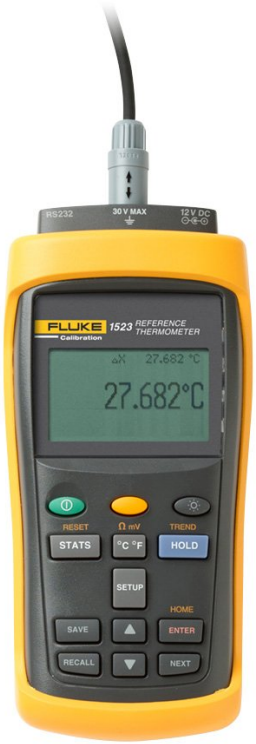
TECHNICAL DATA

Fluke Calibration 1523 Handheld Thermometer Readout



Key features

Measure, graph and record three sensor types with one tool

The 1523 Reference Thermometer measures, graphs, and records PRTs, thermocouples, and thermistors. This thermometer readout delivers exceptional accuracy, wide measurement range, logging, and trending, all in a handheld tool you can take anywhere.

The 1523 lets you handle field applications, laboratory measurements, and data logging with ease.

Three sensor types

- PRTs: –200 °C to 1000 °C
- Thermocouples –200 °C to 2315 °C
- Precision thermistors: –50 °C to 150 °C

Accuracy

- PRTs: up to ±0.011 °C
- Thermocouples: ±0.24 °C for J,K,L,M
- Precision thermistors: ±0.002 °C

Fast mode

- PRTs: 0.45 seconds per sample
- Thermocouples: 0.3 second per sample
- Precision thermistors: 0.3 seconds per sample

Graphical display

- 128x64 backlit LCD graphic display
- Plot and scale trends in real time
- Simultaneous dual channel readings

Product overview: Fluke Calibration 1523 Handheld Thermometer Readout

Make accurate, consistent measurements… anywhere.

You need accuracy for compliance, product yields, energy savings, and consistent results. The 1523 uses current reversal, a technique used in high-end instruments that eliminates thermal EMFs, for precision temperature measurements. Specifications are guaranteed from -10 °C to 60 °C ambient. Special precision resistors and a highly stable reference voltage source keep the 1523 accuracy virtually insensitive to environmental temperature.

Like all Fluke handheld tools, the 1523 Reference Thermometers endure rigorous testing in temperature extremes and under harsh conditions of vibration, so you can take them anywhere you need to go.

An optional magnetic hanger allows you to hang the thermometer for easy viewing while freeing your hands to focus on the job.

INFO-CON connectors ensure correct temperature conversion

Inside the INFO-CON, a memory chip keeps calibration information for the attached probe. Simply plugging in the probe uploads the information to the readout, ensuring the correct temperature conversion for accurate, hassle-free measurements.

Probes may be locked by password to specific channels and readouts for security or for system calibration traceability. Plug any thermocouple with mini-thermocouple jacks into an optional universal thermocouple adapter for convenient measurement. Each thermocouple adapter or standard connector supports reference junction compensation (RJC) with its own internal precision thermistor.

Monitor trends in the lab or in the field

See trends graphically on the 1523 thermometer's 128x64-backlit LCD display. You can change the graph's resolution at the touch of a button. Now it's easy to see when the temperature is stable, without statistics or long delays, or monitor processes over time to verify correct operation.

Document on demand up to 25 readings and associated statistics for easy retrieval. You can view the data through the display or by uploading it to a PC via RS-232 connection and 9940 software, included free. To monitor and log more data over time, use a PC and optional LogWare II software.

RS-232-to-USB adapters are available for those who prefer USB connectors. Battery power lasts at least 20 hours on three AA batteries, or use the dc power adapter for extended periods of measurement. Power saving features can be enabled or disabled for longer battery life or greater convenience.

Applications

The 1523 Reference Thermometer is a versatile single-channel thermometer that measures, graphs and records three sensor types with one tool. Support for PRTs/RTDs, thermocouples, and thermistors provides flexibility to choose the right

probe for the job.

Calibration, loop checking, plant startup, troubleshooting, maintenance, and repair are some of the varied duties that need a 1523 thermometer. Use it for a handy temperature reference in baths, dry-block calibrators, thermowells, clean rooms, engines, heat exchangers, furnaces, freezers, or anything else that must be calibrated, checked, or maintained.

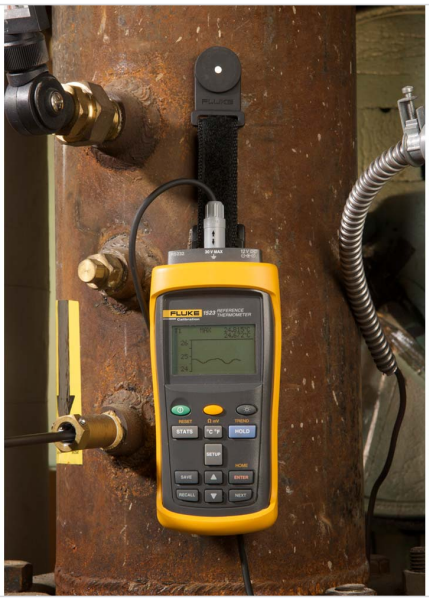
Specifications: Fluke Calibration 1523 Handheld Thermometer Readout

Specifications	
Input channels	1
Logging	25 readings with statistics
Sample interval (normal)	1 second
Sample interval (fast mode)	0.3 seconds (see technical manual for details)
Sensor types	PRTs, RTDs, Thermistors, and Thermocouples
Thermocouple types	C,E,J,K,L,M,N,T,U,B,R,S
Operating temperature	-10°C to 60°C (Best accuracy 13°C to 33°C)
Power requirements	3 AA alkaline batteries
Size	96 x 200 x 47 mm (3.75 x 7.9 x 1.86 in)
Weight	0.65 kg (1.4 lb)
Environmental conditions for best accuracy	13°C to 33°C
Millivolt range and accuracy	–10 mV to 75 mV ±(0.005% + 5 µV)
Resistance range and accuracy	0 Ω to 400 Ω ±(0.004% + 0.002 Ω) 200 Ω to 50 kΩ ±(0.01% + 0.5 Ω) 50 kΩ to 500 kΩ ±(0.03%)
Temperature coefficient, voltage (–10°C to 13°C , +33°C to 60°C)	±(0.001%/°C + 1 µV/°C)
Temperature coefficient, resistance (–10°C to 13°C , +33°C to 60°C)	0.0008%/°C + 0.0004 Ω (0 Ω to 400 Ω) 0.002%/°C + 0.1 Ω (0 Ω to 50 kΩ) 0.06%/°C + 0.1 Ω (50 kΩ to 500 kΩ)
Excitation current, resistance	1 mA (0 Ω to 400 Ω) 10 µA (0 Ω to 50 kΩ) 2 µA (50 kΩ to 500 kΩ)
Thermocouple Equivalent Temperature Accuracies (readout only)	
Type B	±0.85°C from 600°C to 800°C ±0.68°C from 800°C to 1000°C ±0.57°C from 1000°C to 1800°C
Type C	±0.32°C from 100ºC to 550°C ±0.71°C from 550°C to 2300°C

Type E	±0.52°C from -200°C to 0°C ±0.22°C from 0°C to 950°C
Type J	±0.52°C from -200°C to 0°C ±0.23°C from 0°C to 1200°C
Type K	±0.61°C from -200°C to 0°C ±0.24°C from 0°C to 1370°C
Type L	±0.36°C from -200°C to 0°C ±0.23°C from 0°C to 1370°C
Type M	±0.26°C from -20°C to 0°C ±0.25°C from 0°C to 400°C ±0.22°C from 400°C to 1400°C
Type N	±0.72°C from -200°C to 0°C ±0.28°C from 0°C to 1300°C
Type R	±1.09°C from -20°C to 0°C ±0.97°C from 0°C to 500°C ±0.49°C from 500°C to 1750°C
Type S	±1.05°C from -20°C to 0°C ±0.95°C from 0°C to 500°C ±0.56°C from 500°C to 1750°C
Type T	±0.60°C from -200°C to 0°C ±0.25°C from 0°C to 400°C
Type U	±0.54°C from -200°C to 0°C ±0.24°C from 0°C to 400°C
Accuracies are based on internal Reference Junction Compensation. Refer to Technical manual for equivalent accuracies with an external reference junction.	
Accuracies with Selected Probes (±°C)	
-200°C	5616-12: 0.014 5615-6: 0.025 5627A-12: 0.027 5610-9: n/a
0°C	5616-12: 0.021 5615-6: 0.021 5627A-12: 0.049 5610-9: 0.009
100°C	5616-12: 0.027 5615-6: 0.028 5627A-12: 0.065 5610-9: 0.009
300°C	5616-12: 0.040 5615-6: 0.043 5627A-12: 0.103 5610-9: n/a
420°C	5616-12: 0.050 5615-6: n/a 5627A-12: 0.130 5610-9: n/a
Includes readout accuracy, probe calibration, and probe drift	
PRT Equivalent Temperature Accuracy (readout only)	

–100°C	±0.011
0°C	±0.015
100°C	±0.019
200°C	±0.023
400°C	±0.031
600°C	±0.039
Thermistor Equivalent Temperature Accuracy (readout only)	
0°C	±0.002
25°C	±0.003
50°C	±0.006
75°C	±0.014
100°C	±0.030

Ordering information



Fluke 1523

Fluke Calibration 1523-156 Handheld Thermometer Readout
1 Channel, 17025 Accredited Calibration

For 1523 packages with PRTs below, please visit: us.flukecal.com

Fluke 1523-P2

Fluke Calibration 1523-P2 Handheld Thermometer Readout
Bundled with 5628 PRT (–200°C to 660°C, 25 ohm (1/4 x 12 inch))

Includes:

- Universal TC INFO-CON Connector
- TPAK
- Case

Fluke 1523-P3

Fluke Calibration 1523-P3 Handheld Thermometer Readout
Bundled with 5627A PRT (–200°C to 420°C , 100 ohm (12 x 1/4 inch))

Includes:

- Universal TC INFO-CON Connector
- TPAK

- Case

Fluke 1523-P4

Fluke Calibration 1523-P4 Handheld Thermometer Readout
Bundled with 5615 PRT (-200□ to 420□, 100ohm (12 x ¼ inch))

Includes:

- Universal TC INFO-CON Connector
- TPAK
- Case