, piping, and small round vessels. Include 10-ft SS braided cable.					
D	TW-08469-20	J	–310 to 900 (–190 to 482)	Junction: grounded Response time: 25 sec 304 SS clamp; Miniconnector	
	TW-08469-22	K	–418 to 900 (–250 to 482)		
	TW-08469-24	T	–418 to 750 (–250 to 399)		
Hose clamp probes; fit diameters from 0.50 to 1.50" OD. Durable—permanently install on hoses, piping, and small round vessels. Include 10-ft SS braided cable.					
E	TW-08469-30	J	–310 to 900 (–190 to 482)	Junction: grounded Response time: 25 sec 304 SS clamp; Miniconnector	
	TW-08469-32	K	–418 to 900 (–250 to 482)		
	TW-08469-34	T	–418 to 750 (–250 to 399)		
Hose clamp probes; fit diameters from 1.25 to 2.25" OD. Durable—permanently install on hoses, piping, and small round vessels. Include 10-ft SS braided cable.					
F	TW-08469-40	J	–310 to 900 (–190 to 482)	Junction: grounded Response time: 25 sec 304 SS clamp; Miniconnector	
	TW-08469-42	K	–418 to 900 (–250 to 482)		
	TW-08469-44	T	–418 to 750 (–250 to 399)		
Velcro® strap-on probes, 8"L. Temporarily or permanently strap onto tubing or pipes—probes are easy to install and remove. Strap fits diameters from 0.75 to 2.75" OD. Include 10-ft straight PTFE cable.					
G	TW-08469-80	J	–310 to 212 (–190 to 100)	Junction: ungrounded Response time: 300 sec Miniconnector	
	TW-08469-82	K	–418 to 212 (–250 to 100)		
	TW-08469-84	T	–418 to 212 (–250 to 100)		
Alligator clip oven probes, 2"L. Clip onto objects inside ovens. Exposed junction probe is mounted in clip. Include 10-ft 304 SS braid over fiberglass-insulated cable—resists higher temperatures.					
H	TW-08468-20	J	–310 to 650 (–190 to 343)	Junction: exposed Response time: 60 sec Nickel-plated steel clip; Miniconnector	
	TW-08468-22	K	–418 to 650 (–250 to 343)		
	TW-08468-24	T	–418 to 650 (–250 to 343)		

TW-17001-10 NIST-traceable calibration
for thermocouple probe



See next page for more...

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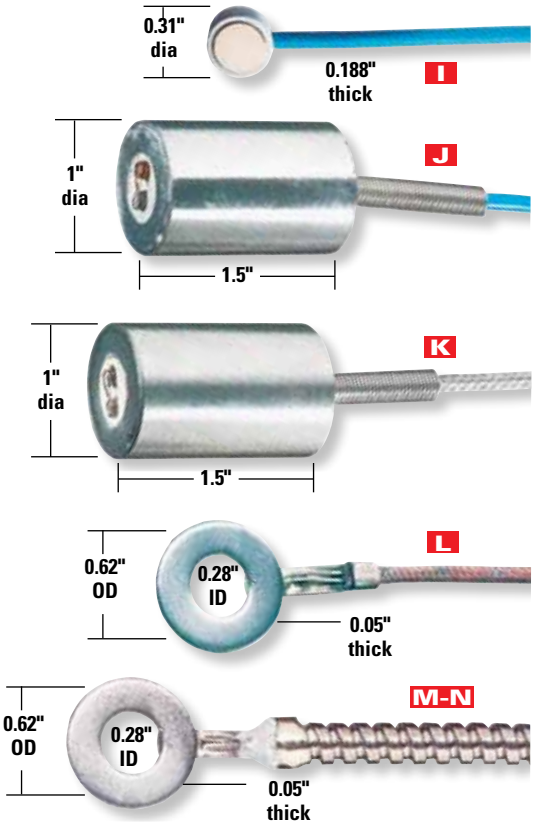
OAKTON® Specialty Surface Thermocouple Probes with Miniconnector End (continued from page 1753)



Key	Catalog number	Type	Temperature range °F (°C)	Description	Price
Disc probe; ideal for checking small-surface temperatures. Tape vinyl-insulated 10-kt gold-plated disc sensor onto any flat surface. Includes 5-ft straight PVC-insulated cable.					
I	TW-08506-80	T	–418 to 194 (–250 to 90)	Junction: grounded Response time: 0.75 sec Miniconnector	
Dropping/magnetic probes, 1.5"L. Attach magnetic probe to any flat ferrous surface. Include 5-ft coiled cable.					
J	TW-08517-86	J	–310 to 1200 (–190 to 649)	Junction: exposed Response time: 30 sec Aluminum housing; Miniconnector	
	TW-08516-86	K	–418 to 1200 (–250 to 649)		
	TW-08500-86	T	–418 to 750 (–250 to 399)		
Dropping/magnetic probes, 1.5"L. Attach magnetic probe to any flat ferrous surface. Include 10-ft straight SS braid over fiberglass-insulated wire.					
K	TW-08519-86	J	–310 to 1200 (–190 to 649)	Junction: exposed Response time: 30 sec Aluminum housing; Miniconnector	
	TW-08514-86	K	–418 to 1200 (–250 to 649)		
	TW-08525-86	T	–418 to 750 (–250 to 399)		
Bolt-on probes with fiberglass cable and miniconnector. Use for measuring machinery or mold temperatures. Include 25-ft straight fiberglass cable.					
L	TW-08519-84	J	–310 to 900 (–190 to 482)	Junction: grounded Response time: 75 sec 304 SS washer; Miniconnector	
	TW-08514-84	K	–418 to 900 (–250 to 482)		
	TW-08525-84	T	–418 to 750 (–250 to 399)		
Bolt-on probes with SS armored cable and miniconnector. Bolt washer to fixed surfaces for continuous monitoring. Include 5-ft straight 304 SS armor over fiberglass wire.					
M	TW-08517-85	J	–310 to 900 (–190 to 482)	Junction: grounded Response time: 75 sec 304 SS washer; Miniconnector	
	TW-08516-85	K	–418 to 900 (–250 to 482)		
	TW-08500-85	T	–418 to 750 (–250 to 399)		
Bolt-on probes with SS armored cable and stripped-end leads. Bolt washer to fixed surfaces for continuous monitoring. Include 5-ft straight 304 SS armor over fiberglass wire.					
N	TW-08519-85	J	–310 to 900 (–190 to 482)	Junction: grounded Response time: 75 sec 304 SS washer	
	TW-08514-85	K	–418 to 900 (–250 to 482)		
	TW-08525-85	T	–418 to 750 (–250 to 399)		

TW-17001-10 **NIST-traceable calibration** for thermocouple probe

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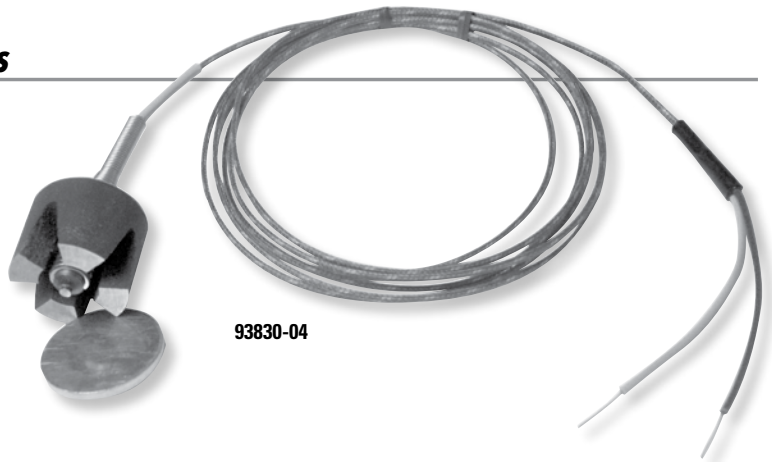
Magne-Couple Industrial Thermocouple Probes

Ruggedly designed for industrial use, but versatile for use in most applications

Magne-Couple thermocouple probes are designed for temporary surface monitoring of any ferrous surface. They attach to the surface by utilizing a powerful Alnico Magnet with a holding force of 16 lb. The magnet forces the spring loaded sensing tip into contact with the surface being monitored. Probes are capable of withstanding up to 1000°F without degradation.



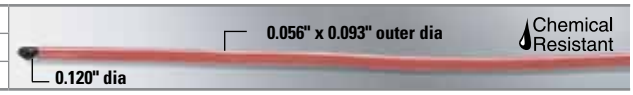
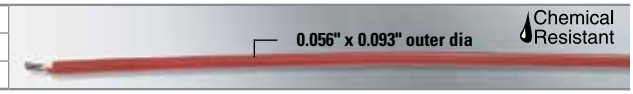
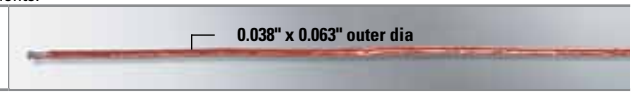
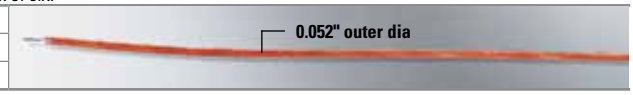
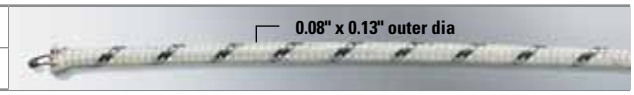
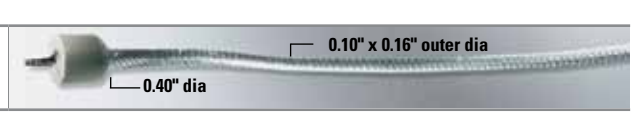
Catalog number	Type	Temperature range	Magnet strength	Termination	Price
TW-93830-04	J	32 to 1000°F (0 to 537°C)	16 lb	6-ft lead with 3" pigtail	
TW-93830-05	K				

TW-17001-10 **NIST-traceable calibration** for thermocouple probe

OAKTON® Flexible Insulated-Wire Thermocouple Probes with Miniconnector

All insulated-wire probes include straight insulated cable with no handle and feature ANSI color-coded miniconnectors: type J—black, type K—yellow, and type T—blue. Fiberglass- and ceramic-insulated probes have exposed junctions; use for high-temperature applications.

Note: Exposed-junction probes are not recommended for use with aqueous solutions. Do not subject type J exposed-junction probes to moisture—iron wire will rust.

Catalog number	Type	Temperature range °F (°C)	Description	Price	Photos/ dimensions
PVC-insulated probe with PVC-coated tip, 24-gauge (0.020" dia) wire; 5-ft L; short-term immersible.					
TW-08505-90	T	–418 to 257 (–250 to 125)	Junction: ungrounded Response time: 18 sec		
PVC-insulated probes with PVC-coated tip, 20-gauge (0.032" dia) wire; 10-ft L; short-term immersible.					
TW-08466-02	J	–310 to 221 (–190 to 105)	Junction: ungrounded Response time: 25 sec		
TW-08466-04	K	–418 to 221 (–250 to 105)			
TW-08466-06	T	–418 to 221 (–250 to 105)			
PVC-insulated probes, 24-gauge (0.020" dia) wire; 3-ft L; includes rubber strain relief.					
TW-08515-00	J	–310 to 221 (–190 to 105)	Junction: exposed Response time: 15 sec		
TW-08515-01	K	–418 to 221 (–250 to 105)			
TW-08515-02	T	–418 to 221 (–250 to 105)			
Fine-gauge PTFE-insulated probe, 0.025" outer dia; 3-ft L. Tissue implantable microprobe; for semisolids. Includes five 18-gauge hypodermic needles.					
TW-08506-75	T	–492 to 300 (–273 to 150)	Junction: ungrounded Response time: 0.5 sec		
Quick-response PFA-insulated probe, 40-gauge (0.003" dia) wire, 0.009" outer dia; 3-ft L.Tissue implantable microprobe; for semisolids. Includes five 23-gauge hypodermic needles.					
TW-08506-70	T	–492 to 300 (–273 to 150)	Junction: ungrounded Response time: 0.025 sec		
FEP-insulated probes with PTFE-coated junction, 24-gauge (0.020" dia) wire; 10-ft L; long-term immersible.					
TW-08466-81	J	–310 to 400 (–190 to 204)	Junction: ungrounded Response time: 15 sec		
TW-08466-82	K	–418 to 400 (–250 to 204)			
TW-08466-83	T	–418 to 400 (–250 to 204)			
FEP-insulated probes, 24-gauge (0.020" dia) wire; 10-ft L.					
TW-08516-81	J	–310 to 400 (–190 to 204)	Junction: exposed Response time: 15 sec		
TW-08516-82	K	–418 to 400 (–250 to 204)			
TW-08516-83	T	–418 to 400 (–250 to 204)			
Kapton®-insulated probe, 24-gauge (0.020" dia) wire; 10-ft L. Ideal for multipoint temperature measurements.					
TW-08517-90	J	–310 to 600 (–190 to 315)	Junction: exposed Response time: 15 sec		
Kapton®-insulated probes, 30-gauge (0.010" dia) wire; 5-ft L. Ideal for checking food temperatures. Pack of six.					
TW-08505-87	J	–310 to 759 (–190 to 404)	Junction: exposed Response time: 0.5 sec		
TW-08505-86	K	–418 to 759 (–250 to 404)			
TW-08505-85	T	–418 to 759 (–250 to 404)			
Fiberglass-insulated probes, 24-gauge (0.020" dia) wire; 10-ft L. Use for high-temperature measurements.					
TW-08512-81	J	–310 to 900 (–190 to 482)	Junction: exposed Response time: 15 sec		
TW-08512-82	K	–418 to 900 (–250 to 482)			
TW-08512-83	T	–418 to 750 (–250 to 400)			
High-temperature fiberglass-insulated probes, 20-gauge (0.032" dia) wire, 10-ft L. Use for high-temperature measurements.					
TW-08467-22	J	–418 to 1300 (–250 to 704)	Junction: exposed Response time: 15 sec		
TW-08467-24	K	–418 to 1300 (–250 to 704)			
High-temperature ceramic fiber-insulated probe, 20-gauge (0.032" dia) wire, 5-ft L. Use for high-temperature measurements. (Ceramic fiber cannot be handled after 800°F [426°C] due to flaking of insulation).					
TW-08467-64	K	–418 to 2500 (–250 to 1400) Response time: 15 sec	Junction: exposed		

TW-17001-10 **NIST-traceable calibration** for thermocouple probe

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TW-17001-10 **NIST-traceable calibration** for thermocouple probe

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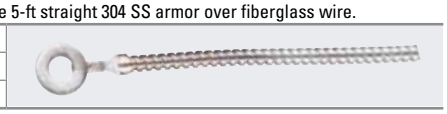
OAKTON® Flexible, Insulated Wire Thermocouple Probes with Stripped Ends

Catalog number	Type	Temperature range °F (°C)	Description	Price	Photo
PVC-insulated probe with PVC-coated tip, 10-ft L; 20-gauge; short-term immersible					
TW-08113-15	J	–310 to 221 (–190 to 105)	Junction: Ungrounded Response time: 25 sec.		
TW-08113-16	K	–418 to 221 (–250 to 105)			
TW-08113-17	T	–418 to 221 (–250 to 105)			
PVC-insulated probe with exposed tip, 10-ft L; 20-gauge; quick response time					
TW-08113-18	J	–310 to 221 (–190 to 105)	Junction: Exposed Response time: 15 sec		
TW-08113-19	K	–418 to 221 (–250 to 105)			
TW-08113-20	T	–418 to 221 (–250 to 105)			
PTFE-insulated probe with PTFE-coated tip, 10-ft L; 20-gauge; long-term immersion, corrosion resistant, higher temperature use					
TW-08113-21	J	–310 to 400 (–190 to 204)	Junction: Ungrounded Response time: 15 sec		
TW-08113-22	T	–418 to 400 (–250 to 204)			
TW-08113-23	K	–418 to 400 (–250 to 204)			
PTFE-insulated probe with exposed tip, 10-ft L; 20-gauge; corrosion resistant, quick response time, higher temperature use					
TW-08113-24	J	–310 to 400 (–190 to 204)	Junction: Exposed Response time: 15 sec		
TW-08113-25	K	0 to 400 (–17 to 204)			
TW-08113-26	T	–418 to 400 (–250 to 204)			
PTFE-insulated probe, 3-ft L; 40-gauge (fine); implant in semisolids, higher temperature range. Five 40-gauge needles included					
TW-08113-27	J	–310 to 400 (–190 to 204)	Junction: Ungrounded Response time: 0.025 sec		
TW-08113-28	K	–418 to 400 (–250 to 204)			
PTFE-insulated probe, 3-ft L; 40-gauge (fine); implant in semisolids, higher temperature range. Five 23-gauge needles included					
TW-08113-29	T	–418 to 400 (–250 to 204)	Junction: Ungrounded Response time: 0.025 sec		
High-temperature fiberglass-insulated probe with exposed tip, 10-ft L; use for high-temperature measurement					
TW-08113-30	J	–418 to 1300 (–250 to 704)	Junction: Exposed Response time: 15 sec		
TW-08113-31	K	–418 to 1300 (–250 to 704)			
Bolt-on probes with SS armored cable and stripped-end leads. Bolt washer to fixed surfaces for continuous monitoring. Include 5-ft straight 304 SS armor over fiberglass wire.					
TW-08519-85	J	–310 to 900 (–190 to 482)	Junction: Grounded Response time: 75 sec 304 SS washer		
TW-08514-85	K	0 to 900 (–17 to 482)			
TW-08525-85	T	0 to 750 (–17 to 399)			

Find MORE!

Connectors withstand continuous temperatures up to 350°F (177°C) and maximum temperature of 400°F (204°C). Feature glass-filled nylon casing with finger grips and polarity indicators; negative terminals are marked with red discs for easy identification. See **page 1768** for ordering information.


Type K miniconnector


Type J standard connector

OAKTON® Fine-Gauge Probes with Bare Wire Ends

Fine-gauge, bare-wire probes with 0.005" and 0.010" diameters provide quick temperature measurements (time constant typically less than 0.3 seconds). Larger probes with 0.020", and 0.032" diameters ensure long-term durability but have a slower response time (time constant typically 1.5 seconds or less). Probes feature beaded junctions and 12" leads. (Connectors sold separately on page 1768). The negative lead is slightly shorter than the positive lead for easy identification. Probes come in packs of five.

Note: Probes have no insulation. Keep wires from touching or insulate to prevent a false junction.

Catalog number	Sheath dia	Resistance at 68°F (20°C)	Time constant	Response time	Price/ pk of 5
Type J†; temp range is 32 to 900°F (0 to 482°C)					
TW-08419-06	0.005"	14.20 Ω	0.10 sec	0.5 sec	
TW-08419-07	0.010"	3.551 Ω	0.15 sec	0.8 sec	
TW-08419-09	0.020"	0.878 Ω	0.3 sec	1.5 sec	
TW-08419-10	0.032"	0.357 Ω	0.6 sec	3.0 sec	
Type K; temp range is –328 to 1800°F (–200 to 982°C)					
TW-08419-01	0.005"	24.08 Ω	0.10 sec	0.5 sec	
TW-08419-02	0.010"	5.984 Ω	0.15 sec	0.8 sec	
TW-08419-04	0.020"	1.490 Ω	0.3 sec	1.5 sec	
TW-08419-05	0.032"	0.568 Ω	0.6 sec	3.0 sec	
Type T; temp range is –418 to 750°F (–250 to 399°C)					
TW-08419-41	0.005"	12.22 Ω	0.10 sec	0.5 sec	
TW-08419-42	0.010"	3.043 Ω	0.15 sec	0.8 sec	
TW-08419-44	0.020"	0.754 Ω	0.3 sec	1.5 sec	
TW-08419-45	0.032"	0.297 Ω	0.6 sec	3.0 sec	

†Not recommended for use with aqueous solutions.

INNOCAL® INNOVATIVE CALIBRATION SOLUTIONS

TW-17001-10 **NIST-traceable calibration** for thermocouple probe

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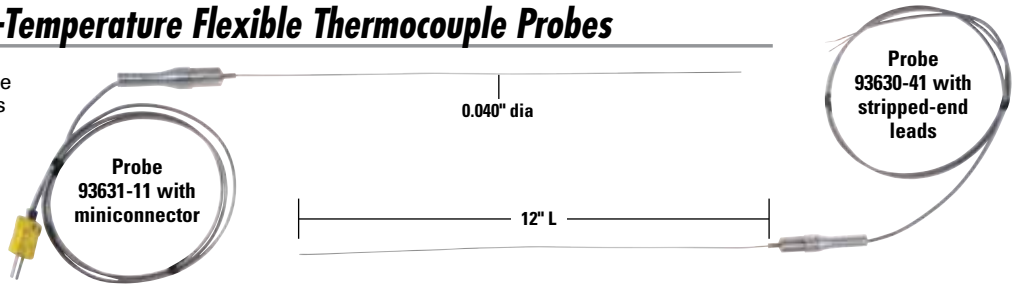
OAKTON® Industrial High-Temperature Flexible Thermocouple Probes

Use high-temperature probes to measure temperature in tight places. Bend probes around pipe diameters as small as twice the sheath diameter to easily determine your pipe temperature. Probes are tightly packed with powdered MgO in 12" or 25"L sheaths. Type J and type K probes feature Inconel® sheaths; type T probes feature 316 stainless steel sheaths. Probes include 3-ft stranded 24-gauge (0.020" dia) fiberglass wire with stainless steel overbraid.
Note: Type J exposed junction probes are not recommended for use with aqueous solutions. Temperature range is for the probe only. Extension wire has a maximum temperature of 500°F (260°C) before being affected.



Temperature Range

Type	0.020" and 0.040" dia probes	0.063" dia probes
J	–300 to 500°F (–185 to 260°C)	–310 to 825°F (–190 to 440°C)
K	–418 to 1290°F (–250 to 700°C)	–418 to 1690°F (–250 to 920°C)
T	–418 to 500°F (–250 to 260°C)	–418 to 500°F (–250 to 260°C)

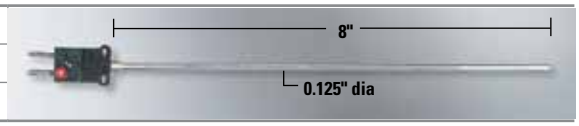
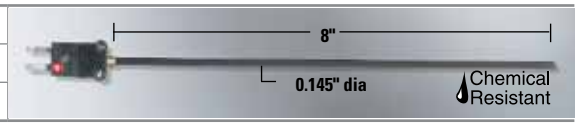
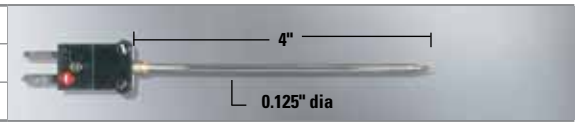
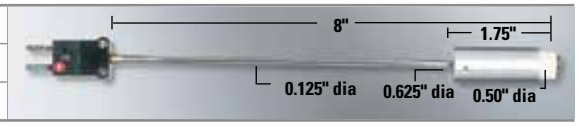
Sheath diameter	Junction	Response time	Type J Cat. no.	Type J Price	Type K Cat. no.	Type K Price	Type T Cat. no.	Type T Price
12" L probes with miniconnector								
0.020" (0.5 mm)	Exposed	0.7 sec	TW-93630-00†		TW-93631-00		TW-93632-00	
	Grounded	2 sec	TW-93630-01		TW-93631-01		TW-93632-01	
	Ungrounded	3 sec	TW-93630-02		TW-93631-02		TW-93632-02	
0.040" (1 mm)	Exposed	1.5 sec	TW-93630-10†		TW-93631-10		TW-93632-10	
	Grounded	5 sec	TW-93630-11		TW-93631-11		TW-93632-11	
	Ungrounded	7.5 sec	TW-93630-12		TW-93631-12		TW-93632-12	
12" L probes with stripped ends								
0.040" (1 mm)	Grounded	5 sec	TW-93630-41		TW-93631-41		TW-93632-41	
	Ungrounded	7.5 sec	TW-93630-42		TW-93631-42		TW-93632-42	
25" L probes with miniconnector								
0.063" (1.6 mm)	Exposed	3 sec	TW-93630-20†		TW-93631-20		TW-93632-20	
	Grounded	10 sec	TW-93630-21		TW-93631-21		TW-93632-21	
	Ungrounded	15 sec	TW-93630-22		TW-93631-22		TW-93632-22	
25" L probes with stripped ends								
0.063" (1.6 mm)	Grounded	10 sec	TW-93630-51		TW-93631-51		TW-93632-51	
	Ungrounded	15 sec	TW-93630-52		TW-93631-52		TW-93632-52	

†Not recommended for use with aqueous solutions.

TW-17001-10 **NIST-traceable calibration** for thermocouple probe

OAKTON® Industrial Detachable Thermocouple Probes

Detachable Probes attach directly to your meter. Easily connect probes to a handle. Select a general-purpose, penetration, surface, or air/gas probe. All probes have ANSI color-coded miniconnectors—type J are black, type K are yellow, and type T are blue.

Catalog number	Type	Temperature range in °F (°C)	Description	Price	Photo/dimensions†
General-purpose probes, 8"L. Use with liquids, gases, and semisolids.					
TW-08116-40	J	–310 to 1200 (–190 to 649)	Junction: grounded Time constant: 6 sec Response time: 30 sec 316 SS sheath		
TW-08117-40	K	–418 to 1200 (–250 to 649)			
TW-08113-40	T	–418 to 750 (–250 to 399)			
General-purpose PFA-coated probes, 8"L. Use with corrosive materials.					
TW-93810-00	J	–310 to 500 (–190 to 260)	Junction: grounded Time constant: 7 sec Response time: 35 sec 316 SS sheath; 0.010" thick PFA		
TW-93810-02	K	–418 to 500 (–250 to 260)			
TW-93810-04	T	–418 to 500 (–250 to 260)			
Penetration probes, 4"L. Use for internal temperature measurements—ideal for meat, food products, and semisoft materials.					
TW-08116-45	J	–310 to 800 (–190 to 427)	Junction: grounded Time constant: 6 sec Response time: 30 sec 316 SS sheath		
TW-08117-45	K	–418 to 800 (–250 to 427)			
TW-08113-45	T	–418 to 750 (–250 to 399)			
Surface probes, 8"L. Use on surfaces by direct contact with exposed spring-loaded junction.					
TW-08116-50	J	–310 to 1200 (–190 to 649)	Junction: exposed Time constant: 6 sec Response time: 30 sec 316 SS sheath; aluminum housing		
TW-08117-50	K	–418 to 1200 (–250 to 649)			
TW-08113-50	T	–418 to 750 (–250 to 399)			
Air/gas probes, 8"L. Use to measure temperature of air or gas. Polyurethane-coated junction is isolated by sheath and shield.					
TW-08116-55	J	–310 to 572 (–190 to 300)	Junction: exposed Time constant: 45 s at 5 m/s airflow Response time: 225 s at 5 m/s airflow 316 SS sheath and radiation shield		
TW-08117-55	K	–418 to 572 (–250 to 300)			
TW-08113-55	T	–418 to 572 (–250 to 300)			

†Overall probe sheath lengths may vary up to ±0.25".

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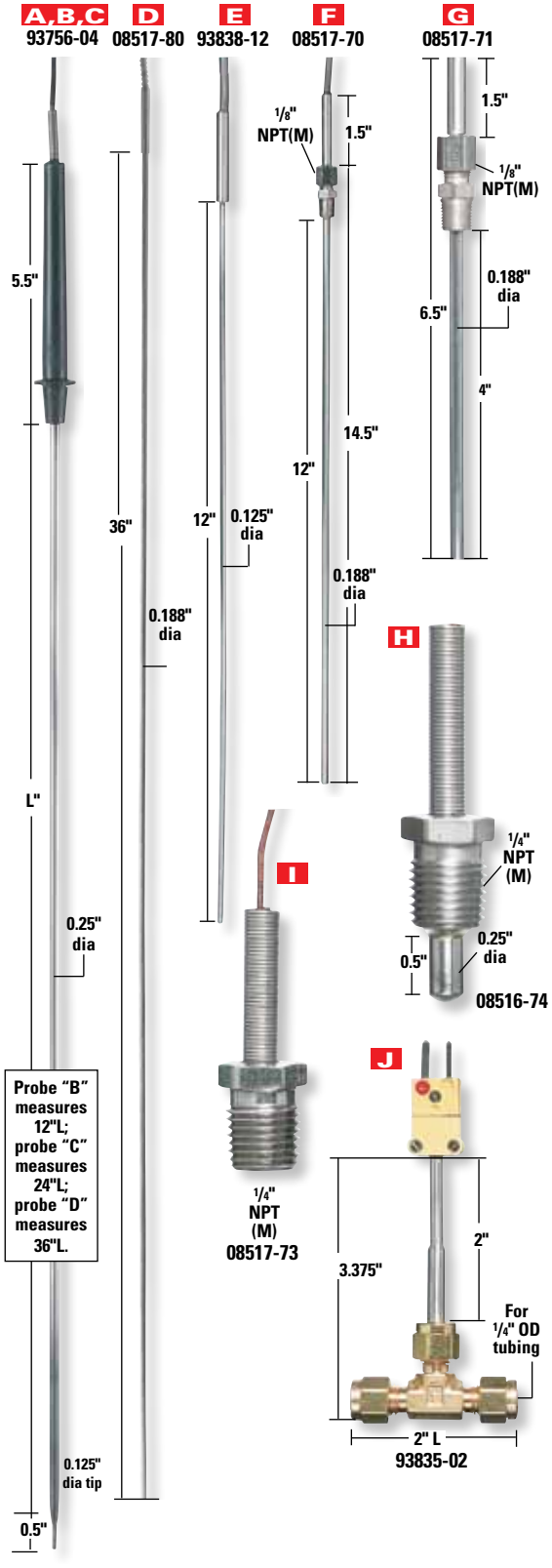

OAKTON® General-Purpose Specialty Thermocouple Probes with Miniconnector End

All general-purpose specialty probes feature color-coded ANSI miniconnectors for easy identification: type J—black, type K—yellow, type T—blue, and type R/S—green. Temperature range is for the probe only. Probes with a plastic handle have a maximum temperature of 275°F (135°C) before being affected.

Key	Catalog number	Type	Temperature range°F (°C)	Description	Price
Heavy-duty probes, 12" L. Include a 5-ft coiled cable.					
A	TW-93756-03	J	–310 to 1400 (–190 to 760)	Junction: grounded Response time: 15 sec 316 SS sheath; Miniconnector Glass-filled nylon handle	
	TW-93756-23	K	–418 to 1650 (–250 to 899)		
	TW-93756-63	T	–418 to 752 (–250 to 400)		
Heavy-duty probes, 24"L. Include 5-ft coiled cable.					
B	TW-93756-04	J	–310 to 1400 (–190 to 760)	Junction: grounded Response time: 15 sec 316 SS sheath; Miniconnector; Glass-filled nylon handle	
	TW-93756-24	K	–418 to 1650 (–250 to 899)		
	TW-93756-44	T	–418 to 752 (–250 to 400)		
Heavy-duty probes, 36"L. Include 5-ft coiled cable.					
C	TW-93756-06	J	–310 to 1400 (–190 to 760)	Junction: grounded Response time: 15 sec 316 SS sheath; Miniconnector; Glass-filled nylon handle	
	TW-93756-26	K	–418 to 1650 (–250 to 899)		
	TW-93756-46	T	–418 to 752 (–250 to 400)		
Heavy-duty industrial probes, 36" L, MgO-insulated Inconel 600 sheath; for industrial furnaces—use with tongs or insulated gloves. Include 304 SS transition joint and 3-ft 304 SS-armored cable.					
D	TW-08517-80	J	–310 to 1400 (–190 to 760)	Junction: grounded Response time: 15 sec (solids) Inconel® 600 sheath†; Miniconnector	
	TW-08516-80	K	–418 to 1700 (–250 to 927)		
	TW-08500-80	T	–418 to 752 (–250 to 400)		
Type R and type S probes, 12"L. Include SS transition joint and 3-ft straight PVC-insulated cable.					
E	TW-93838-12	R	600 to 2100 (316 to 1149); Intermittent use to 2500 (1371)	Junction: ungrounded Response time: 50 sec 310 SS sheath; Miniconnector	
	TW-93839-12	S			
Pipe-fitting probes, 12" immersion depth. Use for pressurized chambers and pipelines—adjust immersion depth using compression fitting. Withstand pressures to 2000 psi at 1000°F (538°C). Include 6-ft straight fiberglass/fiberglass-insulated, 24-gauge cable and 1/8" NPT(M) 316 stainless steel compression fitting.					
F	TW-08517-70	J	–310 to 1600 (–190 to 871)	Junction: grounded Response time: 45 sec (liquids) Inconel 600 sheath†; Miniconnector	
	TW-08516-70	K	–418 to 2012 (–250 to 1100)		
	TW-08500-70	T	–418 to 750 (–250 to 399)		
Pipe-fitting probes, 4" immersion depth. Use for pressurized chambers and pipelines—adjust immersion depth using compression fitting. Withstand pressures to 2000 psi at 1000°F (538°C). Include 6-ft straight fiberglass-insulated, 24-gauge cable and 1/8" NPT(M) 316 stainless steel compression fitting.					
G	TW-08517-71	J	–310 to 1600 (–190 to 871)	Junction: grounded Response time: 45 sec (liquids) Inconel 600 sheath†; Miniconnector	
	TW-08516-71	K	–418 to 2012 (–250 to 1100)		
	TW-08500-71	T	–418 to 750 (–250 to 399)		
Pipe-plug probes—1/4" NPT(M). Use wherever space is limited; sheath extends 0.5" past the end of the pipe plug for fast response. Withstand pressures to 2000 psi at ambient temperatures. Include 5-ft straight fiberglass-insulated, 24-gauge cable.					
H	TW-08517-74	J	–310 to 900 (–190 to 482)	Junction: grounded Response time: 30 sec 316 SS sheath; Miniconnector	
	TW-08516-74	K	–418 to 900 (–250 to 482)		
	TW-08500-74	T	–418 to 700 (–250 to 371)		
Pipe-plug probes—1/4" NPT(M). Use where space is limited. Withstand pressures to 100 psi at ambient temperatures. Epoxy-potted junction. Include 5-ft straight fiberglass-insulated, 24-gauge cable.					
I	TW-08517-73	J	–310 to 221 (–190 to 105)	Junction: ungrounded Response time: 50 sec Miniconnector	
	TW-08516-73	K	–418 to 221 (–250 to 105)		
	TW-08500-73	T	–418 to 221 (–250 to 105)		
Flow-through probes. Connect to 1/4" OD tubing systems. Use with clean fluids at flow rates up to 50 liters per minute; withstand pressure to 250 psi. Includes brass union tee.					
J	TW-93835-02	K	–418 to 500 (–250 to 260)	Junction: grounded Response time: 10 sec 316 SS sheath; Miniconnector	

†Type J and K probes have Inconel sheaths; type T probes have 316 SS sheaths.

INNOCAL® INNOVATIVE CALIBRATION SOLUTIONS

TW-17001-10 **NIST-traceable calibration** for thermocouple probe

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Cole-Parmer® Twin Temp Industrial Thermocouple Probes

Critical process data can be captured remotely while still allowing local monitoring by the operator

Twin Temp thermometers are the perfect solution for systems requiring local and remote temperature readings. Local readings are provided by an analog gauge. The remote reading is achieved by a continuous 4 to 20 mA output signal. All sensors are located in the thermometer stem and will easily fit into existing bimetal thermowells of corresponding length. Housing is manufactured of rugged 304 stainless steel and is guaranteed to be hermetically sealed to prevent fogging.

98940-72

Specifications

7 year warranty

Accuracy: ±1% full-scale
Probe: type K thermocouple
Output: 4 to 20 mA
Materials: 304 SS dial and stem, glass lens, cast iron case
Dimensions: ¼"-dia stem, 3"-dia dial
Connection: ½" NPT(M)

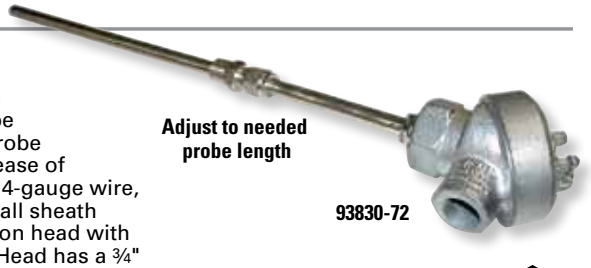
Catalog number	Stem length	Temperature range	Price
TW-98940-71	2.5"	0 to 250°F (–20 to 120°C)	
TW-98940-72	4"		
TW-98940-73	6"		
TW-98940-74	9"		
TW-98940-75	12"		
TW-98940-76	2.5"	50 to 500°F (–10 to 260°C)	
TW-98940-77	4"		
TW-98940-78	6"		
TW-98940-79	9"		
TW-98940-80	12"		

Note: Other configurations are available; contact our Application Specialists for details.

Uniwell Universal Industrial Thermocouple Probes

Unique compression fitting design allows for customized probe length

The Uniwell eliminates the need for thermowells and spring-loaded probes. Comes equipped with a unique adjustable ½" NPT compression fitting that allows the probe to be customized to the required insertion length. Plus you can directly insert the probe into the medium being measured without the use of a thermowell. This allows for ease of installation where a thermowell is not required. The probe's conductor is made of 14-gauge wire, is encased with magnesium oxide insulation, and has a 446 stainless steel heavy-wall sheath producing an increased life span. Probes feature a standard size aluminum protection head with a gasketed cap to seal out dust and moisture, and house a ceramic terminal block. Head has a ¾" NPT(F) opening on the side for easy connection to electrical conduit.



93830-72

FM APPROVED

Junction type	Head material	Process connection	Probe length†	Adjustable insertion length‡	Type J probes			Type K probes		
					Catalog number	Temperature range	Price	Catalog number	Temperature range	Price
Grounded	Cast iron	½" NPT	6"	2.5" to 4"	TW-93830-72	32 to 1400°F (0 to 760°C)		TW-93830-73	32 to 2000°F (0 to 1093°C)	
			12"	2.5" to 10"	TW-93830-74			TW-93830-75		
			24"	2.5" to 22"	TW-93830-76			TW-93830-77		

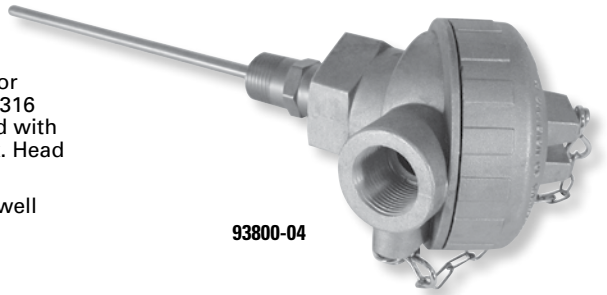
†If more than 20% of probe length including the head is outside of the media, additional structural support may be needed.
‡Once the Uniwell fitting is compressed, the probe is no longer adjustable. **Note:** Other configurations are available; contact our Application Specialists for details.

Industrial Thermocouple Probes

Available in spring-loaded and non-spring-loaded styles

Thermocouple probes are ideal for use in industrial applications, chemical processes, production lines, ovens, furnaces, and vessels. The probe's conductor is made of 18-gauge wire encased with magnesium oxide insulation and has a 316 stainless steel sheath. Probes feature a standard size aluminum protection head with gasketed cap to seal out dust and moisture and house a ceramic terminal block. Head has a ¾" NPT(F) opening on the side for easy connection to electrical conduit.

Spring-loaded probes are designed to bottom out when inserted into a thermowell to produce an accurate reading; not designed for direct insertion in to medium. Non-spring-loaded probes are designed to be directly inserted into the medium being measured without the use of a thermowell.



93800-04

Junction type	Head material	Process connection	Sheath dia	Sheath material	Spring loading	Type J probes			Type K probes		
						Catalog number	Temperature range	Price	Catalog number	Temperature range	Price
4" stem length											
Ungrounded	Cast iron	½" NPT(F)	¼"	316 SS	No	TW-93800-04	32 to 1330°F (0 to 732°C)		TW-93800-10	32 to 1650°F (0 to 898°C)	
					Yes	TW-93800-07			TW-93800-13		
6" stem length											
Ungrounded	Cast iron	½" NPT(F)	¼"	316 SS	No	TW-93800-05	32 to 1330°F (0 to 732°C)		TW-93800-11	32 to 1650°F (0 to 898°C)	
					Yes	TW-93800-08			TW-93800-14		
12" stem length											
Ungrounded	Cast iron	½" NPT(F)	¼"	316 SS	No	TW-93800-06	32 to 1330°F (0 to 732°C)		TW-93800-12	32 to 1650°F (0 to 898°C)	
					Yes	TW-93800-09			TW-93800-15		

Note: Other configurations are available; contact our Application Specialists for details.

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Industrial Thermocouple Probes with Thermowell

Convenient "all-in-one" assembly includes industrial probe head, element, and thermowell

Thermocouple probes assemblies are ideal for use in industrial applications, chemical processes, production lines, ovens, furnaces, and vessels. The probe conductor is made of 20-gauge wire encased by ceramic insulators, along with a standard-size aluminum protection head. Probe features a gasketed cap to seal out dust and moisture, and houses a ceramic terminal block. Head has a ¾" NPT(F) opening on the side for easy connection to electrical conduit. The 316 stainless steel thermowell is included in the assembly and is ideal for applications where removing the probe without draining the vessel is necessary.

Replacement thermocouple elements are sold separately below; replacement thermocouple probe assemblies are on page 1759; replacement thermowells are on page 1767.

93830-52

Pressure Ratings (psig)

Material	Temperature						
	70°F	200°F	400°F	600°F	800°F	1000°F	1200°F
316 SS	7000	7000	6400	6200	6100	5100	2500

Junction type	Head material	Thermowell Specifications†					Type J			Type K		
		Process connection (P)	Shank dia (Q)	Shank dia (tip)	Insert depth (U)	Material	Catalog number	Temperature range	Price	Catalog number	Temperature range	Price
4" stem length (probe depth "A")												
Grounded	Cast iron	½" NPT(F)	⅝"	½"	2½"	316 SS	TW-93830-48	32 to 1400°F (0 to 760°C)		TW-93830-40	32 to 1600°F (0 to 871°C)	
		¾" NPT(F)	¾"				TW-93830-52			TW-93830-44		
Ungrounded	Cast iron	½" NPT(F)	⅝"	½"	2½"	316 SS	TW-93830-64			TW-93830-56		
		¾" NPT(F)	¾"				TW-93830-68			TW-93830-60		
6" stem length (probe depth "A")												
Grounded	Cast iron	½" NPT(F)	⅝"	½"	4½"	316 SS	TW-93830-49	32 to 1400°F (0 to 760°C)		TW-93830-41	32 to 1600°F (0 to 871°C)	
		¾" NPT(F)	¾"				TW-93830-53			TW-93830-45		
Ungrounded	Cast iron	½" NPT(F)	⅝"	½"	4½"	316 SS	TW-93830-65			TW-93830-57		
		¾" NPT(F)	¾"				TW-93830-69			TW-93830-61		
9" stem length (probe depth "A")												
Grounded	Cast iron	½" NPT(F)	⅝"	½"	7½"	316 SS	TW-93830-50	32 to 1400°F (0 to 760°C)		TW-93830-42	32 to 1600°F (0 to 871°C)	
		¾" NPT(F)	¾"				TW-93830-54			TW-93830-46		
Ungrounded	Cast iron	½" NPT(F)	⅝"	½"	7½"	316 SS	TW-93830-66			TW-93830-58		
		¾" NPT(F)	¾"				TW-93830-70			TW-93830-62		
12" stem length (probe depth "A")												
Grounded	Cast iron	½" NPT(F)	⅝"	½"	10½"	316 SS	TW-93830-51	32 to 1400°F (0 to 760°C)		TW-93830-43	32 to 1600°F (0 to 871°C)	
		¾" NPT(F)	¾"				TW-93830-55			TW-93830-47		
Ungrounded	Cast iron	½" NPT(F)	⅝"	½"	10½"	316 SS	TW-93830-67			TW-93830-59		
		¾" NPT(F)	¾"				TW-93830-71			TW-93830-63		

Note: Other configurations are available; contact our Application Specialists for details.
† See page 1752 for thermowell specification diagram.

Industrial Thermocouple Elements

Heavy-duty construction for high temperature use

Elements within an industrial thermocouple that includes a thermowell deteriorate over time and can be replaced as a more cost-effective solution. Each replacement element is made of 20-gauge wire and encased with ceramic insulators for a greater degree of protection.

93605-41

Specifications

Temperature range
Type J: 32 to 1400°F (–2 to 760°C)
Type K: 32 to 2300°F (–2 to 1260°C)

Temperature accuracy: ±4°F (±2°C)
Junction type: exposed

Wire gauge of element	Length	Type J		Type K	
		Catalog number	Price	Catalog number	Price
20	4"	TW-93605-45		TW-93605-41	
20	6"	TW-93605-46		TW-93605-42	
20	9"	TW-93605-47		TW-93605-43	
20	12"	TW-93605-48		TW-93605-44	

Note: Other gauge sizes and lengths are available; contact our Application Specialists for details.

TECHNICAL info!

Types of junctions...

Exposed junction probes have the fastest response time. Do not use with corrosive fluids or atmospheres.

Grounded junction probes have a junction welded to the tip of the sheath.

Ungrounded junction probes have a junction insulated from sheath. Use in electrically noisy environments.

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TW-17001-10 **NIST-traceable calibration** for thermocouple probe

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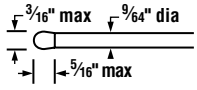
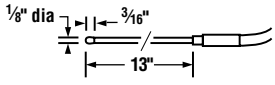
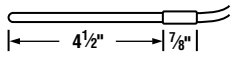
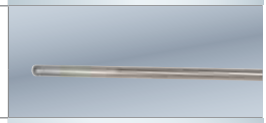
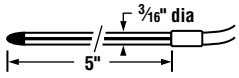
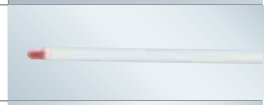
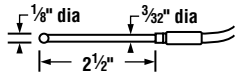
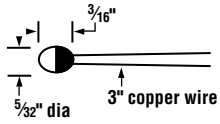
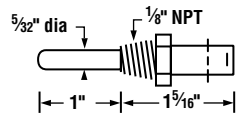
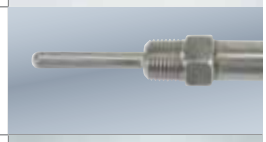
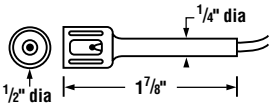
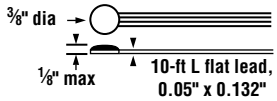
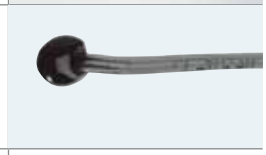
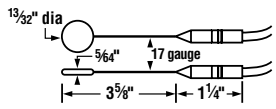
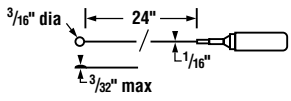
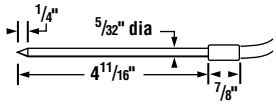
OAKTON® 400-Series Flexible Thermistor Probes

Oakton thermistor probes offer excellent accuracy over the biological temperature range. Probes are accurate to ±0.2°F from 32 to 150°F (±0.1°C from 0 to 70°C). Electrically isolated probes include a nondetachable 10-ft lead with phone plug (except as noted).

Water-resistant junctions between probe and lead should not be immersed; detachable leads are not water resistant.

Note: Time constant is the time required to reach 63.2% of a new reading. To determine how long it will take to reach 99% of a new reading multiply the time constant by five.

Catalog number (Ind. No.)	Description	Temperature range	Time constant	Price	Dimensions	Photo
TW-08491-02 (401)	General-purpose probe, immersible for short-term deep-water and sub soil readings. Vinyl sheath and tip. 10-ft lead	–40 to 212°F (–40 to 100°C)	7 seconds			
TW-08491-04	Like 0849-02 above, but with 50-ft lead					
TW-08491-03	Like 0849-02 above, but with 100-ft lead					
TW-08491-05 (402)	Small flexible probe, vinyl sheath and tip	–40 to 212°F (–40 to 100°C)	3.2 seconds			
TW-08491-06 (403)	Liquid-immersion probe 5/32" dia, stainless steel (316 SS). Immersible only to cap unless waterproofed.	–40 to 302°F (–40 to 150°C)	3.4 seconds			
TW-08491-07 (406)	Like 08434-00 above, but with 1/8" dia probe		2.5 seconds			
TW-08491-13 (404)	Liquid-immersion probe, chemically inert for thermometric titrations. Pyrex® glass sheath.	–40 to 302°F (–40 to 150°C)	4.2 seconds			
TW-08491-17 (423)	Small flexible probe for frozen food packages and cuvettes. Nylon and epoxy tip.	–110 to 212°F (–80 to 100°C)	1.4 seconds			
TW-08491-15 (44033)	Epoxy-encapsulated thermistor element. Maximum intermittent temperature is 212°F (100°C). Copper wire is 32 gauge; 3" long.	–110 to 167°F (–80 to 75°C) at continuous use	1 second in oil; 10 seconds in air			
TW-08491-14 (416)	Pipe-fitting probe for closed pipes or vessels. Probe and fitting are 316 SS; autoclavable except lead; lead is detachable via BNC connector. Not electrically isolated; 1" long.	–40 to 300°F (–40 to 150°C)	3.4 seconds			
TW-08491-08 (405)	Air temperature probe for test rooms, gas stream temperatures, and incubators. 316 SS cage around epoxy-encapsulated thermistor.	–40 to 300°F (–40 to 150°C)	10 seconds			
TW-08491-10 (409B)	Attachable surface probe, recommended for skin or flat-surface temperature measurements. Epoxy-backed 316 SS disk. Vinyl-covered parallel leads.	–40 to 212°F (–40 to 100°C)	1.1 seconds			
TW-08491-09 (408)	Surface probe for skin, flat surface, and soil temperatures. Disk is 316 SS; probe includes handle.	–40 to 300°F (–40 to 150°C)	0.6 second			
TW-08491-11 (427)	Small surface probe. Not electrically isolated or autoclavable and with nondetachable lead. Epoxy-backed 316 SS disk on 24" PTFE lead.	–40 to 300°F (–40 to 150°C)	0.3 second			
TW-08491-16 (418)	Penetration probe for insertion into semi-solids like fruits, soil, tobacco. No handle. All 316 SS, with vinyl-covered lead.	–40 to 300°F (–40 to 150°C)	3.7 seconds			

TW-17001-06 **NIST-traceable calibration** for thermistor probe

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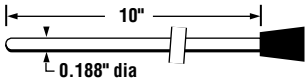
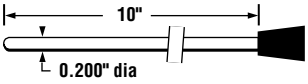
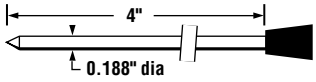
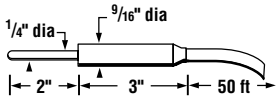
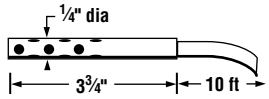
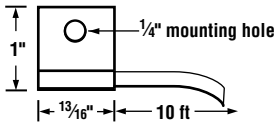
OAKTON® 400-Series Thermistor Probes

These thermistor probes are specially designed for soil, liquid, air, or surface temperature applications. Use with any meter that accepts Oakton or 400-series probes. All probes are accurate to ±0.2°F from 32 to 150°F (±0.1°C from 0 to 70°C).

All integral-handle probes include a 5-ft coiled cable with ¼" phone plug. All permanent, special-purpose probes (except 93823-00) include a vinyl-covered 10-ft (3.0-m) lead with ¼" phone plug. Temperature range is for the probe only. Probes with a plastic handle have a maximum temperature of 275°F (135°C) before being affected.

Penetration probe 93824-30

Catalog number	Description	Temperature range	Time constant	Price	Dimensions	Photo
Integral-handle probes with sturdy 5.25"L glass-filled nylon handle						
TW-93824-00	General-purpose immersion probe, 316 SS sheath	–22 to 212°F (–30 to 100°C)	4 seconds			
TW-93824-12	General-purpose PTFE coated 316 SS probe	–22 to 212°F (–30 to 100°C)	7 seconds			
TW-93824-30	Penetration probe, 316 SS sheath	–22 to 212°F (–30 to 100°C)	6 seconds			
Special-purpose probes (longer lead lengths are available by special order, please call our Application Specialists)						
TW-93823-00	Deep water/soil probe. Weighted and insulated for continuous use underwater. Probe is rubber-coated 316 SS with waterproof PVC over PTFE-covered 50-ft lead.	–22 to 212°F (–30 to 100°C)	5 seconds			
TW-93823-05	Air/gas probe. Exposed element is in a perforated protective shield. Sheath is 316 stainless steel.	–22 to 212°F (–30 to 100°C)	2 seconds			
TW-93823-01	Surface temperature probe. Epoxy covered sensor is in a screw-mount ¼" thick aluminum housing. Easy to mount on flat surfaces.	–22 to 212°F (–30 to 100°C)	8 seconds			

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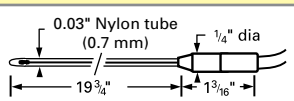
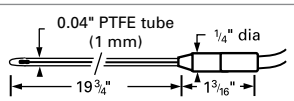
500-Series Miniature Flexible Thermistor Probes

Use with any meter that accepts 500-series probes—includes a conversion chart to convert meter reading to actual temperature. All probes are accurate to ±0.2°F from 32 to 150°F (±0.1°C from 0 to 70°C). The 10-ft (3.0-m), vinyl-covered shielded lead withstands temperatures to 158°F (70°C).

Cat. no. (YSI no.)	Description	Temperature range	Time constant	Price	Dimensions	Photo
TW-08456-02 (555)	Nontoxic nylon-coated probe. Feeds through 17-gauge thin-wall hypodermic needles. Not autoclavable; electrically isolated (nondetachable lead).	32 to 158°F (0 to 70°C)	0.2 second			
TW-08457-02 (554)	Nontoxic PTFE-insulated probe with PTFE tubing and partially exposed thermistor. Not autoclavable; electrically isolated.	32 to 158°F (0 to 70°C)	0.2 second			

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OAKTON® Economical High-Temperature RTD Probes

RTD probes with the highest temperature available: –328 to 1450°F (–200 to 787°C)

Have the accuracy of an RTD and the versatility of a wide measurement range all in one probe! These probes are ideal for critical process control and heat treating applications. Maximum error of probe assembly is ±1.1°C ±0.2%°C of reading below 1200°F (649°C) and ±2°C ±0.5%°C of reading above 1200°F (649°C). Probes have a 10-second time constant and 0.003850 Ω/Ω/°C alpha coefficient. The 316 SS sheath measures 20"L x 1/4" dia and includes a 1-m cable. Select connector type for your RTD meter.


Oakton/Digi-Sense® three-pin connector


Five-pin DIN connector

Catalog number	Temperature range	Connector type	No. of wires	Price
TW-93833-00	–328 to 1450°F (–200 to 787°C)	Oakton/Digi-Sense® three pin	3	
TW-93833-02		ANSI three-blade miniconnector		

OAKTON® Economical High-Accuracy RTD Probes

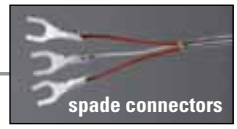
Accuracies from ±0.015% of reading +0.1°C to ±0.02% of reading +0.1°C

For applications where accuracy is critical try one of our high accuracy RTD probes. Choose from two accuracies: ±0.015% of reading +0.1°C with our stripped end probe or ±0.02% of reading +0.1°C for all other probes. All probes feature a 10-second time constant, alpha coefficient of 0.00385 Ω/Ω/°C, a 20"L x 1/4" dia 316 SS sheath, and one-meter long cable.


ANSI three-blade miniplug connector

Catalog number	Accuracy	Temperature range	Connector type	No. of wires	Price
TW-93822-60	±0.02% of reading and ±0.1°C	–328 to 1000°F (–200 to 538°C)	Oakton/Digi-Sense® three pin	3	
TW-93822-62			ANSI three-blade miniconnector		
TW-93822-64			Five-pin DIN	4	
TW-93822-66	±0.015% of reading and ±0.1°C		Stripped ends		

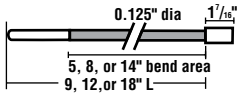
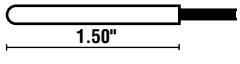
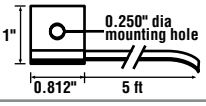
OAKTON® Industrial RTD Probes with Spade Connector Ends


spade connectors

Made specially for use in harsh industrial environments

Maximum errors for probe assemblies are ±1.1°C for three-wire bendable-sheath probes, ±0.7°C for compact probes, and ±0.12% of reading from –50 to 500°C for bolt-on probes. Alpha coefficient is 0.00385 Ω/Ω/°C (IEC 751). Resistance at ice point (0°C) is 100 Ω.

Each probe has a characteristic time constant. Five time constants are needed to reach 99% of final reading. For example, a probe with a time constant of 5 seconds reaches its final reading in about 25 seconds. See individual product descriptions for the time constant of each probe. Come with spade connectors.

Description	Features	Catalog number	Price	Dimensions	Photo
Bendable-sheath probes, three-wire; 0.125" dia; provide fast, precise measurements					
Range: –58 to 932°F (–50 to 500°C) Time constant: 10 seconds Sheath: 316 SS; cable: 4-ft, 304 SS braid over fiberglass insulation; connectors: spade lug	9"L; bendable area: 5"	TW-93822-09			
	18"L; bendable area: 14"	TW-93822-18			
Compact probe, three-wire—ideal for use in ovens.					
Range: –58 to 932°F (–50 to 500°C) Time constant: 10 seconds Sheath: 316 SS; cable: 4-ft, 304 SS braid over fiberglass insulation; connectors: spade lug	—	TW-93822-00			
Bolt-on probe, three-wire element protected by sturdy aluminum housing. Ideal for permanent mounting on equipment.					
Range: –58 to 932°F (–50 to 500°C) Time constant: 24 seconds Sheath: 316 SS; cable: 5-ft, PTFE insulation; connectors: spade lug	—	TW-93822-50			

RTD Probe Adapters and Connectors

Make your RTD probes compatible with all of our RTD thermometers.

TW-93400-50 Adapter, ANSI three-pin female miniconnector to Oakton three-pin. Pins spaced 0.31" apart

TW-93400-52 Adapter, ANSI three-pin female standard connector to Oakton three-pin. Pins spaced 0.44" apart

TW-93400-54 Adapter, ANSI three-pin male miniconnector to Oakton three-pin male

TW-02186-50 Connector. Converts two- or three-wire probe with stripped wire ends to Oakton three-pin


02186-50

Extension Cables for remote applications

Cat. no.	Connections	Length	Price
Cables with Oakton/Digi-Sense® 3-pin connectors			
TW-08117-92 TW-08117-93	Male-to-female cable	10 ft (3.0 m) 25 ft (7.6 m)	
Cables with ANSI 3-pin mini connectors			
TW-93831-92 TW-93831-93	Male-to-female cable	10 ft (3.0 m) 25 ft (7.6 m)	

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OAKTON® RTD Probes

Choose from a wide variety of styles

If you don't see the probe you need, we can make it. Maximum error for probe assembly is ±1.1°C ±0.12% of reading. Alpha coefficient is 0.003850 Ω/Ω/°C (DIN IEC 751). Resistance at ice point (0°C) is 100 Ω. **Note:** Each probe has a characteristic time constant; five time constants are needed to reach 99% of final reading. Temperature range is for the probe only. Probes with a plastic handle have a maximum temperature of 275°F (135°C) before being affected.

Oakton/Digi-Sense® three-pin connector **ANSI connector**

Description	Probe length	With 3-pin connector Cat. no.	With 3-pin connector Price	With ANSI connector Cat. no.	With ANSI connector Price	Dimensions	Photo
Integral handle probes with 316 SS sheath and 5.5"L glass-filled nylon handle (handle shown at far right)							
General-purpose immersion probe Range: –58 to 932°F (–50 to 500°C) Time constant: 10 seconds Cable: 5-ft coiled cable	10"	TW-08117-70		TW-93831-70		0.188" dia 10" or 18"	
	18"	TW-08117-72		TW-93831-71			
Bendable immersion probe Range: –58 to 932°F (–50 to 500°C) Time constant: 10 seconds Cable: 5-ft coiled cable	10"	TW-08117-73		TW-93831-73		0.125" dia 10" or 18"	
	18"	TW-08117-74		TW-93831-74			
FEP-coated general-purpose probe Range: –58 to 500°F (–50 to 260°C) Time constant: 15 seconds Cable: 5-ft coiled cable	10"	TW-08117-87		TW-93831-87		0.145" dia 10"	
Surface probe Range: –58 to 932°F (–50 to 500°C) Time constant: 24 seconds Cable: 5-ft coiled cable	8"	TW-08117-75		TW-93831-75		1.6" 6.5" 0.250" dia	
Needle probe Range: –58 to 932°F (–50 to 500°C) Time constant: 10 seconds Cable: 5-ft coiled cable	2"	TW-08117-80		TW-93831-80		0.093" dia 2"	
Penetration probe Range: –58 to 932°F (–50 to 500°C) Time constant: 10 seconds Cable: 5-ft coiled cable	4"	TW-08117-85		TW-93831-85		0.188" dia 4"	
Air/gas probe Range: –58 to 932°F (–50 to 500°C) Time constant: 4 seconds Cable: 5-ft coiled cable	10"	TW-08117-90		TW-93831-90		10" 0.250" dia 0.188" dia	
Low-cost probes with 304 SS sheath and 1.25"L x 0.75" dia glass-filled nylon handle (handle shown at far right)							
General-purpose probe Range: –58 to 932°F (–50 to 500°C) Time constant: 8 seconds Cable: 5-ft coiled cable	5.75"	TW-93821-00		TW-93831-00		4.5" 1.25" 0.125" dia 0.75" dia	
PFA-insulated probe Range: –58 to 500°F (–50 to 260°C) Time constant: 15 seconds Cable: 5-ft coiled cable	5.75"	TW-93821-06		TW-93831-06		4.5" 1.25" 0.145" dia 0.75" dia	
Penetration tip probe; features sharp, pointed tip Range: –58 to 932°F (–50 to 500°C) Time constant: 8 seconds Cable: 5-ft coiled cable	3.75"	TW-93821-10		TW-93831-10		2.50" 1.25" 0.125" dia 0.75" dia	
Surface probe; features ceramic tip Range: –58 to 932°F (–50 to 500°C) Time constant: 24 seconds Cable: 5-ft coiled cable	5.4"	TW-93821-15		TW-93831-15		1.4" 4" 0.250" dia	
Air/gas probe Range: –58 to 932°F (–50 to 500°C) Time constant: 45 seconds (5 m/sec airflow) Cable: 5-ft coiled 304 SS cable	5.75"	TW-93821-20		TW-93831-20		4.50" 1.25" 0.188" 0.375" 0.125" dia 0.75" dia	
Special-purpose probes with 316 SS sheath and without handle—ideal for long-term applications							
Compact probe; ideal for use in ovens Range: –58 to 932°F (–50 to 500°C) Time constant: 10 seconds Cable: 5-ft, 304 SS braid over fiberglass	1.5"	TW-08117-96		TW-93831-96		0.188" dia 1.5"	
Bendable sheath probes Range: –58 to 932°F (–50 to 500°C) Time constant: 10 seconds Cable: 3-ft, 316 SS braid over fiberglass	9"	TW-08117-97		TW-93831-97		3" 0.125" dia 1" 5, 8, or 14" bend area	
	12"	TW-08117-98		TW-93831-98			
	18"	TW-08117-99		TW-93831-99			
Alligator clip probe Range: –58 to 932°F (–50 to 500°C) Time constant: 24 seconds Cable: 10-ft, 304 SS braid over fiberglass	1.39"	TW-08117-89		TW-93831-89		1.39" 0.38"	

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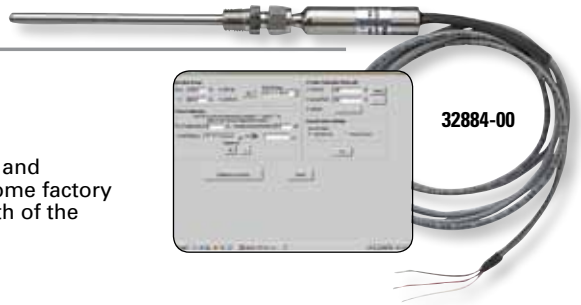
4-to-20 mA Output Industrial RTD Probes

Use optional software to rescale or field calibrate probes

- Hermetically sealed electronics make these probes ideal for food, dairy, and pharmaceutical applications

These RTD probes feature mini transmitters that are integrated into the sensors and hermetically sealed to protect them from fluid and harsh washdowns. Probes come factory calibrated to measuring range. Fittings are adjustable along the immersion depth of the sensor. Order software below (required for calibration).



Specifications

Maximum pressure: 1500 psig
Fittings: ¼" NPT
Operating ambient: –40 to 158°F (–40 to 70°C)
Power: 9 to 30 VDC loop powered
Output: 4 to 20 mA, 2-wire
Probe type: 100 Ω Pt RTD
Probe sheath: 316 stainless steel
Cable: jacketed PVC, 6-ft

Catalog number	Accuracy	Temperature range	Connector type	Immersion depth	Price
TW-32884-00	±0.4°F	0 to 400°F	Stripped ends	2½"	
TW-32884-01				4"	
TW-32884-02				6"	
TW-32884-03				9"	
TW-32884-04				12"	

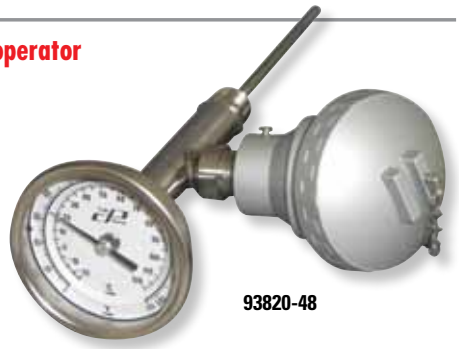
Accessories

TW-32884-20 **Calibration software** for RTD probes

Cole-Parmer® Twin Temp Industrial RTD Probes

Critical process data can be captured remotely while still allowing local monitoring by the operator

Twin Temp thermometers are the perfect solution for systems requiring local and remote temperature readings. Local readings are provided by an analog gauge. The remote reading is achieved by a continuous 4 to 20 mA output signal. All sensors are located in the thermometer stem and will easily fit into existing bimetal thermowells of corresponding length. Housing is manufactured of rugged 304 stainless steel and is guaranteed to be hermetically sealed to prevent fogging.



Specifications

7 year warranty

Accuracy: ±1% full-scale
Probe: RTD
Output: 4 to 20 mA
Materials: 304 SS case and stem, glass lens, cast iron case
Dimensions: ¼"-dia stem, 3"-dia dial
Connection: ½" NPT(M)

Catalog number	Stem length	Temperature range	Price
TW-93820-48	4"	0 to 250°F (–20 to 120°C)	
TW-93820-49	6"		
TW-93820-50	9"		
TW-93820-51	12"		
TW-93820-52	4"	50 to 500°F (–10 to 260°C)	
TW-93820-53	6"		
TW-93820-54	9"		
TW-93820-55	12"		

Note: Other configurations are available; contact our Application Specialists for details.

Cole-Parmer® Solar Twin Temp Industrial RTD Probes

An innovative, cost-effective way to solve two types of temperature measuring needs while still only using one entry point into your process

Solar Twin Temp industrial thermometers are the perfect solution for systems requiring local and remote temperature readings. Local readings are provided by digital screen. The remote reading is achieved with a continuous 4 to 20 mA output signal. All sensors are located in the thermometer stem and will easily fit into existing bimetal thermowells of corresponding length. Housing is manufactured of rugged 304 stainless steel and is guaranteed to be hermetically sealed to prevent fogging.

Specifications

7 year warranty

Accuracy: ±1% full-scale
Probe: RTD
Output: 4 to 20 mA
Display: 3-digit LCD, 0.4"H
Materials: 304 SS case and stem, glass lens, cast iron case
Dimensions: ¼"-dia stem, 3"-dia dial
Connection: ½" NPT(M)
Power: solar (above 10 lux light level)

Catalog number	Stem length	Temperature range	Price
TW-93820-57	2.5"	–50 to 300°F	
TW-93820-58	6"		
TW-93820-59	9"		
TW-93820-60	12"		
TW-93820-61	2.5"	50 to 150°C	
TW-93820-62	6"		
TW-93820-63	9"		
TW-93820-64	12"		

INNOCAL® INNOVATIVE CALIBRATION SOLUTIONS

TW-17001-06 **NIST-traceable calibration** for thermistor probe

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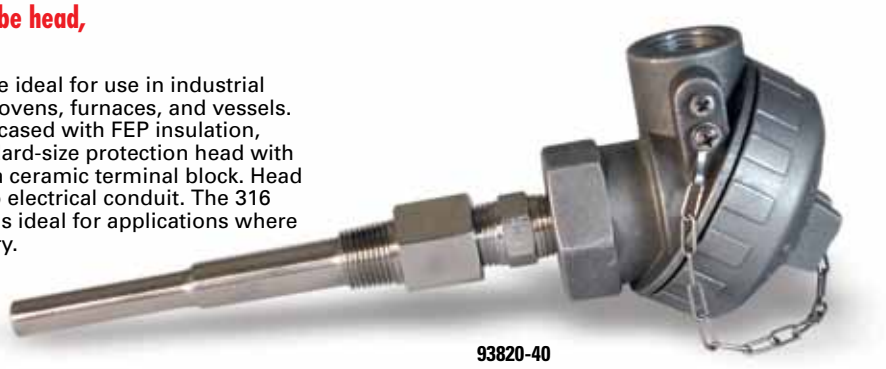
Industrial RTD Probes with Thermowell

Convenient "all-in-one" assembly includes industrial probe head, element, and thermowell

Industrial RTD assemblies produce greater accuracy and are ideal for use in industrial applications such as chemical processes, production lines, ovens, furnaces, and vessels. The probe's conductor is made of 24-gauge cooper wire encased with FEP insulation, and has a 316 stainless steel sheath. Probe features a standard-size protection head with gasketed cap to seal out dust and moisture; probe houses a ceramic terminal block. Head has a ¾" NPT(F) opening on the side for easy connection to electrical conduit. The 316 stainless steel thermowell is included in the assembly and is ideal for applications where removing the probe without draining the vessel is necessary.

Replacement RTD probe assemblies are sold separately below; replacement thermowells are on page 1767.



93820-40

Pressure Ratings (psig)

Material	Temperature						
	70°F	200°F	400°F	600°F	800°F	1000°F	1200°F
316 SS	7000	7000	6400	6200	6100	5100	2500

FM APPROVED

Catalog number	Probe specifications			Thermowell specifications					Price
	Temperature range	Junction type	Head material	Process connection (P)	Shank dia (Q)	Shank dia (tip)	Insert depth (U)	Material	
4" stem length									
TW-93820-40	–50 to 350°F (–45 to 176°C)	Ungrounded	Cast iron	½" NPT(F)	⅝"	½"	2½"	316 SS	
TW-93820-44				¾" NPT(F)	¾"				
6" stem length									
TW-93820-41	–50 to 350°F (–45 to 176°C)	Ungrounded	Cast iron	½" NPT(F)	⅝"	½"	4½"	316 SS	
TW-93820-45				¾" NPT(F)	¾"				
9" stem length									
TW-93820-42	–50 to 350°F (–45 to 176°C)	Ungrounded	Cast iron	½" NPT(F)	⅝"	½"	7½"	316 SS	
TW-93820-46				¾" NPT(F)	¾"				
12" stem length									
TW-93820-43	–50 to 350°F (–45 to 176°C)	Ungrounded	Cast iron	½" NPT(F)	⅝"	½"	10½"	316 SS	
TW-93820-47				¾" NPT(F)	¾"				

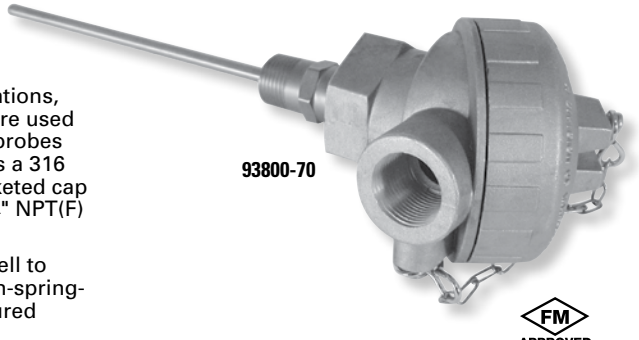
Note: Other configurations are available; contact our Application Specialists for details.
†See page 1767 for thermowell specification diagram.

Industrial RTD Probes

Available in spring-loaded and non-spring-loaded styles

Industrial RTDs produce greater accuracy and are broken down into two market segments: industrial and sanitary. Aluminum heads are used in industrial applications, chemical processes, production lines, ovens, furnaces, and vessels. Poly heads are used in sanitary applications within the food, drug, and pharmaceutical markets. The probes conductor is made of 24-gauge cooper wire encased with FEP insulation, and has a 316 stainless steel sheath. Probes feature a standard size protection head with a gasketed cap to seal out dust and moisture, and house a ceramic terminal block. Head has a ¾" NPT(F) opening on the side for easy connection to electrical conduit.

Spring-loaded probes are designed to bottom out when inserted into a thermowell to produce an accurate reading; not designed for direct insertion in to medium. Non-spring-loaded probes are designed to be directly inserted into the medium being measured without the use of a thermowell.



93800-70

FM APPROVED

Catalog number	Temperature range	Junction type	Head material	Process connection	Sheath dia	Sheath material	Spring loading	No. of wires	Price
4" stem length									
TW-93800-70	–50 to 350°F (–45 to 176°C)	Ungrounded	Aluminum	½" NPT(M)	¼"	316 SS	No	3	
TW-93800-73							Yes		
TW-93800-76			Poly				No		
TW-93800-79							Yes		
6" stem length									
TW-93800-71	–50 to 350°F (–45 to 176°C)	Ungrounded	Aluminum	½" NPT(M)	¼"	316 SS	No	3	
TW-93800-74							Yes		
TW-93800-77			Poly				No		
TW-93800-80							Yes		
12" stem length									
TW-93800-72	–50 to 350°F (–45 to 176°C)	Ungrounded	Aluminum	½" NPT(M)	¼"	316 SS	No	3	
TW-93800-75							Yes		
TW-93800-78			Poly				No		
TW-93800-81							Yes		

Note: Other configurations are available; contact our Application Specialists for details.

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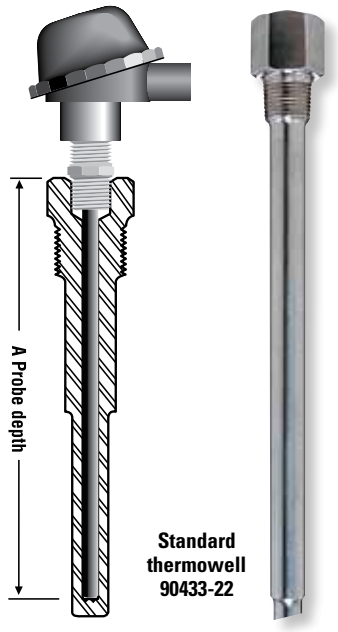
OAKTON® Industrial Thermowells

Designed for easy replacement of your industrial probe without shutting the operation down

To match your probe to a thermowell, first measure the distance from the probe's tip to the top of the thread (typical thread length is 0.5" for ½" NPT fittings). Next, match this length to the probe depth of the thermowell ("A" dimension). Other thermowell sizes and materials are available—call our Application Specialists for details.

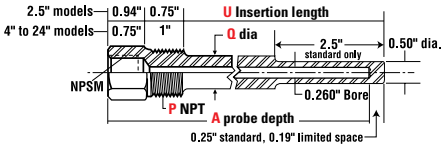
Choose a limited-space thermowell when you need a shorter insertion depth; a standard thermowell for general-purpose applications; or a heavy-duty thermowell for higher fluid velocity ratings.



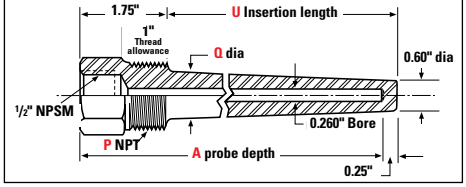
Pressure Ratings (psig)

Material	Temperature						
	70°F	200°F	400°F	600°F	800°F	1000°F	1200°F
304 SS	7000	6200	5600	5400	5200	4500	1650
316 SS	7000	7000	6400	6200	6100	5100	2500
Brass	5000	4200	1000	—	—	—	—

For limited space and standard thermowells:



For heavy-duty thermowells:



Thermowell type	External thread (P)	Shank dia (Q)	Stem depth (A)	Insertion length (U)	304 stainless steel			316 stainless steel			Brass		
					Cat no.	Temp range	Price	Cat no.	Temp range	Price	Cat no.	Temp range	Price
Limited space	½" NPT(M)	⅝"	2.5"	1"	TW-90433-80	–32 to 1600°F (0 to 871°C)		TW-90433-93	–32 to 1600°F (0 to 871°C)		—	—	—
Standard	½" NPT(M)	⅝"	4"	2.5"	TW-90433-81	–32 to 1600°F (0 to 871°C)		TW-90433-94	–32 to 1600°F (0 to 871°C)		TW-90433-40	–32 to 600°F (0 to 315°C)	
			6"	4.5"	TW-90433-82			TW-90433-95			TW-90433-41		
			9"	7.5"	TW-90433-83			TW-90433-96			TW-90433-42		
			12"	10.5"	TW-90433-84			TW-90433-97			TW-90433-43		
			24"	22.5"	TW-90433-85			TW-90433-98			—		—
Heavy duty	¾" NPT(M)	¾"	4"	2.5"	TW-90433-86	–32 to 1600°F (0 to 871°C)		TW-90433-99	–32 to 1600°F (0 to 871°C)		TW-90433-44	–32 to 600°F (0 to 315°C)	
			6"	4.5"	TW-90433-87			TW-90434-00			TW-90433-45		
			9"	7.5"	TW-90433-88			TW-90434-01			TW-90433-46		
			12"	10.5"	TW-90433-89			TW-90434-02			TW-90433-47		
			15"	13.5"	TW-90433-90			TW-90434-03			—	—	—
			18"	16.5"	TW-90433-91			TW-90434-04			—		—
			24"	22.5"	TW-90433-92			TW-90434-05			—		—

2-in-1 Dual Probe Thermometer

Measure both surface and internal temperatures—with just one unit!

- Spring-loaded cordless pipe clamp ensures repeatability
- 2.5" (63.5 mm) retractable general-purpose probe

This versatile instrument measures the surface temperature of a pipe and other round objects or the internal temperature of liquids and solids. The claw-like spring-loaded clamp probe is designed to accommodate round objects from ¼" to 1⅜" (6.4 to 35 mm) in diameter. The retractable stainless steel penetration probe is hidden in the handle of the unit and can be inserted into an object up to 2" (50.8 mm) deep. Temperature is conveniently shown on a built-in LCD. Other features include selectable units of measure, min/max and hold functions, and auto shut-off.

What's included: protective nylon belt pouch and LR44 button cell battery.

Specifications

CE

Resolution: 0.1°F/°C

Accuracy
Clamp probe: ±3°F (±2°C) from –14 to 212°F (–10 to 100°C)
Penetration probe: ±3°F (±2°C) from –20 to 300°F (–30 to 150°C)

Response time
Clamp probe: 90 seconds
Penetration probe: 20 seconds

Display: 4-digit LCD, 0.25"H digits

Power: one button cell battery (included)

Battery life: 150 hours

Dimensions: 4"W x 6¾"H x 1"D (10.2 x 17.1 x 2.5 cm)

Catalog number	Range	Price
TW-90025-03	–20 to 300°F (–40 to 15°C)	

TW-17000-10 **NIST-traceable calibration** with data for thermocouple meter

Distributed by: Fiedler Scientific Instruments, s.r.o.
info@lab-eu.com info@pristroje.cz

Industrial Probe Accessories

A Thermocouple Connectors

Connectors withstand continuous temperature of 350°F (177°C) and maximum temperature of 400°F (204°C). Feature glass-filled nylon casing with finger grips and polarity indicators; negative terminals are marked with red discs for easy identification. Miniconnectors accept miniature cable clamps and cable up to 20 gauge; standard connectors accept standard cable clamps and cable up to 16 gauge.

Type	Connection	Color	Miniconnectors				Standard connectors			
			Pack of 10		Pack of 100		Pack of 10		Pack of 100	
			Cat. no.	Price	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price
J	Plug	Black	TW-93840-50		TW-93841-50		TW-93840-60		TW-93841-60	
J	Jack	Black	TW-93840-51		TW-93841-51		TW-93840-61		TW-93841-61	
K	Plug	Yellow	TW-93840-52		TW-93841-52		TW-93840-62		TW-93841-62	
K	Jack	Yellow	TW-93840-53		TW-93841-53		TW-93840-63		TW-93841-63	
T	Plug	Blue	TW-93840-54		TW-93841-54		TW-93840-64		TW-93841-64	
T	Jack	Blue	TW-93840-55		TW-93841-55		TW-93840-65		TW-93841-65	

Type K miniconnector jack and plug

Type J standard connector plug and jack

B Compression Fittings

316 SS compression fitting
08539-36

Fittings let you adjust the depth your probe extends into a system for temperature readings. Use fittings for straight-shaft probes and metal tubing only. Tighten compression nut to secure and completely seal probe.

Replacement ferrules let you reuse a compression fitting when replacing a worn out probe. Simply disassemble fitting, discard probe and old ferrule, install replacement ferrule over probe sheath, and retighten fitting.

Cat. no.	Probe dia	NPT(M)	Working pressure†	Price
Brass fittings for temperatures to 425°F (218°C)				
TW-08539-04	1/8"	1/8"	2800 psi	/ea
TW-08539-08	3/16"	1/8"	2060 psi	/ea
TW-08539-12	1/4"	1/8"	1650 psi	/ea
TW-08539-30	1/4"	1/4"	1650 psi	/ea
TW-08539-33	3/8"	3/8"	1110 psi	/ea
316 stainless steel fittings for temperatures to 1200°F (649°C)				
TW-08539-02	1/8"	1/8"	3270 psi	/ea
TW-08539-06	3/16"	1/8"	2260 psi	/ea
TW-08539-35	3/16"	1/4"	2260 psi	/ea
TW-08539-36	1/4"	1/4"	1810 psi	/ea
TW-08539-39	3/8"	3/8"	1170 psi	/ea
TW-08539-41	1/2"	1/2"	860 psi	/ea

†Maximum pressure at 72°F (22°C).

C Wire Stripper/Terminal Crimper

93785-90

Crimper offers all of the functions of a wire stripper, terminal crimper, wire cutter, and small bolt cutter.

Cat. no.	Description	Price
TW-93785-90	Wire stripper/ terminal crimper	

D Thermocouple Feedthroughs

93870-02

Use these two-wire feedthroughs to make connections inside vessels or chambers. Use with probes with miniconnectors. Feedthroughs withstand vacuum conditions or pressures to 100 psi. Stainless steel and epoxy construction. Temperature range: –40 to 250°F (–40 to 121°C). Feedthroughs have a 1/2" NPT(M) fitting. Include 48"L, PTFE- insulated, 24-gauge (0.0201" wire dia) lead wires.

Cat. no.	Type	Price
TW-93870-00	J	
TW-93870-02	K	
TW-93870-04	T	

E Thermocouple Attachment Pads

93785-50

Use self-adhesive attachment pads to affix small-diameter wire thermocouples to surfaces. Temperature range: –58 to 392°F (–50 to 200°C).

Cat. no.	Quantity	Price/pk
TW-93785-50	Five sheets of 20 pads each (100 pads/pk)	

F Thermal Transfer Compound

93785-61

Nonsilicone compound helps improve heat transfer to sensor, greatly improving sensor response. Compound will not harden or dry out. Use over temperature range of –43 to 390°F (–40 to 200°C). Meets physical properties of MIL-C-47113.

Cat. no.	Description	Price
TW-93785-61	4 oz. thermal transfer compound	

G Cable Clamps

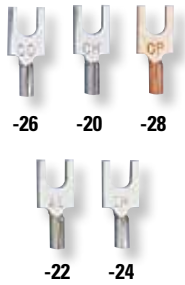
08509-81

08509-82

Cable clamps secure and stabilize wire/connector junctions. Pack of 12.

Cat. no.	Description	Price/pk
TW-08509-81	Cable clamp, miniature	
TW-08509-82	Cable clamp, standard	

H Spade Lugs



-26 -20 -28

-22 -24

Choose spade lugs that match the composition of your thermocouple wires. Pack of 20.

Catalog number	Thermocouple type; material	Price/ pk
TW-08539-20	E, K; Chromel	
TW-08539-22	K; Alumel	
TW-08539-24	J; Iron	
TW-08539-26	J, T, E; Constantan	
TW-08539-28	T; Copper	

Industrial Probe Accessories (continued)

I Thermocouple Switch Boxes

Connect multiple probes to your thermocouple thermometer with these switch boxes. (**Caution:** Voltage present at any probe may also be present at the instrument.)

Ten-input boxes include a 15" (38 cm) long cord with miniconnector for meter connection. Switch boxes accept ANSI miniconnectors.

Ten-input switch box 08498-10

Catalog number	Inputs	Type	Dimensions (W x H x D)	Price
TW-08498-00 TW-08498-10 TW-08498-20	Ten	J K T	6" x 2½" x 6¼" (15.2 x 6.4 x 15.9 cm)	

J Extension Cables

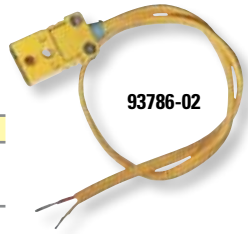
All extension cables are 20-gauge (0.032" dia) thermocouple wire with PVC/PVC insulation. Maximum temperature: 221°F (105°C).

Extension cables with miniconnectors

Type	Miniconnector		Standard connector	
	Catalog number	Price	Catalog number	Price
10-ft length cable				
J	TW-08517-30		TW-08517-32	
K	TW-08516-30		TW-08516-32	
T	TW-08505-30		TW-08505-32	
25-ft length cable				
J	TW-08517-35		TW-08517-37	
K	TW-08516-35		TW-08516-37	
T	TW-08505-35		TW-08505-37	
50-ft length cable				
J	TW-08517-50		TW-08517-52	
K	TW-08516-50		TW-08516-52	
T	TW-08505-50		TW-08505-52	

K Cable Adapter

Attach cable adapter to your probe to provide easy connection to screw terminals. Leads measure 12" (30.5 cm) L.



93786-02

Cat. no.	Description	Type	Price
TW-93786-00 TW-93786-02 TW-93786-04	Cable adapter	J K T	

L Coiled Extension Cables

Each coiled extension cable is ANSI color-coded with miniconnector on each end. Measure 5 ft (1.5 m) long when fully extended. Maximum temperature: 221°F (105°C).

93785-02

Cat. no.	Type	Connections	Price
TW-93785-00 TW-93785-02 TW-93785-04	J K T	Male to female (plug to jack)	
TW-93785-10 TW-93785-12 TW-93785-14	J K T	Male to male (plug to plug)	

M Panel Jacks

Electrical box not included

Type J miniature round panel jacks 08509-36

Type K standard round panel jacks 08509-46

Panel jacks let you connect probes to mounting panel or standard outlet box for convenient input switching or multiplexing; or for your own customized probe installation. ANSI color-coded jacks come in miniature and standard sizes. Panel jacks are rated to 350°F (177°C).

All panel jacks feature glass-filled nylon construction. Use rectangular panel jack models 08509-55 through -57 and 08509-41 through -44 with mounting panels below. Round panel jacks do not require a custom mounting panel or cutout—simply insert and secure with screws (included). Round panel jacks fit ½" electrical knockouts (⅞" holes) for miniature size; ¾" electrical knockouts (1⅛" holes) for standard size.

Type	Color	Miniature panel jacks		Standard panel jacks	
		Catalog number	Price	Catalog number	Price
Rectangular panel jacks					
J	Black	TW-08509-55		TW-08509-41	
K	Yellow	TW-08509-56		TW-08509-42	
T	Blue	TW-08509-57		TW-08509-44	
Round panel jacks					
J	Black	TW-08509-36		TW-08509-45	
K	Yellow	TW-08509-37		TW-08509-46	
T	Blue	TW-08509-38		TW-08509-47	

N Mounting Panels and Outlet Box

Use mounting panels with rectangular panel jacks and outlet box 08508-80 or with your own installation. Box serves as a junction point for up to six probes—route all extension wires through a single ¾" NPT(F) inlet. Molded, glass-reinforced nylon box includes four screws for attaching a mounting panel. Mounting panels measure 4½" (11.4 cm) W x 2¾" (7 cm) H.

08508-94

08508-88

08508-90

Outlet box 08508-80

Panels for miniature jacks		Panels for standard jacks		Number of slots
Catalog number	Price	Catalog number	Price	
TW-08508-86		TW-08508-93		2
TW-08508-87		TW-08508-94		3
TW-08508-88		TW-08508-95		4
TW-08508-89		TW-08508-96		5
TW-08508-90		TW-08508-97		6

TW-08508-80 Outlet box.
Measures 4½" (11.4 cm) W x 2¾" (7 cm) H x 1½" (3.8 cm) D

O Rubber Boots for Probe Connections

Pair of mini boots 93840-02

Pair of standard boots 93840-00 installed on probe

Waterproof your thermocouple connections. Boots fit most detachable, general-purpose, penetration, and industrial probes. Order two boots for each connection.

Cat. no.	Description	Price
TW-93840-00	Rubber boot, standard. Accepts probe sheaths or wires to ¼" OD	/ea
TW-93840-02	Rubber boot, miniature. Accepts probe sheaths or wires to ⅛" OD	/ea

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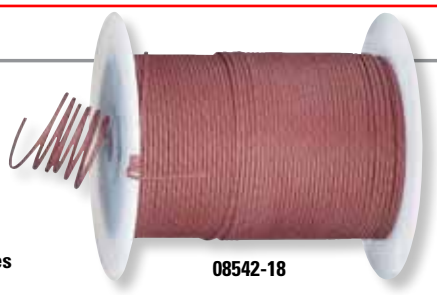
Thermocouple and RTD Wire

Make your own extension cables

Wire comes in 30, 24, 20, or 16 gauge for fabricating your own probes or extension cables (meets ANSI and ASTM standards). Choose from wire with polyvinyl chloride (PVC), fluorinated ethylene propylene resin (FEP/FEP), fiberglass, high-temperature fiberglass, or ceramic fiber outer/inner insulation.

Convenient 100- or 1000-ft rolls in four gauges



08542-18

Specifications

Insulation type (outer/inner)	Temperature range	Advantages
Polyvinyl	–20 to 221°F (–28 to 105°C)	Good moisture and abrasion resistance
FEP/FEP	–328 to 400°F (–200 to 204°C)	Excellent chemical and moisture resistance; very good abrasion resistance
Glass braid	–100 to 900°F (–73 to 482°C)	Excellent chemical and flame resistance; fair moisture resistance; good abrasion resistance
High-temp fiberglass braid	0 to 1400°F (–18 to 750°C)	Higher temperatures than regular fiberglass insulation; fair moisture resistance; good abrasion resistance
Ceramic fiber braid	0 to 2200°F (–18 to 1427°C)	Intermittent temperatures to 3000°F (1649°C); fair moisture and abrasion resistance

Wire type	Wire gauge	Wire temp rating (Max)	Inner insulation	Outer insulation	Stranded/ Solid	Over-braid	Special features	Catalog number	Price/rl of 100 ft	Catalog number	Price /rl of 1000 ft
Thermocouple wire											
J	16	221°F	Polyvinyl	Polyvinyl	Solid	No	—	TW-08541-30		TW-08542-26	
J	16	900°F	Enamel/glass braid	Glass braid	Solid	No	—	TW-08541-31		TW-08542-27	
J	20	221°F	Polyvinyl	Polyvinyl	Solid	No	—	TW-08541-16		TW-08542-15	
J	20	221°F	Polyvinyl	Polyvinyl	Solid	No	Mylar® shield and drain wire	TW-08541-49		TW-08542-42	
J	20	400°F	FEP	FEP	Solid	No	—	TW-08541-17		TW-08542-16	
J	20	400°F	FEP	FEP	Stranded	No	—	TW-08541-46		TW-08542-39	
J	20	900°F	Glass braid	Glass braid	Solid	No	—	TW-08541-18		TW-08542-17	
J	20	900°F	Glass braid	Glass braid	Solid	Yes	Stainless steel overbraid	TW-08541-38		TW-08542-35	
J	20	900°F	Glass braid	Glass braid	Stranded	No	—	TW-08541-47		TW-08542-40	
J	24	221°F	Polyvinyl	Polyvinyl	Solid	No	—	TW-08541-06		TW-08542-06	
J	24	400°F	FEP	FEP	Solid	No	—	TW-08541-07		TW-08542-07	
J	24	900°F	Glass braid	Glass braid	Solid	No	—	TW-08541-08		TW-08542-08	
J	24	900°F	Glass wrap	Glass wrap	Solid	Yes	Stainless steel overbraid	TW-08541-35		TW-08542-32	
J	30	400°F	FEP	FEP	Solid	No	—	TW-08541-00		TW-08542-00	
J	30	900°F	Glass braid	Glass braid	Solid	No	—	TW-08541-01		TW-08542-01	
K	16	221°F	Polyvinyl	Polyvinyl	Solid	No	—	TW-08541-32		TW-08542-28	
K	16	900°F	Enamel/glass braid	Glass braid	Solid	No	—	TW-08541-33		TW-08542-29	
K	20	1300°F	High temp glass braid	High temp glass braid	Solid	No	Special limits of error (±4%)	TW-08541-23		TW-08542-22	
K	20	2200°F	Ceramic fiber braid	Ceramic fiber braid	Solid	No	—	TW-08541-24		TW-08542-23	
K	20	221°F	Polyvinyl	Polyvinyl	Solid	No	—	TW-08541-20		TW-08542-19	
K	20	221°F	Polyvinyl	Polyvinyl	Solid	No	Mylar shield and drain wire	TW-08541-48		TW-08542-41	
K	20	400°F	FEP	FEP	Solid	No	—	TW-08541-21		TW-08542-20	
K	20	900°F	Glass braid	Glass braid	Solid	No	—	TW-08541-22		TW-08542-21	
K	20	900°F	Glass braid	Glass braid	Solid	Yes	Stainless steel overbraid	TW-08541-39		TW-08542-36	
K	24	221°F	Polyvinyl	Polyvinyl	Solid	No	—	TW-08541-09		TW-08542-09	
K	24	400°F	FEP	FEP	Solid	No	—	TW-08541-10		TW-08542-10	
K	24	900°F	Glass braid	Glass braid	Solid	No	—	TW-08541-11		TW-08542-11	
K	24	900°F	Glass wrap	Glass wrap	Solid	Yes	Stainless steel overbraid	TW-08541-36		TW-08542-33	
K	30	400°F	FEP	FEP	Solid	No	Special limits of error (±4%)	TW-08541-02		TW-08542-02	
K	30	900°F	Glass braid	Glass braid	Solid	No	—	TW-08541-03		TW-08542-03	
T	16	221°F	Polyvinyl	Polyvinyl	Solid	No	—	TW-08541-34		TW-08542-30	
T	20	221°F	Polyvinyl	Polyvinyl	Solid	No	—	TW-08541-25		TW-08542-24	
T	20	400°F	FEP	FEP	Solid	No	—	TW-08541-26		TW-08542-25	
T	20	900°F	Glass braid	Glass braid	Solid	No	—	TW-08541-27		TW-08542-44	
T	20	900°F	Glass braid	Glass braid	Solid	Yes	Stainless steel overbraid	TW-08541-40		TW-08542-37	
T	24	221°F	Polyvinyl	Polyvinyl	Solid	No	—	TW-08541-12		TW-08542-12	
T	24	221°F	Polyvinyl	Polyvinyl	Solid	No	—	TW-08541-45		TW-08542-38	
T	24	400°F	FEP	Glass braid	Solid	No	—	TW-08541-13		TW-08542-13	
T	24	900°F	Glass braid	Glass braid	Solid	No	—	TW-08541-14		TW-08542-14	
T	24	900°F	Glass wrap	Glass wrap	Solid	Yes	Stainless steel overbraid	TW-08541-37		TW-08542-34	
T	30	400°F	FEP	FEP	Solid	No	Special limits of error (±4%)	TW-08541-04		TW-08542-04	
T	30	900°F	Glass braid	Glass braid	Solid	No	—	TW-08541-05		TW-08542-05	
RTD wire											
RTD	24	400°F	TFE	TFE	Stranded	No	—	TW-08542-31		—	—
RTD	24	900°F	Glass braid	Glass braid	Stranded	No	—	TW-08541-42		—	—
RTD	24	900°F	Glass braid	Glass braid	Stranded	Yes	Stainless steel overbraid	TW-08541-43		—	—
RTD	24	400°F	FEP	FEP / stainless steel overbraid	Stranded	Yes	FEP/stainless steel overbraid	TW-08541-44		—	—
RTD	28	400°F	TFE	FEP	Stranded	No	Duplex / 6 wires	TW-08541-41		—	—
RTD	20	400°F	FEP	FEP	Stranded	No	—	TW-08541-50		TW-08542-43	

InnoCal® provides services that ensure the accuracy of your Temperature Probes

- **New Instrument Calibrations:** Our A2LA-accredited metrology lab provides NIST-traceable calibrations so your new purchase is ready to use as soon as you receive it—right out of the box! No need to waste time sending it to a third party or waiting for your calibration department to get to it. Your new product investment meets quality standards and regulatory requirements the first time you use it!
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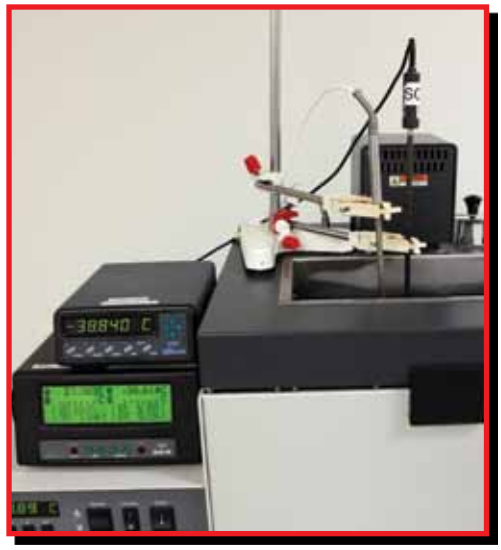

Trust InnoCal®, our accredited laboratory, to satisfy your calibration and equipment repair needs

Calibration Traceable to NIST

Calibration Report with test data includes:

- Description and identification of the item
- Condition of the item as received
- Identification of calibration procedure
- Calibration date
- As found/as left test data
- Electronic signature of technician
- Statement of measurement uncertainty
- Test uncertainties (TURs)
- List of standards used to perform calibration (including their calibration dates)

InnoCal conforms to*

ACCREDITED
CALIBRATION CERT 1746.01

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ANSI/NCSL Z540-2-1997
NIST Technical Note 1297
ISO 9000:2000

*Please check our scope of accreditation for any limitations.

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Temperature Probe Calibrations

InnoCal can calibrate all standard type of thermocouples, thermistors, RTDs, and HART®-style PRTs. Calibrations on probes are performed using direct comparison in high-stability liquid and dry baths using high-precision PRT's and SPRT's and displays.

Measurements can be performed at four points between –197°C and 1300°C. Points are generally selected at standard ITS-90 points across the range of the probe but customer-specified points can be accommodated.

Catalog number	NIST-traceable report for:	Price
TW-17001-10	Thermocouple, all standard types, probe only: –80 to 1300°C (–112 to 2372°F)	
TW-17001-06	Thermistor probe only: –80 to 150°C (–112 to 302°F)	
TW-17001-04	RTD probe only: –80 to 1000°C (–112 to 1832°F)	
TW-17001-11	HART®-style PRT. Range per manufacturer's specifications.	
TW-17004-10	Infrared probe: –15 to 500°C (–5 to 923°F)	

3" Compact Temperature Recorders

High accuracy and resolution—ideal for regulatory compliance monitoring or quality control

- User selectable for °F or °C units and 24-hour or 7-day rotation

Use these compact temperature recorders for monitoring and recording data in almost any location. These recorders are calibratable for accurate recording in refrigerators, freezers, incubators, and more. Sturdy case protects the recorder from damage in harsh environments. Recorder is wall-mountable or free-standing depending on your application.

What's included: pen and one AA battery. Order chart paper separately below.

80014-00

Specifications

Operating ambient temperature: –22 to 122°F (–30 to 50°C)
Temperature accuracy: ±2°F (±1°C) full-scale
Chart size: 3"
Chart speed: 24 hour or 7 day (user selectable)
Temperature sensor: spiral wound bimetallic strip
Resolution: not less than 1" per 55°F in 1°C or 2°F steps
Response time: 11 minutes to move 63% of full scale in air moving at 5 ft/sec
Power: one AA battery (included)
Battery life: up to two years
Dimensions (W x H x D): 3¾" x 3¾" x 2¼" (9.5 x 9.5 x 5.7 cm)

Catalog number	Range (user selectable)	Rotation (user selectable)	Price
TW-80014-00	–14 to 32°F (–25 to 0°C)	24 hour or 7 day	
TW-80014-02	4 to 50°F (–15 to 10°C)	24 hour or 7 day	
TW-80014-04	22 to 68°F (–5 to 20°C)	24 hour or 7 day	
TW-80014-06	50 to 96°F (10 to 35°C)	24 hour or 7 day	
TW-80014-08	76 to 122°F (25 to 50°C)	24 hour or 7 day	

TW-08498-50 **Replacement pen,** red
TW-09376-01 **Replacement batteries,** AA. Pack of 4
TW-17100-00 **NIST-traceable calibration** with data for recorders

Chart Paper (pack of 60 sheets)

Chart range	24-hour		7-day	
	Catalog number	Price	Catalog number	Price
–14 to 32°F	TW-80011-50		TW-80011-54	
4 to 50°F	TW-80011-58		TW-80007-36	
22 to 68°F	TW-80011-62		TW-80007-40	
50 to 96°F	TW-80011-66		TW-80007-44	
76 to 122°F	—	—	TW-80011-80	
–25 to 0°C	—	—	TW-80011-56	
–15 to 10°C	TW-80011-60		TW-80007-37	
–5 to 20°C	TW-80011-64		TW-80007-41	
10 to 35°C	TW-80011-70		TW-80007-45	
25 to 50°C	TW-80011-78		TW-80011-88	

Battery-Powered 6" Temperature Recorders

Designed to fit into small spaces, including refrigerators, freezers, and storage spaces

- Dual powered—use AC adapter or 9 V battery

These recorders operate as portable, wall-mounted, or freestanding units. The 9 V battery backup lets you measure temperatures where there are no power outlets. Foldaway handle makes them easy to carry and store. Chart and recorder mechanism are protected by the sturdy polycarbonate door. Units use an internal bimetal temperature sensor.

Front panel includes large LCD, on/off switch, and a blinking light that indicates either battery is low or AC power is on.

What's included: AC adapter with 6-ft (1.8-m) power cord and standard US plug, one box of 60 charts, and one red pen. Order batteries and replacement pens below.

93879-50

Specifications

Operating ambient temperature: 32 to 140°F (0 to 60°C)
Temperature accuracy: ±2%
Display: 3-digit LCD
Display resolution: 0.1°F/°C
Chart size: 6"
Chart speed: 24 hour or 7 day (selectable)
Temperature sensor: bimetal
Battery life: approximately 1 year
Dimensions (W x H x D): 7" x 9¼" x 2¾" (17.8 x 23.5 x 7.0 cm)

Recorders				Chart paper (pk of 60)	
Catalog number	Range	Power†	Price	Catalog number	Price/pk
24-hour rotation					
TW-93879-50 TW-93879-51	–20 to 120°F –30 to 50°C	115 VAC, 50/60 Hz		TW-93879-70 TW-93879-71	
7-day rotation					
TW-93879-60 TW-93879-61	–20 to 120°F –30 to 50°C	115 VAC, 50/60 Hz		TW-93879-72 TW-93879-73	

†9 V battery not included, 115 VAC adapter included.

TW-09376-04 **Batteries,** 9 V. Pack of 4
TW-80055-71 **Replacement pen,** red. Pack of 2
TW-17100-00 **NIST-traceable recalibration** with data for recorders

ENSURE ACCURACY
INNOCAL®
Have your new product calibrated.
See pages 198-206.

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6" Type K Thermocouple Recorders

Monitor temperature for quality assurance and control

- Audible alarm notifies operator of out-of-limit conditions
- Shielded design eliminates electronic noise interference

These microprocessor-based recorders are ideal for monitoring temperatures in ovens, freezers, chambers, storage and cleanroom facilities, machinery and more. Recorders feature user-selectable temperature ranges, recording times, and zero point calibration. The large digital LCD is easy to read and has a resolution of 0.1°F/°C.

Model 80018-06 features an audio/visual alarm and includes relay functions for connection to a pump or remote transmitter. All units are enclosed in a rugged ABS case with a polycarbonate door to withstand challenging environments; portable or wall mount with the rear-panel keyhole slots. Order charts separately below.

What's included: one 4-ft (1.2-m) flexible type K thermocouple bead wire, 120 VAC power adapter with 6-ft (1.8-m) cord, 9 V battery, one red pen, and one blue pen.

80018-00

Specifications

CE

Operating ambient temperature: 32 to 122°F (0 to 50°C)

Temperature accuracy: ±1.8°F (±1°C)

Display (models 80018-02, -04, -06): 3.5-digit LCD

Display resolution: 0.1°F (0.1°C) from 9.9 to 199.9; 1.0°F (1.0°C) at <–9.9 and >199.9

Chart size: 6"

Chart speed: (selectable) 24 hours or 7 days

Temperature sensor: type K thermocouple wire (included)

Relay output (model 80018-06 only): one NO/NO SPST, 24 VDC, 0.5 A

Alarm (models 80018-04, -06): audio/visual; user-selectable min/max set points

Power: 120 VAC or optional AC adapter

Dimensions (W x H x D): 7½" x 7½" x 3¼" (19.1 x 19.1 x 8.3 cm)

Accessories

TW-08516-06 High-temperature type K stainless steel probe; 2100°F (1148°C), 6" (15.2 cm) L. Includes 6-ft (1.8-m) cable

TW-80018-20 Universal AC adapter; 100 to 240 VAC, 50/60 Hz, 0.6 A; output: DC 9 V to 2 A

TW-17100-00 NIST-traceable recalibration with data for recorders

Catalog number	Description	Price
TW-80018-00	General-purpose recorder	
TW-80018-02	Recorder with digital display	
TW-80018-06	Recorder with digital display, audio/visual alarm, and relay	

Replacement Pens

Catalog number	Color	Qty	Price
TW-08498-50	Red	1	
TW-08498-51	Blue	1	
TW-08516-04	Red	6	/pk
TW-80009-60	Red and blue	3 of each color	/pk

Chart Paper

Chart range	24-hour			7-day		
	Catalog number	Qty/pk	Price/pk	Catalog number	Qty/pk	Price/pk
–50 to 50°F/°C	TW-80009-00	60		TW-80009-10	60	
0 to ±50°F/°C	TW-08372-06	17		TW-08372-08	17	
50 to 100°F/°C	TW-08372-38	17		TW-08372-39	17	
0 to ±100°F/°C	TW-80009-02	60		TW-80009-12	60	
0 to 250°F/°C	TW-80009-04	60		TW-80009-14	60	
0 to 500°F/°C	TW-80009-06	60		TW-80009-16	60	

Find MORE!
For additional recorder types, see our Recorders section on **pages 1452-1468.**

Cole-Parmer® Disposable Temperature Recorders

Economically monitor continuous temperatures for critical shipments

Easy to use single-use recorders create a permanent record of in-transit temperature conditions. Simply pull the start tab out to activate recorder; start-up indicator confirms activation.

Each recorder has identification serial number and bar code for computer tracking. Tamper-proof wire seal ensures data remains secure until retrieved. Mount recorders onto any surface with flexible hanger or adhesive strip. Housing is water- and shock-resistant.

Specifications

Range: –20 to 100°F (–28 to 38°C)

Accuracy
Temperature: ±2°F (±1°C)
Time: ±20 seconds per month average

Chart: pressure-sensitive 36" strip chart

Temperature sensor: bimetal coil

Power: one AA alkaline battery (included)

Dimensions (W x H x D): 4" x 5½" x 2½" (10.2 x 14.0 x 6.4 cm)

Catalog number	Chart speed	Price
TW-80150-40	5 days	
TW-80150-50	10 days	
TW-80150-60	20 days	
TW-80150-70	30 days	

Create a permanent record of temperature conditions during shipment.

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Economical 6" Type J Thermocouple Recorders

Chart speed selectable from 6 hours, 24 hours, 7 days, or 31 days

- Battery backup ensures 48 hours of normal operation during power interruption

These versatile temperature recorders accurately measure and record temperature in air, gases, liquids, powders, and semisolids. Large, three-digit LED display shows current temperature readings. Models available for °F and °C measurements. Front-panel switches let you select chart speeds and temperature ranges.

Calibration is easy with inset potentiometer on the front panel. Use recorders as free-standing or wall-mount units. Recorders require eight AA batteries for battery backup (not included).

What's included: type J thermocouple probe, 60 sheets of assorted 6" diameter chart paper, two cartridge pens, and a 5-ft (1.5-m) cord with plug.

80050-02

Specifications

CE

Operating ambient temperature: 32 to 140°F (0 to 60°C)
Temperature accuracy: ±2°F (1°C)
Display: 3-digit LCD
Display resolution: 1°F/°C
Chart size: 6"
Chart speed: (selectable) 6 hours, 24 hours, 7 days, 31 days
Temperature sensor: type J thermocouple (included)
Dimensions (W x H x D): 7¼" x 9¼" x 2¾" (18.4 x 23.5 x 7.0 cm)

Units	Recorders 110 VAC, 50/60 Hz Cat. no.	Price	Recorder and chart range	Chart paper (pk of 60)‡ 24-hour Cat. no.	24-hour Price/pk	7-day Cat. no.	7-day Price/pk	31-day Cat. no.	31-day Price/pk
°F	TW-80050-02		–40 to 30°F	—	—	TW-80050-46		TW-80052-61	
			–20 to 50°F	—	—	TW-80050-47		TW-80052-62	
			50 to 120°F	TW-80050-42		TW-80050-48		TW-80052-63	
°C	TW-80050-12		–40 to 0°C	—	—	TW-80050-96		TW-80052-66	
			–30 to 10°C	TW-80050-91		TW-80050-97		TW-80052-67	
			10 to 50°C	TW-80050-92		TW-80050-98		TW-80052-68	
°F	TW-80050-20†		0 to 250°F	TW-80051-54		TW-80051-57		TW-80051-61	
			0 to 500°F	TW-80051-55		TW-80051-58		TW-80051-62	
			500 to 1000°F	TW-80051-56		—	—	—	—
°C	TW-80050-30†		0 to 120°C	TW-80051-74		TW-80051-77		TW-80051-81	
			0 to 250°C	TW-80051-75		TW-80051-78		TW-80051-82	
			250 to 500°C	—	—	TW-80051-79		—	—

†High-temperature models 80050-20, and -30 include a 6-ft long, high-temperature type J thermocouple wire probe.
‡The 6-hour chart papers are available online.

80050-20

TW-09376-01 **Batteries,** AA. Pack of 4
TW-80050-71 **Replacement pen,** black
TW-17100-00 **NIST-traceable recalibration** with data for recorders

Temperature/Humidity Paperless Recorder

Records temperature and humidity—plus calculates dew point

- Internal memory records up to 49,000 data points
- Audible and visual alarms alert you to out-of-range conditions

Easy-to-operate digital recorder monitors and records temperature and humidity data in laboratories, storage and cleanrooms, freezers, and other critical areas. The detachable temperature/humidity probe extends up to one meter—ideal for measurements in closed environments. Probe does not require any calibration.

The large dual-graphic LCD simultaneously displays temperature (°F/°C) and relative humidity readings, plus time, date, battery status, and % of remaining memory. Dew point is easily displayed by pressing the dew point button. LCD also features adjustable vertical and horizontal resolution. Internal memory records up to 49,000 data points which can be transferred to a PC via RS-232 serial port for further analysis.

Audible and visual alarms generate warnings when conditions are outside selected high and low limits. A push-button lockout security feature prevents unauthorized tampering with settings. Recorder fits on your benchtop or easily mount to the wall.

What's included: detachable probe with 3-ft (0.9-m) cable, built-in stand, RS-232 cable, 110 VAC adapter, and three AA batteries.

DEW POINT

23029-81

Catalog number	Description	Price
TW-23029-81	Temperature/humidity paperless recorder	

TW-23029-82 **Replacement temperature/humidity probe**
TW-23029-84 **AC adapter,** 220 VAC
TW-37803-28 **AC alarm relay module,** 9-ft (2.7-m) cable
TW-09376-01 **Replacement batteries,** AA. Pack of 4
TW-17030-20 **NIST-traceable calibration** with data for humidity

Specifications

CE

Temperature specifications	
Range	–20.0 to 140.0°F (–28 to 60°C)
Resolution	0.1°F (0.1°C)
Accuracy	±1.8°F (1°C)
Humidity specifications	
Range	10.0 to 95.0% RH
Resolution	1% RH
Accuracy	±3% RH
General specifications	
Internal memory storage	49,152 complete reading sets
Sampling rates	0.1 to 199.9 minutes (selectable)
Display	Backlit graphic LCD
Operating temperature	32 to 120°F (0 to 50°C)
Dimensions	7¾"W x 5"H x 1"D
Power	110 VAC adapter or three AA batteries

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8" Type K Thermocouple Recorders

High temperature recorders measure up to 2000°F

These compact rugged recorders use microprocessor-based electronic sensors to record remote temperature measurements with precision accuracy. The large digital LCD is easy to read and has a resolution of 0.1°F/°C. Recorders feature user-selectable temperature ranges and recording times, zero point calibration, and flip-up pen arms for easy chart and pen changes. Each recorder comes with a type K thermocouple wire that is suitable for most gas, liquids, and semisolids up to 2000°F (model 80002-58 up to 2100°F max). Durable ABS enclosure protects against harsh environments. Unit is portable or wall mountable with the rear-panel keyhole slots. Lock-out dip switch prevents setting changes.

What's included: 4-ft (1.2-m) flexible type K thermocouple bead wire, 120 VAC adapter, and one 9 V battery (backup power). Model 80002-56 includes two 4-ft (1.2-m) thermocouple wires. Model 80002-58 includes a 316 SS, 6"L (15.2 cm) type K thermocouple probe on a 4-ft (1.2-m) wire. Order paper separately.

80002-56

Specifications

Operating ambient temperature: 32 to 122°F (0 to 50°C)
Temperature accuracy: ±1.8°F (±1°C)
Display: 3.5-digit LCD
Display resolution: 1°F/°C
Chart size: 8" dia
Chart speed: (selectable) 24 hours, 7 days, or 31 days
Power: 120 VAC, 50/60 Hz
Dimensions (W x H x D): 9¼" x 9¼" x 3" (23.5 x 23.5 x 7.6 cm)

Recorders			Measuring range	Chart paper					
				24-hour (60/pk)		7-day (60/pk)		31-day (60/pk)	
Catalog number	Type	Price		Catalog number	Price/pk	Catalog number	Price/pk	Catalog number	Price/pk
TW-80002-50	General-purpose recorder		–50 to 50°F/°C 0 to 100°F/°C 0 to 250°F/°C	TW-80013-00 TW-80013-02 TW-80013-04		TW-80013-12 TW-80013-14 TW-80013-16		— — —	— — —
TW-80002-52	Recorder with digital display		–50 to 50°F/°C 0 to 100°F/°C 0 to 250°F/°C 0 to 500°F/°C	TW-80013-00 TW-80013-02 TW-80013-04 TW-80013-06		TW-80013-12 TW-80013-14 TW-80013-16 TW-80013-18		TW-80006-70 TW-80006-72 TW-80006-74 TW-80006-76	
TW-80002-54	Recorder with digital display, audio/visual alarm		–50 to 50°F/°C 0 to 100°F/°C 0 to 250°F/°C 0 to 500°F/°C	TW-80013-00 TW-80013-02 TW-80013-04 TW-80013-06		TW-80013-12 TW-80013-14 TW-80013-16 TW-80013-18		TW-80006-70 TW-80006-72 TW-80006-74 TW-80006-76	
TW-80002-56	Recorder with digital display, audio/visual alarm, dual type K bead wires		–50 to 50°F/°C 0 to 100°F/°C 0 to 250°F/°C 0 to 500°F/°C	TW-80013-00 TW-80013-02 TW-80013-04 TW-80013-06		TW-80013-12 TW-80013-14 TW-80013-16 TW-80013-18		TW-80006-70 TW-80006-72 TW-80006-74 TW-80006-76	
TW-80002-58	High-temperature recorder with digital display, audio/visual alarm, SS type K probe		0 to 250°F/°C 0 to 500°F/°C 0 to 1000°F/°C 0 to 2000°F/°C	TW-80013-04 TW-80013-06 TW-80013-08 TW-80013-10		TW-80013-16 TW-80013-18 TW-80013-20 TW-80013-22		— — — —	— — — —

TW-08498-50 **Replacement pen,** red
TW-08498-51 **Replacement pen,** blue
TW-09376-04 **Replacement batteries,** 9 V. Pack of 4
TW-17100-00 **NIST-traceable recalibration** with data for recorders

Portable Eight-Channel Temperature Monitor

Replace your paper chart recorder with an easy-to-read LCD display

- Memory capacity of up to 64,000 data points

This handheld instrument combines data logging with the convenience of a large, graphic LCD screen. Features audible and visual out-of-tolerance alarms, RS-232 connectivity, selectable °F/°C/K units, date-and-time stamped data, and separate parallel port for printing. View data on the display, printed out, or download to a PC using the optional cable. Accepts thermocouple probes with miniconnectors.

What's included: four AA batteries.

90025-60

Specifications

2 year warranty

Input type: thermocouple types J, K, T, R, S, E, B
Memory: 64,000 data points
Sampling rate: 10 seconds to 99 hours, selectable
Output: RS-232
Power: four AA batteries (included) or optional 115 VAC adapter
Dimensions (W x H x D): 7½" x 5½" x 1¾" (19.1 x 14.0 x 4.4 cm)

Catalog number	Parameters	No. of channels	Range	Resolution	Accuracy	Display	Price
TW-90025-60	Temperature	8	–328 to 2500°F (–200 to 1372°C)	0.1° F (°C)	±0.1% of reading, ±0.4°F (0.2°C)	Monochrome LCD, 240 x 128	

TW-08466-82 **Thermocouple probe,** flexible 10 ft (3.0 m), type K
TW-08517-55 **Thermocouple probe,** type K with handle
TW-90025-66 **Printer cable**
TW-90025-67 **RS-232 computer cable**
TW-90025-68 **AC adapter,** 115 VAC
TW-90025-69 **Carrying case**
TW-17002-20 **NIST-traceable calibration** with data for temperature monitors

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Temperature Strip Chart Recorder

Monitor critical temperatures to ensure quality control

80008-50

Measure and record temperature in air, gas, liquids, powders, solids, and semisolids with this precision strip chart recorder. Use the included high-temperature type J thermocouple wire for applications up to 6 feet, or extend to remote locations with the optional 100-ft thermocouple wire offered below. Data is recorded on a 20-ft L x 4¾" W paper strip chart (US or metric) and is displayed on the two-line alphanumeric LCD. Record from two hours up to forty days.

Easily program user-selectable chart speeds and temperature ranges using the three push buttons on the front panel. The full-function alarm sounds an audible signal when the temperature exceeds an upper or lower set limit—prevent nuisance alarms by setting the delay time function before activating the alarm.

In the event of a power loss, a 48-hour battery backup (requires eight AA batteries, not included) provides continuous operation, all selectable functions are retained in the memory avoiding the re-entering of settings. Recorder fits on your desk or can be wall-mounted vertically or horizontally.

What's included: 6-ft (1.8-m) type J thermocouple wire, one roll of US chart paper, one roll of metric chart paper, one black pen, and 115 VAC adapter plug.

CE

Catalog number	TW-80008-50
Range	–40 to 1000°F (–40 to 500°C)
Resolution	0.1°F/°C
Accuracy	±2°F (±1°C)
Chart range	0 to 100°F/°C, –40 to 60°F/°C, 0 to 500°F/°C, 0 to 250°F, 50 to 150°F, 0 to 1000°F, –30 to 20°C, 0 to 50°C, (user selectable)
Chart speed	¼, ½, 1, 2 in./min; ¼, 1, 2, 4, 8 in./hr; ½, 2, 4, 8, 16 cm/hr; ½, 1, 2, 4 cm/min (user selectable)
Alarm delay range	No delay, 10, 20, 60, 90, or 180 minute
Display	16 characters, 2-line alphanumeric LCD
Operating ambient temperature	32 to 125°F (0 to 50°C)
Dimensions (W x H x D)	7¼" x 9¼" x 2" (18.4 x 23.5 x 5.1 cm)
Power	115 VAC, 50/60 Hz or optional 220 VAC adapter
Price	

TW-80009-75 **Repl. chart,** US standard. Pack of 4
TW-80009-80 **Repl. chart,** metric. Pack of 4
TW-80055-72 **Repl. pens,** black. Pack of 2
TW-80008-65 **Type J thermocouple wire,** 100 ft (30.5 m)
TW-80008-60 **Power adapter,** 220 VAC
TW-09376-01 **Batteries;** AA. Pack of 4

INNOCAL®
INNOVATIVE CALIBRATION SOLUTIONS

Ensure the accuracy of your recorder!

Service includes ten to fourteen point calibration with test report data.

TW-17100-00 **NIST-traceable calibration** with data

Temperature/Humidity Strip Chart Recorder

Records temperature and humidity or dew point simultaneously

80008-55

This temperature, humidity, and dew point strip chart recorder is ideal for all of your quality control and assurance requirements. The probe with 6-ft cable (included) is individually calibrated and field interchangeable, and the internal microprocessor automatically calculates dew point.

Data is recorded on a 20-ft L x 4¾"W paper strip chart (US or metric). Record from two hours up to forty days. Easily program user-selectable chart speeds and temperature ranges using the three push buttons on the front panel. The full-function alarm provides an audible signal when the temperature and/or humidity exceed an upper or lower set limit—prevent nuisance alarms by setting the delay time function before activating the alarm.

In the event of a power loss, a 48-hour battery backup (requires eight AA batteries, not included) provides continuous operation all selectable functions are retained in the memory avoiding the re-entering of settings. Recorder fits on your desk or can be wall-mounted vertically or horizontally.

What's included: temperature/humidity probe with 6-ft (1.8-m) cable, one roll of US standard chart paper, one roll of metric chart paper, one blue pen, one red pen, and 115 VAC adapter plug.

CE DEW POINT

Catalog number	TW-80008-55
Temperature specifications	
Range	–40 to 150°F (0 to 60°C)
Resolution	0.1°F/°C
Accuracy	±2°F (±1°C)
Humidity specifications	
Range	0 to 100% RH
Resolution	1% RH
Accuracy	±2% from 0 to 95% RH
Dew point specifications	
Range	32 to 125°F (0 to 50°C)
Resolution	1°F (0.5°C)
Accuracy	±2°F (±1°C)
General specifications	
Chart range	–40 to 60°F/°C, 50 to 150°F, 0 to 100°F, –30 to 20°C, 0 to 50°C
Chart speed	¼, ½, 1, 2 in./min; ¼, 1, 2, 4, 8 in./hr; ½, 2, 4, 8, 16 cm/hr; ½, 1, 2, 4 cm/min (user selectable)
Alarm delay range	No delay, 10, 20, 60, 90, or 180 minute
Display	16 characters, 2-line LCD
Operating ambient temperature	32 to 125°F (0 to 50°C)
Dimensions (W x H x D)	7¼" x 9¼" x 2" (18.4 x 23.5 x 5.1 cm)
Power	115 VAC, 50/60 Hz or optional 220 VAC adapter
Price	

TW-80009-75 **Repl. chart,** US standard. Pack of 4
TW-80009-80 **Repl. chart,** metric. Pack of 4
TW-80055-70 **Repl. pens, blue.** Pack of 2
TW-80055-71 **Repl. pens, red.** Pack of 2
TW-80008-60 **Power adapter,** 220 VAC
TW-09376-01 **Batteries;** AA. Pack of 4

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Multifunction Calibrator

Simple-to-use tool for testing, configuring, and calibrating virtually all process parameters

- 24 V loop power supply
- HART® loop resistor
- Simultaneous dual-reading capability

NEW

16100-10

This handheld Druck multifunction calibrator is ideal for test and maintenance, transmitter calibration, loop setup and diagnostics, and switch trip and alarm verification. It both sources and reads mA, mV, V, ohms, frequency, and pulse parameters. It also simulates and reads 12 thermocouple and 8 RTD types.

For temperature applications, the calibrator has 2-, 3-, and 4-wire RTD automatic detection to help troubleshoot sensors and wiring, and a unique thermocouple cold junction compensation that virtually eliminates errors due to ambient temperature changes.

For process loop applications, it contains a 24 V loop power supply to provide loop power and a dual display to simplify calibration and diagnostics by simultaneously reading both input and output parameters in real time. A built-in HART resistor eliminates the need for a separate 250 Ω resistor.

The instrument's frequency measuring and sourcing capabilities facilitate the test and maintenance of electronic circuits, flow meters, batch counters, tachometers, and motion sensors. It provides and measures in Hz, kHz, CPM, and CPH.

What's included: one set of electrical test leads, batteries, and calibration document supplied by the manufacturer.

Specifications

CE 1 year warranty

Operating temperature: 14°F to 122°F (–10°C to 50°C)
Display: graphic LCD with backlight.
Resolution: 99999
Safety: electrical BS EN61010:2001

Power: 3 AA alkaline batteries
Battery life: >50 hours measure, >10 hours 24V source
Dimensions (L x W x H): 7" x 3 ¼" x 2" (18.0 x 8.5 x 5.0 cm)

Electrical

Range	Measure accuracy	Source accuracy
0 to 24.000 mA	—	0.02% rdg +2 counts
0 to 55.000 mA	0.02% rdg +3 counts	—
0 to 120.00 mV	0.02% rdg +2 counts	
0 to 12.000 V	—	0.02% rdg +2 counts
0 to 30.000 V	0.03% rdg +2 counts	—
0 to 4000.0 Ohms	0.1 to 1.3 Ohms	
Switch detection	Open and closed, 2 mA current	
Loop power	24 V ±10% (35 mA maximum)	
HART mA loop resistor	250 Ohms (menu selection)	

Temperature

Type†	Accuracy‡	Range
J	0.9°F (0.5°C)	–346 to 2192°F (–210 to 1200°C)
K	1.1°F (0.6°C)	–454 to 2502°F (–270 to 1372°C)
T	0.6°F (0.3°C)	–454 to 752°F (–270 to 400°C)
B	1.8°F (1.0°C)	32 to 3308°F (0 to 1820°C)
R	1.8°F (1.0°C)	–58 to 3214°F (–50 to 1768°C)
S	2.5°F (1.4°C)	–58 to 3214°F (–50 to 1768°C)
E	0.7°F (0.4°C)	–454 to 1832°F (–270 to 1000°C)
N	1.1°F (0.6°C)	–454 to 2372°F (–270 to 1300°C)
L	0.6°F (0.3°C)	–328 to 1652°F (–200 to 900°C)
U	0.6°F (0.3°C)	–328 to 1112°F (–200 to 600°C)
C	1.8°F (1.0°C)	32 to 4199°F (0 to 2315°C)
D	1.8°F (1.0°C)	32 to 4514°F (0 to 2490°C)
mV	0.2% rdg +0.01% FS	–10 to 75 mV

†Standard IEC 584 (J, K, T, B, R, S, E, N), DIN 43710 (L, U)
‡Midrange figure quoted. Cold junction error 0.4°F (0.2°C) maximum for 86°F (30°C) change in ambient temperature.

RTDs

Measure and simulate‡	Accuracy	Range
Pt 50 (385)	0.9°F (0.5°C)	–328 to 1562°F (–200 to 850°C)
Pt 100 (385)	0.45°F (0.25°C)	–328 to 1562°F (–200 to 850°C)
Pt 200 (385)	1.08°F (0.6°C)	–328 to 1562°F (–200 to 850°C)
Pt 500 (385)	0.72°F (0.4°C)	–328 to 1562°F (–200 to 850°C)
Pt 1000 (385)	0.36°F (0.2°C)	–328 to 752°F (–200 to 400°C)
D100 (392)	0.45°F (0.25°C)	–328 to 1202°F (–200 to 650°C)
Ni 100	0.36°F (0.2°C)	–76 to 482°F (–60 to 250°C)
Ni 20	0.36°F (0.2°C)	–112 to 500°F (–80 to 260°C)
Ohms	—	0.1 to 1.3 Ohms

‡Standard IEC 751 (Pt 50, Pt 100, Pt 200, Pt 500, Pt 1000), JIS 1604-1989 (D100), DIN 43760 (Ni 100), MINCO 7-120 (Ni 20)
††Midrange figure quoted. Excitation: 0.2 to 0.5 mA measure, 0.05 to 3 mA simulate. Pulse excitation currents minimum duration 10 ms.

Frequency

Range	Measure accuracy	Source accuracy
0 to 999.999 Hz	0.003% rdg +2 counts	0.003% rdg +0.0023 Hz
0 to 50.0000 kHz	0.003% rdg +2 counts	0.003% rdg +0.0336 Hz
0 to 999999 CPM	0.003% rdg +2 counts	—
0 to 59999 CPM	—	0.003% rdg +0.0138 CPM
0 to 999999 CPH	0.003% rdg +2 counts	—
0 to 99999 CPH	—	0.003% rdg +0.5 CPH
Output waveform	Square wave (zero crossing)	
Voltage input	30 V maximum	
Trigger level	0 to 12 V resolution 0.1 V	
Output amplitude	0 to 12 VDC ±1% (10 mA maximum) 0 to 12 VAC pk-pk ±5% (10 mA maximum)	

Catalog number	Description	Price
TW-16100-10	Multifunction calibrator	

TW-16102-79 Soft fabric carrying case with accessory pocket
TW-16102-78 Belt clip/strap hanger
TW-16100-11 Data logging option
TW-17101-78 NIST-traceable recalibration with data

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Thermocouple/Current Loop Calibrator

16100-26

Advanced cold junction compensation virtually eliminates errors due to ambient temperature changes

This calibrator features a large backlit display and menu-driven interface. It is robust and weatherproof for field use. The ergonomic design allows for convenient, one-handed operation. Unit has a compatible port for connecting remote IDOS (Intelligent Digital Output Sensor) pressure measurement modules, allowing these temperature calibrators to become fully functional pressure calibrators.

This dual function thermocouple and current loop calibrator measures or simulates thermocouple sensors and can be used to check probes, indicators, and controllers. It also provides simultaneous T/C output and mA measurement for transmitter and loop maintenance. Its unique cold junction compensation virtually eliminates ambient temperature errors. Other advanced features include step, ramp, scaling, maximum/minimum/average, and Hold functionality to facilitate system checks and troubleshooting.

This device also has a 24 V loop power supply to energize transmitters and control loops. An Automatic Switch Test captures open/closed trip values to provide a fast and highly accurate "safety system" check. The calibrator can be switched into the loop when required by a HART® digital communicator and avoids the inconvenience of carrying a 250 ohm resistor.

What's included: calibration document supplied by the manufacturer, electrical test leads, and three AA alkaline batteries.

Specifications

CE

Operating temperature: 14 to 122°F (–10 to 50°C)
Display: graphic LCD with backlight; resolution 99999
Safety: electrical BS EN61010:2001
Power: three AA alkaline batteries
Battery life: >80 hours measure, 11 hours mA source (24 V @ 12 mA)
Dimensions (L x W x H): 7" x 3¼" x 2" (18.0 x 8.5 x 5.0 cm)

Function	Range	Accuracy
Measure and simulate (thermocouples)		
K	–454 to 2498°F (–270 to 1370°C)	1.1°F (0.6°C)
J	–346 to 2192°F (–210 to 1200°C)	0.9°F (0.5°C)
T	–454 to 752°F (–270 to 400°C)	0.6°F (0.3°C)
B	122 to 3308°F (50 to 1820°C)	1.8°F (1.0°C)
R	–58 to 3216°F (–50 to 1769°C)	1.8°F (1.0°C)
S	–58 to 3216°F (–50 to 1769°C)	2.5°F (1.4°C)
E	–454 to 1832°F (–270 to 1000°C)	0.7°F (0.4°C)
N	–454 to 1832°F (–270 to 1000°C)	1.1°F (0.6°C)
L	–328 to 1652°F (–200 to 900°C)	0.6°F (0.3°C)
U	–328 to 1652°F (–200 to 900°C)	0.6°F (0.3°C)
C	32 to 4208°F (0 to 2320°C)	—
D	32 to 4523°F (0 to 2495°C)	—
mV	–10 to 100 mV	—
Measure (model 16100-26 only)		
Current	0 to 55.000 mA	0.02% of reading + 3 counts
Switch detection	Open and closed, 2 mA current	—
Loop power output	24 V ±10% (35 mA maximum)	—
HART mA loop resistor	250 Ω (menu selection)	—

Catalog number	Description	Price
TW-16100-26	Thermocouple/current loop calibrator	

Find MORE!
We have a vast assortment of every type of thermocouple, including specialty probes. See them on **pages 1749–1760**.

Accessories

TW-16102-79 **Soft fabric carrying case** with accessory pocket
TW-16102-78 **Belt clip,** strap hanger
TW-16102-81 **RS-232 cable**
TW-16100-11 **Data logging option**
TW-17101-82 **NIST-traceable recalibration** with data for handheld process calibrator

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RTD/Current Loop Calibrator

Automatic detection of two-, three-, and four-wire RTDs

This calibrator features a large backlit display and menu-driven interface. It is robust and weatherproof for field use. The ergonomic design allows for convenient, one-handed operation. Units have a compatible port for connecting remote IDOS (Intelligent Digital Output Sensor) pressure measurement modules, allowing these temperature calibrators to become fully functional pressure calibrators.

This dual function RTD and current loop calibrator measures or simulates RTD sensors and is the ideal tool for checking probes, indicators, recorders, and controllers. Automatic detection of 2, 3 and 4 wires quickly detects faulty sensors and wiring. Pulsed RTD transmitter compatibility available in simulation mode. Use advanced features such as Step, Ramp, Max/Min/Avg, Hold, and Scaling for troubleshooting and system checks.

This device also provides simultaneous RTD output and mA measurement for transmitter and loop maintenance. A 24 V loop power supply energizes transmitters and an automatic switch test captures open/closed trip values providing a fast, accurate safety system check. Unit also offers a HART® resistor which can be switched into the loop when required for a HART digital communicator.

What's included: calibration document supplied by the manufacturer, electrical test leads, and three AA alkaline batteries.

08501-19

Specifications

CE

Operating temperature: 14 to 122°F (–10 to 50°C)
Display: graphic LCD with backlight; resolution 99999
Safety: electrical BS EN61010:2001
Power: three AA alkaline batteries
Battery life: >70 hours measure, >10 hours 24 mA source (24 V @ 12 mA)
Dimensions (L x W x H): 7" x 3¼" x 2" (18.0 x 8.5 x 5.0 cm)

Function	Range	Accuracy
Measure and simulate (RTDs)		
Pt 50 (385)	–328 to 1562°F (–200 to 850°C)	0.9°F (0.5°C)
Pt 100 (385)	–328 to 1562°F (–200 to 850°C)	0.45°F (0.25°C)
Pt 200 (385)	–328 to 1562°F (–200 to 850°C)	1.08°F (0.6°C)
Pt 500 (385)	–328 to 1562°F (–200 to 850°C)	0.72°F (0.4°C)
Pt 1000 (385)	–328 to 752°F (–200 to 400°C)	0.36°F (0.2°C)
D100 (392)	–328 to 1202°F (–200 to 650°C)	0.45°F (0.25°C)
Ni 100	–76 to 482°F (–60 to 250°C)	0.36°F (0.2°C)
Ni 120	–112 to 500°F (–80 to 260°C)	0.36°F (0.2°C)
Ohms	0.1 to 1.3 Ω	0 to 4000 Ω
Measure (model 08501-19 only)		
Current	0 to 55.000 mA	0.02% of reading + 3 counts
Switch detection	Open and closed, 2 mA current	—
Loop power output	24 V ±10% (35 mA maximum)	—
HART mA loop resistor	250 Ω (menu selection)	—

Catalog number	Description	Price
TW-08501-19	RTD/current loop calibrator	

Accessories

TW-16102-79 **Soft fabric carrying case** with accessory pocket
TW-16102-78 **Belt clip,** strap hanger
TW-16102-81 **RS-232 cable**
TW-16100-11 **Data logging option**
TW-17101-82 **NIST-traceable recalibration** with data for handheld process calibrator

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