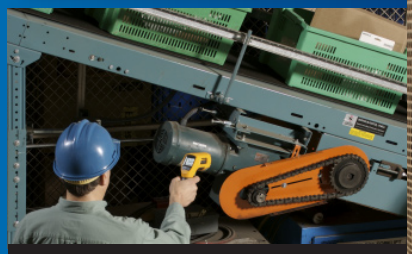
FLUKE®

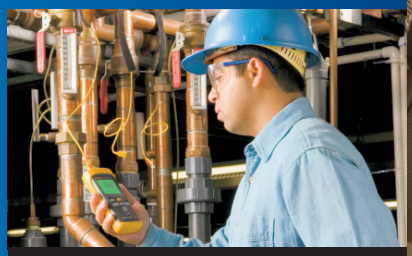
IR and contact thermometers

Providing the total temperature solution for your application

Electrical



Plant Maintenance



HVAC

Quality control

Process

Where would *you* use a Fluke thermometer?

All over the plant!

You'll work faster and more efficiently with a Fluke thermometer in your hand.

Where could you use a Fluke thermometer in your job? Wherever there is anything that is moving or energized, it will generate heat that can be detected by a thermometer. With a rugged Fluke thermometer, you can do anything from making simple temperature checks, to monitoring multiple temperatures over time, to spotting failures before they happen.

With more than two decades of thermometry expertise, Fluke is a temperature expert. We offer a complete set of contact and non-contact IR temperature tools—plus all the probes and accessories for almost any application from front-line trouble-shooting to the trending and reporting needed for Predictive Maintenance.

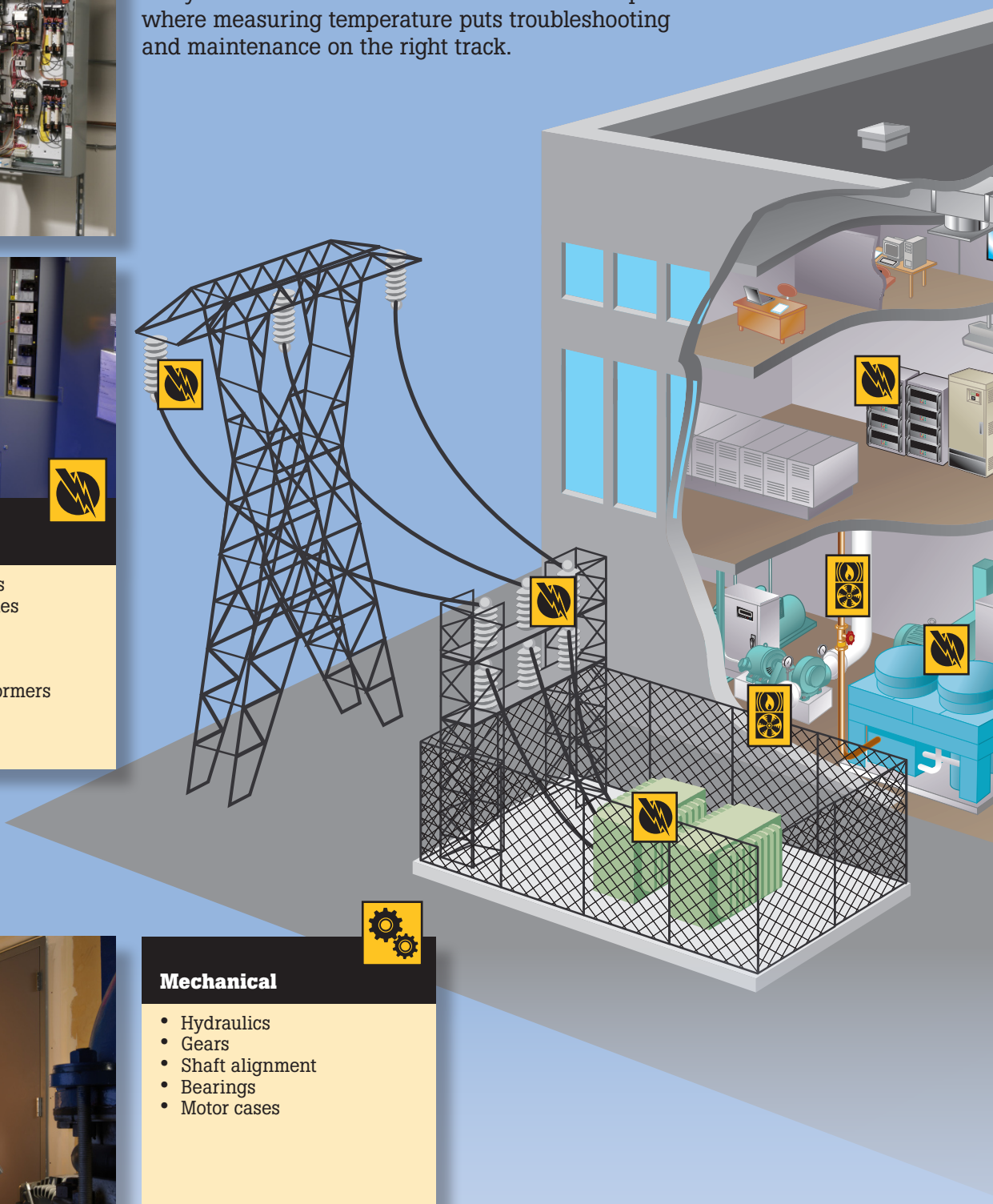
Each versatile Fluke tool not only quickly and accurately measures temperature, but also offers features and functions you won't find on standard thermometers. So you can take it with you anywhere in the plant, in a wide variety of situations. ***You'll probably discover a Fluke thermometer is one of your most indispensable tools.***

Temperature applications are everywhere

No matter where you work in a facility, heat can be a key indicator of trouble. Here are some of the places where measuring temperature puts troubleshooting and maintenance on the right track.

Electrical

- Electrical panels
- Wiring and cables
- Ballasts
- Bus bars
- Outlet boxes
- Oil-filled transformers
- Motors

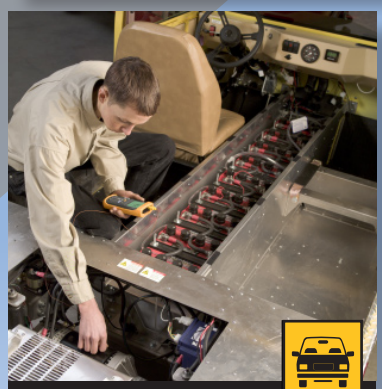


Mechanical

- Hydraulics
- Gears
- Shaft alignment
- Bearings
- Motor cases

Predictive maintenance, hazardous locations, and process applications

- Condition monitoring
- Trending
- Mold temperature
- Oven insulation
- Pulp and paper machinery
- Refineries and petrochemical
- Product temperature
- Quality assurance



Automotive

- Cylinder misfires
- Engine cooling systems
- Heating/ac systems
- Brakes and bearings
- Catalytic converters and hydraulic systems
- Motors

HVAC/R and facility

- Duct leakage
- Supply/return register
- Air balance/stratification
- Liquid flow through pipes
- Blower motors
- Roofs
- Superheat and sub-cooling
- Valves and steam traps

Selecting the right thermometer

	Fluke 51 Series II	Fluke 52 Series II	Fluke 53 Series II	Fluke 54 Series II	Fluke 61	Fluke 62	Flu
							
Recommended uses	Quality assurance, process calibration, food safety, HVAC		Laboratory, quality assurance, process calibration, food safety, HVAC		Short-range troubleshooting, electrical, HVAC, industrial	Short-range troubleshooting, electrical, HVAC, industrial, automotive	Plant/gener
Infrared/noncontact							
Temperature range	–	–	–	–	–18 °C to 275 °C (0 °F to 575 °F)	–30 °C to 500 °C (–20 °F to 932 °F)	–40 °C (–40 °F
Accuracy	–	–	–	–	greater of 2 % or ± 2 °C (4 °F)	greater of ± 1.5 % or ± 1.5 °C (3.0 °F)	
Distance to Spot (D:S)	–	–	–	–	8:1	10:1	
Sighting	–	–	–	–	Laser point		
Typical distance to target	–	–	–	–	Up to 2 m (6 ft)		Up to
Close-focus (6 mm/0.24 in spot)	–	–	–	–	–	–	
Contact							
Probe type	Thermocouple K, J, T, E		Thermocouple K, J, T, E, N, R, S		–	–	
Number of inputs	1	2	1	2	–	–	
Temperature range	**J-type:** –210 °C to 1200 °C (–346 °F to 2192 °F) **K-type:** –200 °C to 1372 °C (–328 °F to 2501 °F) **T-type:** –250 °C to 400 °C (–418 °F to 752 °F) **E-type:** –150 °C to 1000 °C (–238 °F to 1832 °F)		**J-type:** –210 °C to 1200 °C (–346 °F to 2192 °F) **K-type:** –200 °C to 1372 °C (–328 °F to 2501 °F) **T-type:** –250 °C to 400 °C (–418 °F to 752 °F) **E-type:** –150 °C to 1000 °C (–238 °F to 1832 °F) **N-type:** –200 °C to 1300 °C (–392 °F to 2373 °F) **R and S-type:** 0 °C to 1767 °C (32 °F to 3212 °F)		–	–	–40 °C (–40 °F
Data storage and download							
Number of on-board memory locations	–	–	500		–	–	
PC download and software	–	–	Yes, with FlukeView® Forms		–	–	
Photographic data capture	–	–	–	–	–	–	
Special features							
Time stamp	Relative		Time of day				
Soft-key feature menu navigaton	–	–	–	–			
MIN/MAX/AVG/DIFF	MIN/MAX/AVG	MIN/MAX/AVG/DIF	MIN/MAX/AVG	MIN/MAX/AVG/DIF	–	MAX	MIN/
English, French, Chinese, Spanish, Portuguese, German user interface	–	–	–	–	–	–	
Material type adjustment (emissivity)	–	–	–		Preset to 0.95		HI/
Two levels of backlight	–	–	–	–	–	–	
High and low alarms	–	–	–	–	–	–	
Hazardous location approval	–	–	–	–	–	–	
Hands-free logging	–	–	Yes		–	–	
Bar graph display of last ten measurements	–	–	–	–	–	–	
Battery	3 AA				9 V		
Included case	–	–	–	–	–	Soft case	Ha (except 56
Warranty	3 years				1 year	2 years	

*Close focus model available (572CF/574CF/576CF) with 6mm (0.24 in) minimum spot at 0.3m (0.95 ft). All other specifications identical to non-CF model except D:S is 50:1.

FLUKE®

ke 561	Fluke 566	Fluke 568	Fluke 68IS	Fluke 572*	Fluke 574*	Fluke 574NI	Fluke 576*
							
al maintenance, HVAC	Electrical, mechanical, plant, diesel, HVAC in industrial environments	Electrical, mechanical, plant, diesel, HVAC in industrial environments, temporary process and equipment monitoring	Hazardous locations for maintanenace	Predictive maintenance, electrical, quality assurance, process monitoring	Predictive maintenance, quality assurance, research, process monitoring where documentation is needed	Hazardous locations for predictive maintenance, quality assurance, process/asset monitoring where documentation is needed	Predictive maintenance, research, quality assurance, heavy equipment, diesel, temporary process/asset monitoring where documentation is needed
C to 535 °C (to 1022 °F)	–40 °C to 650 °C (–40 °F to 1200 °F)	–40 °C to 800 °C (–40 °F to 1470 °F)	–32 °C to 760 °C (–25 °F to 1400 °F)	–30 °C to 900 °C (–25 °F to 1600 °F)			
	greater of ± 1 % or ± 1 °C (2 °F)		greater of ± 1 % or ± 1 °C (2 °F)	greater of ± 0.75 % or ± 0.75 °C (1.5 °F)			greater of ± 0.75 % or ± 0.75 °C (1.5 °F)
12:1	30:1	50:1	50:1	60:1			
	Laser point		Laser point	Three dot, True Dimension			
2.5 m (7 ft)	Up to 4.5 m (15 ft)	Up to 7.5 m (25 ft)	Up to 7.5 m (25 ft)	Up to 10.5 m (35 ft)			
–	–	–	–	–	–	–	–
Thermocouple K			RTD	–	Thermocouple K		
1			1	–	1		
C to 550 °C (to 1022 °F)	–270 °C to 1372 °C (–454 °F to 2501 °F)		–40 °C to 260 °C (–40 °F to 500 °F)	–	–200 °C to 1372 °C (–328 °F to 2501 °F)		
–	20	99	12	–	100		
–	–	Yes, with FlukeView® Forms	–	–	Yes, with IRGraph software		
–	–	–	–	–	–	–	Yes
–	Time of day		–	–	Time of day		
–	Yes		–	–	–	–	–
MAX/DIF	MIN/MAX/AVG/DIF		MIN/MAX/AVG/DIF	MIN/MAX	MIN/MAX/AVG/DIF		
–	Yes		–	–	–	–	–
MED/LO	Material table or 0.1 to 1.00 by 0.01		0.1 to 1.00 by 0.01	0.1 to 1.00 by 0.01	Material table or 0.1 to 1.00 by 0.01		
–	Yes		–	–	–		
–	High and low alarms		High and low alarms	High alarm	High and low alarms		
–	–	–	FM approved intrinsically safe	–	–	FM approved non-incendive	–
–	–	Yes	–	–	Yes		
–	–	–	–	Yes			
2 AA			9 V	2 AA			
rd case 1/R and 561/P)	Hard case		Hard case	Hard case			
2 years			2 years	2 years			

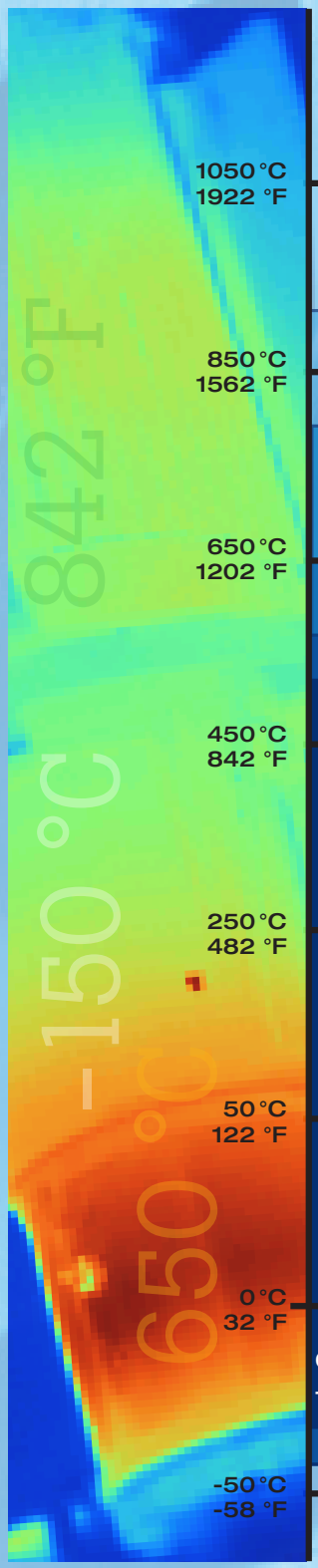
3 steps to choose the right IR model for your needs

It's easy to select the temperature tool that's right for you.

Step 1

Determine your temperature range

Consider whether you'll need to measure internal, ambient, or surface temperatures and the maximum temperature required. Infrared thermometers are designed to measure surface temperatures but many models accept temperature probes for other types of measuring. You may need an IR tool to measure both high-temperature materials and to check equipment sensors such as in chemical processing. Or will you always use your thermometer for a lower temperature range—like cold or warm air from a vent or motor housing?



561

EMS

62

0.5 m
1.6 ft

Step 2

Determine your maximum distance to the ob

There are two primary considerations in selecting the rig (D:S)—the distance from the target, and the size of that t distant targets, such as, ceiling vents or roofs, in dangero

For more information on D:S, see "Understanding infr

jects you will meassure.

ght IR thermometer with the correct distance to spot ratio arget. Choose a high D:S to measure smaller objects or us areas, or where equipment might block access.

rared temperature terms" section in this brochure.

Step 3

Consider any special needs that require specific features.

- If you need to measure internal temperatures, you'll want an IR thermometer with contact capabilities, compatible with your thermocouples.
- In predictive maintenance applications, consider whether you'll need on-board memory for trending and accurate reporting, or a model that allows hands-free, real-time temperature monitoring with a PC.
- Need photographic documentation? The Fluke 576 takes time-stamped photos along with temperature measurements.

Other special application considerations

- In electronics, you may need a Close Focus model to accurately measure a 6 mm (¼ in) spot from about 0.3 m (1 ft) away.
- For hazardous locations, we have models that are specially FM-approved for safe operation near explosive gases.

For a full features comparison see "Selecting the right thermometer" section in this brochure.

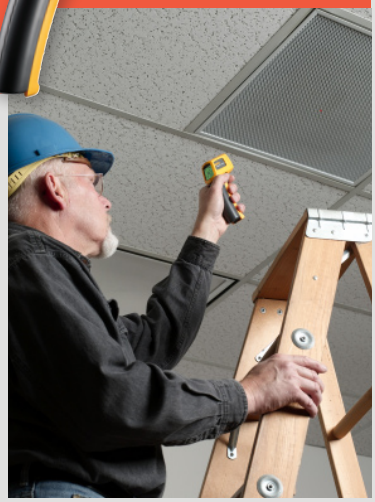
From front-line troubleshooters to predictive maintenance tools, Fluke has the right temperature solution for you.

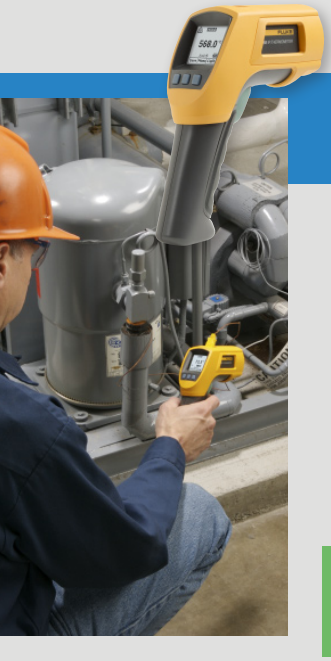
Fluke 50 Series II—Rugged contact thermometers with laboratory accuracy.

If you're a manufacturing, HVAC, or laboratory professional who needs highly accurate measurements in a rugged tool, choose the Fluke 50 Series II. Four models offer you the right choice of functionality for your application. Models 53 and 54 support seven thermocouple types and include data logging capabilities. For analysis and report generation, use FlukeView® Forms software with your PC.

Fluke 60 Series—the essential IR tools.

The Fluke 62 is the perfect entry-level thermometer. Quickly and accurately identify hot spots, even in hard-to-reach or dangerous locations—and it even fits right in your pocket! And if you've never used an IR tool, the Fluke 62 is the easy way to get started. If you work in hazardous environments, the Fluke 68IS is approved as Intrinsically Safe by FM for use in locations with potentially explosive gases.





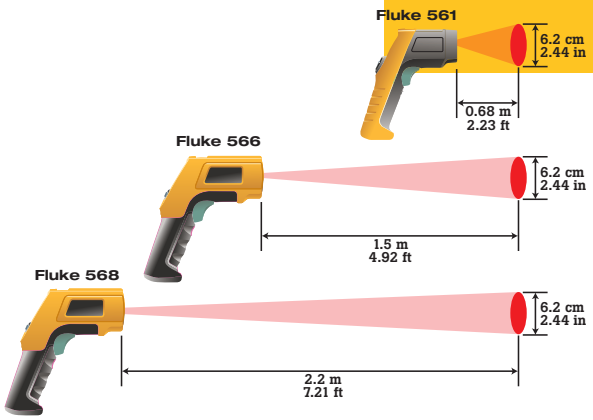
Fluke 560 Series—the 2-in-1 IR plus contact temperature solution.

These thermometers help industrial, electrical, or HVAC/R professionals work more efficiently on more jobs. Broad temperature ranges, adjustable emissivity, and compatibility with almost any K-type thermocouple, give you the versatility you need. The Fluke 566 and 568 offer a six language interface, a table of materials for selecting proper emissivity, and everything you need for hands-free data logging and reporting (568).

Fluke 570 Series—high-performance models for precision applications.

Featuring our most advanced temperature tools for diagnostic and predictive maintenance, the Fluke 570 series delivers the best accuracy in demanding environments like electronics, petrochemical, process or quality control. Specialized capabilities—including higher temperature ranges, close-focus measurements, digital photography, and data analysis and documentation—are available to provide unparalleled performance.

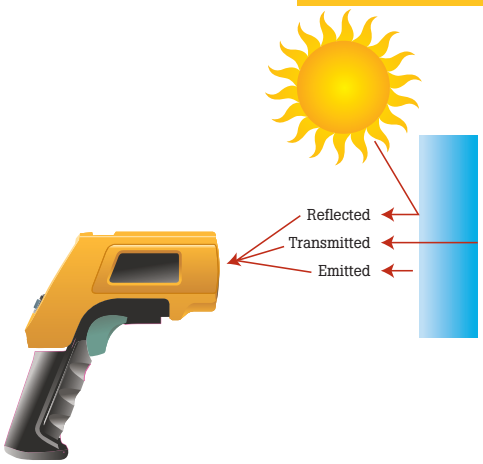
Understanding infrared temperature terms



Distance to spot

Choosing the right optical resolution

Distance to Spot is the optical resolution of your IR thermometer. It is **the ratio between the distance from the measured object** and the approximate **measurement spot size**. Distance from an object is critical when selecting the right IR tool. A device with a 4:1 optical resolution cannot be effectively used to measure a motor housing temperature 15 feet (30 meters) away. In this case, a 50:1 would be a better solution.



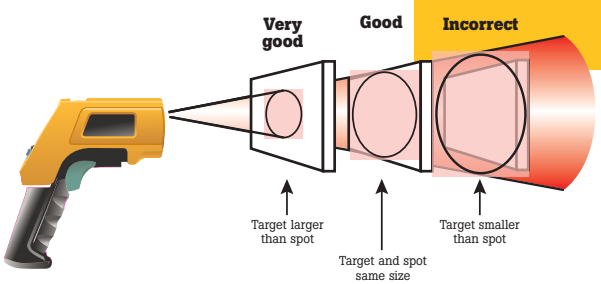
Emissivity

Accurately measuring different types of materials

Emissivity, a number between 0 and 1, indicates a material's efficiency in radiating infrared energy from its surface. Changing the emissivity setting for a material, adjusts the thermometer to increase its measurement accuracy. Measuring shiny metals is the most common reason to change the emissivity setting. When choosing an IR tool, remember that a thermometer with adjustable emissivity increases the number of applications in which it can be accurately used.

Here are a few examples:

Material	Emissivity
Polished brass	***0.03***
Roughly polished copper	***0.07***
Oxidized brass	***0.61***
Black oxidized copper	***0.78***
Black lacquer paint	***0.96***



Field of view

Ensuring an adequate target size

Field of View refers to the **target size relative to the IR thermometer's spot size.** Ideally, the surface you are measuring should be larger—at least twice the size of the spot. If the surface being measured is smaller than the spot size, measurement errors increase.

Expand the power of your Fluke thermometer with FlukeView® Forms Documenting Software.

To address the increasing demands for reporting and documentation, FlukeView® Forms software is included with thermometer models Fluke 53, 54, and 568. IRGraph software comes with the Fluke 574 and 576.

Depending on the model, you can either measure and store readings in the meter's internal memory, then download the information to your computer later, or you can take interactive readings while connected to your PC. Document and analyze individual readings or a series of measurements, then incorporate them into professional-looking documents.

FlukeView® Forms also logs events, when the input signal changes significantly, to make data analysis easier. Set the amount of signal change that triggers an event to fit your specific test situation. Record the minimum, maximum, and average of readings for each event. You can also configure logging sessions to record data at any interval, such as every 30 seconds or every 5 minutes.

Fluke 570 Series: High-performance models for precision applications

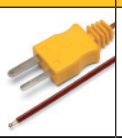
For process and quality control, electronics, and other applications that require high-precision measurements, only the Fluke 570 Series can take the heat with:

- **True Dimension sighting:** precision optics with coaxial laser sighting indicates the diameter of the target area
- **Highest accuracy:** ± 0.75 % of reading or ± 0.75 °C (1.5 °F)
- **Higher temperatures:** ranges up to 900 °C (1600 °F)
- **Photographs:** Fluke 576 documents temperature with both measurements and images
- **Non-incendive rating:** Fluke 574NI is Factory Mutual approved for hazardous locations such as petrochemical plants
- **Close Focus models:** Fluke 572CF, 574CF, and 576CF measure small targets (such as electronic components) with a minimum spot size of 6 mm (0.24 in)
- **Analysis and documentation:** For predictive maintenance professionals, the Fluke 574 and 576 offer 100-point data logging plus digital photography (576). Software is included for graphing and analyzing results, and follow-up with detailed documentation and reports.

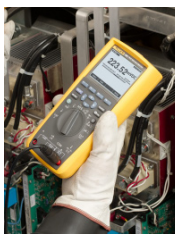
FLUKE®

Fluke contact accessories

Make better temperature measurements and expand the functionality of your Fluke thermometers with Fluke temperature probes designed for your specific application. Our full line of probe accessories offers the same rugged reliability of all Fluke tools.

	Bead	Bead	Immersion	Surface	Air	Piercing	General Purpose	Industrial Surface	Pipe Clamp	HVAC
										
	80BK	**80PK-1 80PJ-1**	**80PK-22**	**80PK-3A**	**80PK-24**	**80PK-25 80PT-25**	**80PK-26**	**80PK-27**	**80PK-8**	**80PK-9 80PJ-9**
Lowest temp	−40 °C, (−40 °F)			0 °C (32 °F)	−40 °C (−40 °F)	K Type: −40 °C (−40 °F) T Type: −196 °C (−321 °F)	−40 °C (−40 °F)	−127 °C (−196 °F)	−29 °C (−20 °F)	−40 °C (−40 °F)
Highest temp	260 °C (500 °F)		1090 °C (1994 °F)	260 °C (500 °F)	816 °C (1500 °F)	350 °C (662 °F)	816 °C (1500 °F)	600 °C (1112 °F)	149 °C (300 °F)	260 °C (500 °F)
Probe material	K-type wire with teflon insulation		Inconel 600	K type sensor with teflon body	Inconel	316 Stainless Steel	304 Stainless Steel		K type sensor with pvc body	304 Stainless Steel
Probe length	1 m lead wire		21.27 cm (8.375 in)	9.525 cm (3.75 in)	21.59 cm (8.5 in)	10.16 cm (4 in)	21.57 cm (8.5 in)	20.32 cm (8 in)	for pipes from 6.4 mm (.25 in) to 34.9 mm (1.375 in)	15.25 cm (6 in)
Cable length	1 m (39 in)			1.3 m (4 ft)	1 m (39 in)					
Connection	Standard banana jack	Molded thermocouple plug								
SureGrip™ handle	No		Yes	No	Yes				No	
Key feature(s)	Ideal for initial troubleshooting. Can be secured in place with a magnet.		For use in liquids or in gels.	Exposed junction for direct contact with flat or slightly convex surfaces.	Perforated baffle for air and non-caustic gas measurements.	Probe material safe for use in foods. Sharp tip pierces solid surfaces.	Use for general purpose air or surface measurements.	Low conductivity stainless steel minimizes thermal shunting. Extra rugged.	Clamps securely to pipe. Measurements are repeatable to 0.56 °C (1 °F).	Sharp tip pierces pipe insulation, flat surface makes good contact with surface.
Thermocouple types	K	K, J	K			K, T	K			K, J
Typical use										
General purpose	•	•	•	•	•	•	•	•	•	•
HVAC		•	•	•	•		•	•	•	•
Food service			•			•				
Industrial	•	•						•	•	•
Residential	•	•		•	•	•			•	
Commercial	•	•	•	•	•	•	•	•	•	•

Use an 80AK adapter with meters that include temperature function such as the 16, 78, 83V, 87V, 88V, 179, 187, 189, 287, and 289
The 80TK enables your meter to read temperature using mV
For the Fluke Thermometer, 51, 52, 53, and 54 III, no adapter is necessary for thermocouple types K, J, T and E




Solve more problems with Fluke tools

More than thermometers—Fluke offers specialized tools for electrical, industrial, HVAC, and electronic applications—from digital multimeters and clamp meters, to power quality analyzers and thermal imagers.

By offering a system of tools that work together, Fluke aims to help you solve more problems, faster and better, no matter where you work.

Check out our complete line of test tools at www.fluke.com

Fluke. *Keeping your world up and running.®*

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