



Temperature Probes

TPI offers a complete line of...

CO, Combustibles & Combustion (CEA)

Refrigerant Leak Detectors

Digital Manometers

Temperature Contact & IR Instruments

IAQ: Air Flow & Humidity

Handheld Oscilloscopes

Digital Multimeters & Clamp-on Meters

Accessories & Kits

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Model # Description	Application	Range °F/°C	Dimensions	Insulation Material
CK18M K-type thermocouple surface probe	Restaurant grills	-58° to 482°F -50° to 250°C	Stem Length: 2.4" Diameter: 6.0mm Lead Length: 1M	Polyurethane
CK21M K-type thermocouple pipe clamp for pipe diameters up to 12" and temp. up to 212°F	Pipe Clamp	-58° to 212°F -50° to 100°C	Stem Length: NA Diameter: NA Lead Length: 1M	PVC
FK26M For use with Pete's plugs to measure water temperature	For Pete's Plug	-40° to 400°F -40° to 204°C	Stem Length: NA Diameter: NA Lead Length: NA	Teflon
GK11M Standard K-type thermocouple probe	Air Temp.	-40° to 950°F -40° to 510°C	Stem Length: NA Diameter: NA Lead Length: 1.2M	Fiberglass
GK12M Standard K-type thermocouple probe w/ oven clip	Food Processing	-40° to 950°F -40° to 510°C	Stem Length: NA Diameter: NA Lead Length: 1.2M	Fiberglass
GK13M Beaded probe with FDA approved insulation	General purpose. Air.	-40° to 400°F -40° to 204°C	Stem Length: NA Diameter: NA Lead Length: 1.2M	Teflon
GK14M K-type air probe shielded to protect sensing area	Food Immersion	-40° to 510°F -40° to 265°C	Stem Length: 4" Diameter: 3.75mm Lead Length: 1M	PVC

PROBE

What is the difference between thermocouple and resistor probes?
Thermocouple probes utilize the reaction between two dissimilar metals to produce a voltage that changes as temperature changes. A resistor is a resistive device that produces a change in resistance with a change in temperature. In general, thermocouples offer a wider temperature range and quicker response time than resistors. Thermistors are typically more accurate than thermocouples.

What are the differences between thermocouple types?
Each thermocouple uses different metals and therefore have different characteristics. Here are general guidelines:
K-Type - Wide temperature range, used in many digital thermometers and multimeters. Identified by a yellow connector.
J-Type - Narrower temperature range than K-type, used in analog and digital thermometers. Identified by a black connector.
E-Type - Narrower temperature range than J-type but more accurate than K and J types, used in digital thermometers. Identified by a blue connector.

Can different thermocouple types be interchangeable?
No. Since each thermocouple type uses different metals in its construction they have different output characteristics. Using a J-type thermocouple in a K-type thermometer will cause measurements to be very inaccurate.

What type of probe should I use?
The type of probe you purchase depends on your specific application. Here are general guidelines for different probe types:
Immersion (I) - General-purpose probe used for immersion and air temperature measurements. Response time in air will be slower than an air probe because the tip is not exposed.
Shielded (S) - General-purpose tip used for surface, immersion, and air temperature measurements. Response time in air or on surfaces will be slower than an air or surface probe because of the tip design.
Exposed (E) - Exposed tip probe provides the fastest response time when measuring air temperatures. Not useful for surface or immersion testing.
Surface (C) - Contact tip probe provides the fastest response time when measuring surface temperature. Probe tip designed to offer maximum temperature transfer in surface applications. Not useful for air or immersion testing.

What are the differences between the connector types TPI offers?
Sub-Mini - This is an industry standard connector type allowing TPI probes to be used in any thermocouple thermometer using this type of connector.
Lug/Barg - This connector uses a screw collar to attach to the thermometer and is the most secure connection available.
Blade - This connector is used in the TPI thermometer probe line.

PROBES USING THE HK11M HANDLE

CK15M Heavy duty K-type surface probe to use with HK11M handle	Temp. Surface	-40° to 510°F -40° to 260°C	Stem Length: 4" Diameter: 3.75mm Lead Length: NA	NA
FK13M K-type general purpose probe to use with HK11M handle	Food Processing	-40° to 850°F -40° to 454°C	Stem Length: 8" Diameter: 3.75mm Lead Length: 1M	PVC
GK16M K-type air probe for use with HK11M handle	Air Temp	-40° to 500°F -40° to 260°C	Stem Length: 8" Diameter: 3.75mm Lead Length: NA	NA
HK11M Heavy-duty handle for K-type thermocouple probes	Use with Above Attachments	NA	Stem Length: NA Diameter: NA Lead Length: 3"	NA

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Digital Contact Thermometers

HVAC/R: Ambient Air, Calibrate thermostats, Compressor heads, Registers, Temperature differential, Vents

Food: Grill & surface temperatures, holding cabinets, serving temperatures, storage temperatures

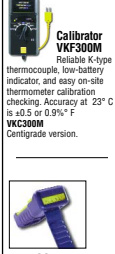
Electrical: Cables, circuit breakers, connections, machinery, motors, transformers

These reliable, water-resistant testers accept K-type and J-type thermocouple probes. HVAC/R professionals benefit from the 2-channel version that takes simultaneous readings with T1/T2 selection.



FEATURES

	340	341	342	343	362
Water Resistant	Yes	Yes	Yes	Yes	Yes
Min/Max Record	NA	Yes	Yes	Yes	Yes
Selectable Res.	NA	Yes	Automatic	Automatic	Automatic
°C/°F Selectable	NA	Yes	Yes	Yes	Yes
T1, T2, T Select	NA	NA	Yes (dual inputs)	Yes (dual inputs)	Yes (dual inputs)
Scan Mode	NA	NA	NA	NA	Yes
Auto Off	NA	Yes (after 20 min.)	Yes (after 20 min.)	Yes (after 20 min.)	Yes (after 30 min.)
Field Cal. Mode	NA	NA	NA	Yes	NA
Range K-type	-58° to 1832° F -200° to 1,350° C	-328° to 2,462° F -200° to 1,350° C	-328° to 2,462° F -200° to 1,350° C	-58° to 2,462° F -50° to 1,350° F	-418° to 2,500° F -200° to 1,375° C
Range J-type	NA	-328° to 1,832° F -200° to 1,000° C	-328° to 1,832° F -200° to 1,000° C	NA	-328° to 1,832° F -200° to 1,000° C
Range T-type	NA	NA	NA	NA	-418° to 752° F -250° to 400° C
Basic Accuracy*	±0.5% + 5 digits	±0.3%	±0.3%	±0.3%	±0.1%
Size	41mm x 152mm x 77mm	41mm x 152mm x 77mm	41mm x 152mm x 77mm	41mm x 152mm x 75mm	41mm x 170mm
Weight	278g w/boots	278g w/boots	278g w/boots	278g w/boots	280g
Battery	AAA	9V	9V	9V	9V
Protective Boot	A304 included	A304 included	A304 included	A304 included	A304 included
Hard Carrying Case	No	No	No	No	Yes



Calibrator VKF300M
Reliable K-type thermocouple, low-battery indicator, and easy on-site thermometer calibration checking. Accuracy at 23° C is ±0.5 or 0.9% F.
VKC300M
Centigrade version.

TILT BOOT Standard Protective Boot A304/340, 341, 342
Enjoy upright viewing. Built-in tilt stand also frees the hand. Store your instru-ment face down inside boot to protect the screen.

Sold as Kits, complete and ready to use!

- 340C1:** 340 temperature tester, A304 tilt stand boot, GK12M probe, 9V battery and A340 soft pouch
- 341C1:** 341 temperature tester, A304 tilt stand boot, GK11M (950°F) fiberglass probe, 9V battery, and A340 soft pouch
- 342C1:** 342 temperature tester, A304 tilt stand boot, two GK11M (950°F) fiberglass probes, 9V battery, A340 soft pouch
- 342C2:** 342 temperature tester, A304 tilt stand boot, two GK13M (500°F) Teflon probes, 9V battery, A340 soft pouch
- 343C1 (For High Temperature, over 400°F):** 343, A304 tilt stand protective boot, (2) GK12M fiberglass, beaded, K-type thermocouple probes, A340 soft pouch
- 343C2 (For Low Temperature, under 400°F):** 343, A304 tilt stand protective boot, (2) GK13M Teflon, beaded, K-type thermocouple probes, A340 soft pouch
- 343C3 (For Differential Temperature):** 343, A304 tilt stand protective boot, (2) CK21M K-type thermocouple pipe clamp probes, (1) GK13M Teflon, beaded, K-type thermocouple probe, A908 shoulder strap carrying case
- 351F1:** 351 temperature tester, A304 tilt stand boot, FX12B probe, 9V battery, A340 soft pouch

TPI 351: Perfect for the food industry

- Accuracy** with Thermistor is ±1° (32° to 158° F)
 - Verify Calibration** Optional test caps available
 - Water Resistant** Take measurements in any environment
 - Automatic Power Off** Shuts down after three minutes of inactivity
 - Open Probe Indicator** Displays "open" when probe is open or unattached
- 351 SPECIFICATIONS**
Thermistor Probe Range -40° to 220° F
Centigrade Version Model 351X available

The Value Leader™



Digital Contact Thermometers



Probes sold separately. See next page to select the temperature probe that best fits your needs.

FEATURES

- Laser pointer
- Record function (Min/Max)
- Display data hold function
- Back light
- Trigger switch
- 8:1 distance to spot ratio
- °C and °F selectable
- Gun-type compact design
- Operating lock function
- 9V battery and soft pouch included

SPECIFICATIONS

FUNCTION	375	376	377
Temp. Ranges	0° to 950°F -18° to 510°C	-58° to 950°F -50° to 510°C	0° to 1832°F -18° to 1,000°C
Accuracy @ +23°C CE=0.95	30° to 950°F -1° to 510°C ±2% of reading or ±3.5°F (2°C) whichever is greater	30° to 950°F -1° to 510°C ±2% of reading or ±3.5°F (2°C) whichever is greater	30° to 950°F -18° to 1000°C ±2% of reading or ±3.5°F (2°C) whichever is greater
Response Time	500 milliseconds		
Spectral Response	7 - 14um		
Emissivity	0.3 to 0.99 adjustable		
Display Resolution	0.1°F and 0.1°C or 1°F and 1°C		
Ambient Operating Range	32° to 120°F and 0° to 50°C		
PROBES			
K-type Range	-40° to 2192°F and -40° to 1200°C		
K-type Accuracy	±(0.5% of reading +3°F)		

IR FAQ

What does "distance to spot ratio" mean?
The laser spot needs to be showing inside the target area. An 8:1 "distance to spot ratio" means you are measuring a 1" diameter area at a distance of 8".

How far can I measure?

Distance is unlimited. The size of the target area sets the limit on distance for accurate measurements. Example: If the area you wish to measure is 1 foot in diameter, then you will need to be within 8 feet to record an accurate temperature.

What is the smallest target I can read?
Approximately one-half inch in diameter.

How do I turn the laser on and off?

While holding the Power On button down you can toggle the Lock On button for either laser on or laser off operation. When the laser is activated the laser displays this icon.

What is emissivity?

This is a ratio of an object's infrared emission compared to a theoretical black body, considered 1. Emissivity is always less than 1. Adjustable emissivity allows your non-contact thermometer to be adjusted to the surface you are checking to make readings more accurate.

How do I adjust the emissivity of my contact/noncontact 375, 376, 377?

The 375, 376, and 377 feature adjustable emissivity and contact probe capability. This is very useful for determining the emissivity of any surface condition. Simply use the contact probe and record surface temperature. Next use the IR gun and adjust the emissivity until the temperature matches the reading of the contact probes. Copper pipe produces different emissivity properties, ranging from 0.02 to 0.78, due to oxygen oxidation and curvature. You will now have the most accurate reading in the IR mode for that surface.

How can I make measurements more accurate if I don't have my contact probe or have a fixed emissivity thermometer?
Painting the surface being measured matte black will make temperature readings more accurate. A piece of black tape can also be used.

Pocket Digital Thermometers

315

- 3.1mm diameter stem for "Plate's" plug
- Auto power off
- Rugged design withstands 10' drop
- Magnetic clip perfect for air dust applications
- Water resistant
- Auto off

306

- Compact and convenient
- Easy-to-read, large LCD
- Auto power off
- Data hold for hard to reach areas
- Optional rubber boot offers protection from drops
- **306** with penetration tip
- **307** with needle tip

312

- **312** shown for use in damp or wet environments
- **314** is water proof
- Quick response
- Easy insertion into "Plate's" plugs with smallest diameter (3.1mm)
- Data Hold for hard-to-reach areas
- Auto power off
- **323** with chisel tip
- **326** with needle tip
- **329** with contact tip, no sheath
- **330** with "Hi temp" chisel tip

Same features as 315 with the following tip types:

317: air tip
318: chisel tip
319: contact tip

PDT FAQ

How do I check calibration of my pocket thermometer?

You put the thermometer in a solution of crushed ice and water, swirl the water around, and it should read close to 32° F.

Does the whole stem need to be immersed to get an accurate reading?
The sensor is in the tip of the probe and needs to be 1/2 inch into what you are measuring.

What battery does my pocket thermometer use?
Our pocket thermometer uses the LR44 button battery.

Tuffman™ Temperature Testers

Tuffman temperature testers offer maximum features and durability. Select °C or °F. Record minimum and maximum temperatures.

K-type thermocouple only: 363 & 365
J, K, T type thermocouples: 364 & 366



FEATURES	363*	364	365*	366
Water Proof	Yes	Yes	N/A	Yes
Min/Max Record	N/A	Yes	N/A	Yes
Selectable Res.	Automatic	Automatic	Automatic	Automatic
Auto Off	Yes (after 30 min.)	Yes (after 30 min.)	Yes (after 30 min.)	Yes (after 30 min.)
Connector Type	Sub Mini	Sub Mini	Lumberg	Lumberg
Range K-type	-418° to 2,500° F 250° to 1,375° C	-418° to 2,500° F -250° to 1,375° C	-418° to 2,500° F 250° to 1,375° C	-418° to 2,500° F -200° to 1,375° C
Range J-type	N/A	-328° to 1,832° F -200° to 1,000° C	N/A	-328° to 1,832° F -200° to 1,000° C
Range T-type	N/A	-418° to 752° F -250° to 400° C	N/A	-418° to 752° F -250° to 400° C
Basic Accuracy*	± 0.1%	± 0.1%	± 0.1%	± 0.1%
Size	41mm x 152mm x 77mm	41mm x 152mm x 77mm	41mm x 152mm x 77mm	41mm x 170mm x 75mm
Weight	260g	260g	260g	260g
Battery	9V	9V	9V	9V

* °C versions of the 363 and 365 are available. Part numbers are 363X and 365X
Models 364 and 366 offer °C / °F selection. The 363, 364, 365, and 366 digital thermometers come with A04 protective boot and no probes. The 363, 364, 365, and 366 boots do not have fill stands.

LUMBERG CONNECTORS FAQ

What are the advantages of Lumberg connectors?

Lumberg connectors are designed for the rigors of food processing environments. Advantages include:

- Strong connection - stainless steel collar holds and protects connection. Probe will not pull out of instrument without unscrewing the collar.
- Waterproof stainless steel will not rust and is ideal for wet, humid conditions.
- Lumberg connectors are manufactured following ISO9000 quality control guidelines.