FLUKE®

Calibration

Industrial temperature calibration selection guide

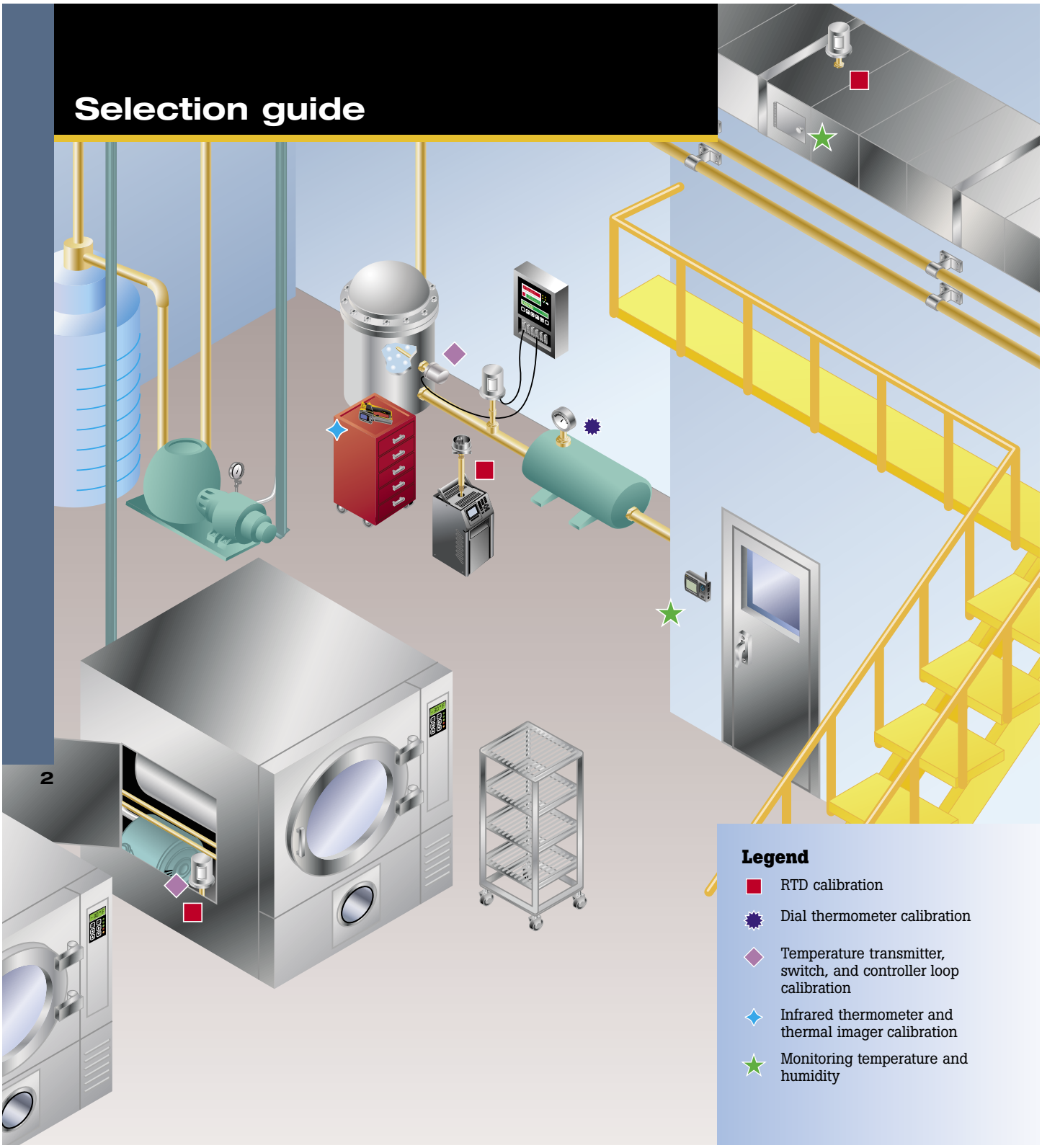
Look inside for:

- Field metrology wells
- Infrared calibrators
- Handheld and field dry-wells
- Micro-baths
- Environmental monitoring
- Thermometer readouts
- Reference sensors

Temperature measurement and calibration

Tools for industrial instrumentation and calibration technicians

Selection guide



Selection guide

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	Field metrology wells			NEW! Precision infrared calibrators		Handheld dry-wells	
							
Model	9142/9142P page 4	9143/9143P page 4	9144/9144P page 4	4180 page 6	4181 page 6	9100S page 8	9102S page 8
Range	–25 °C to 150 °C 4–20 mA	33 °C to 350 °C 4–20 mA	50 °C to 660 °C 4–20 mA	–15 °C to 120 °C	35 °C to 500 °C	35 °C to 375 °C	–10 °C to 122 °C
Best accuracy	± 0.2 °C	± 0.2 °C	± 0.35 °C	± 0.35 °C	± 0.35 °C	± 0.25 °C	± 0.25 °C
Applications	◆	◆	◆	✦	✦	■	■

	Field dry-wells					Sensors	
							
Model	9009 page 9	9103 page 10	9140 page 10	9141 page 10	9150 page 10	PRT page 15	Thermistor page 15
Range(s)	–15 °C to 350 °C	–25 °C to 140 °C	35 °C to 350 °C	50 °C to 650 °C	150 °C to 1200 °C	–200 °C to 670 °C	0 °C to 100 °C
Best accuracy	± 0.2 °C	± 0.25 °C	± 0.5 °C	± 0.5 °C	± 5 °C	See pages 14–15	See pages 14–15
Applications	■ ✹	■ ✹	■ ✹	■ ✹	thermocouples	◆ ■ ✹	◆ ■ ✹

	Micro baths			Thermometer readouts and environmental monitoring			
							
Model	6102 page 11	7102 page 11	7103 page 11	1551A/1552A page 13	1523/1524 page 13	1529 page 14	1620A page 12
Range	35 °C to 200 °C	–5 °C to 125 °C	–30 °C to 125 °C	–200 °C to 300 °C	–200 °C to 2315 °C	–200 °C to 962 °C	15 °C to 35 °C 20 %RH to 70 %RH
Best accuracy	± 0.25 °C	± 0.25 °C	± 0.25 °C	± 0.05 °C	± 0.015 °C	± 0.006 °C	± 0.25 °C ± 2 %RH
Channels	n/a	n/a	n/a	n/a	1 or 2	4	2
Applications	✹	✹	✹	■ ✹	◆ ✹	◆ ✹	★

Handheld dry-wells

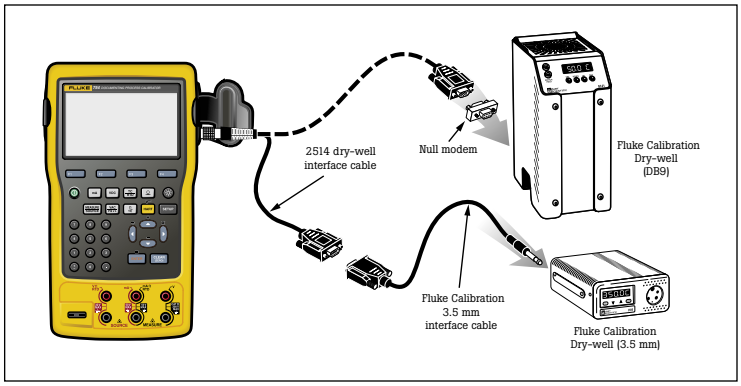
Temperature sensor calibration is easy with a handheld dry-well.

Fluke Calibration 9100S and 9102S Handheld Dry-Well Temperature Calibrators

- A temperature source that you can take anywhere
- Fast and easy calibrations of temperature sensors
- 9100S model weighs only 2 lbs, 3 oz (1 kilogram)
- Temperature ranges from –10 °C to 375 °C
- Stability during calibrations to ± 0.05 °C
- Direct interface to the Fluke 754 Documenting Process Calibrator

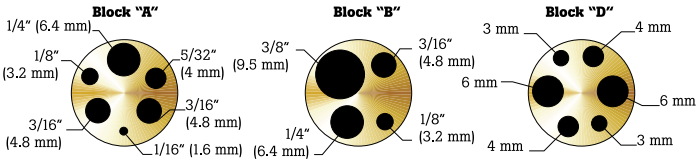
Each unit includes RS-232 interface, instrument control software and a NIST-traceable calibration.

Recommended accessories: carrying case, additional inserts, reference temperature sensor and indicator, battery pack



Easily connect a Fluke 754 to a dry-well for a fully automated temperature calibration that includes the temperature transmitter and temperature sensor.

9100 fixed-block options



Ordering information

9100S Handheld Dry-Well
9300 Rugged Carrying Case, 9100
9102S Handheld Dry-Well, comes with your choice of two 3102 inserts
9308 Hard Carrying Case, 9102/9132
9320A Battery Pack, 115V (9102S run time: 4 hrs)
3102-1 Insert, AL 1/16 in (1.6 mm)
3102-2 Insert, AL 1/8 in (3.2 mm)
3102-3 Insert, AL 3/16 in (4.8 mm)
3102-4 Insert, AL 1/4 in (6.4 mm) (Standard)
3102-6 Insert, AL 3/8 in (9.5 mm) (Standard)
3102-7 Insert, AL 7/16 in (11.1 mm) (Standard)
3102-8 Insert, AL 5/32 in (4 mm) (Standard)
2514 Dry-well interface cable to Fluke 754 Insert. Specify "A", "B", "D"

Training

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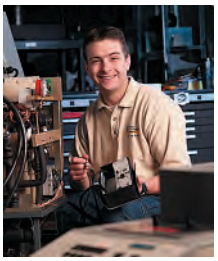
Calibration and metrology training from Fluke Calibration can help you and your staff become more knowledgeable in a wide variety of disciplines. Instructors are experts who work in electrical, temperature, pressure and flow calibration, and who really want to help you learn the foundation and techniques of metrology that you can put to immediate use in your workplace. Fluke Calibration offers introductory, intermediate, and advanced level courses in a variety of formats to meet your needs.

Training Seminars in American Fork, Utah

Get real training from real experts that lays out the basics and builds up to more advanced material for more advanced learners.

- Principles of Temperature Metrology
- Advanced Topics in Temperature Metrology
- Infrared Temperature Metrology
- Temperature Calibration Product Training



Service

Some of the best service and lowest uncertainties are available in our primary and secondary calibration laboratories located in the US and Europe. We offer NVLAP accredited calibration services in the US and UKAS accredited calibration services are available in Europe. Don't forget to pay a visit to our calibration laboratory when you come for training.

Fluke Calibration. *Precision, performance, confidence.™*

Electrical | RF | Temperature | Pressure | Flow | Software

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Fluke 725 Multifunction Calibrator

New

Simultaneous Function Capability	Channel A	Channel B
24.000 mA DC	M	M or S
24.000 mA DC with 24V loop supply	M	
100.00 mV DC		M or S
30.000V DC Measure	M	
20.000V DC Measure 10.000V DC Source		M or S
15 to 3200 Ohms		M or S
Thermocouple J, K, T, E, R, S, B, L, U, N		M or S
RTD Ni120; Pt100 (392); Pt100 (JIS); Pt100, 200, 500, 1000 (385)		M or S
Pressure (requires Fluke 700PXX Modules)	M	M used as S
Frequency; Squarewave, 1 CPM to10 kHz; fixed amplitude 5V p-p		M or S

M = Measure S = Source/Simulate

Simply Powerful!
The new Fluke 725 Multifunction Process Calibrator is a powerful yet easy-to-use field calibrator. Use the measure and source functions to test and calibrate almost any process parameter.

- Small, streamlined shape makes it easy to carry
- Rugged, reliable design stands up to field use
- Easy to read measure/source screen lets you view input and output simultaneously
- Measure volts, mA, RTDs, thermocouples, frequency, and ohms to test sensors and transmitters
- Source/simulate volts, mA, thermocouples, RTDs, frequency, and ohms to calibrate transmitters
- Measure/source pressure using any of 28 Fluke 700Pxx Pressure Modules
- Source mA with simultaneous pressure measurement to conduct valve and I/P tests
- Support flow meter testing with frequency and CPM functions
- Perform fast linearity tests with auto step and auto ramp features
- Power transmitters during test using loop supply with simultaneous mA measurement
- Store frequently-used test setups for later use
- Backlight lets you work in poor light
- Remote interface allows benchtop automated operations
- Large battery capacity of four AA cells
- Battery door for easy changes

Fluke. *Keeping your world up and running.*

Ordering information

Fluke 725 Multifunction Process Calibrator
Each calibrator includes: TL75 Test Leads, AC70A Test Clips, one pair of stackable test leads, Users Manuals appropriate to country of destination (English, plus three of: French, German, Spanish, Italian, Dutch, Norwegian, Danish, Swedish, Finnish, Portuguese, Korean, Chinese, and Japanese), Statement of Quality Assurance Practices; CE and CSA markings.

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Specifications

Summary specifications (18°C to 28°C for one year)

Function Measure or Source	Range	Resolution	Accuracy	Notes
Voltage	0 to 100 mV 0 to 10V (source) 0 to 30V (measure)	0.01 mV 0.01V 0.01V	.02% Rdg + 2 LSD	Max load, 1 mA
mA	0 to 24	0.001 mA	.02% Rdg + 2 LSD	Max load, 1000Ω
mV (TC terminals)	–10.00 mV to +75.00 mV	.01 mV	.025% of range + 1 LSD	
Resistance	15Ω to 3200Ω	0.01Ω to 0.1Ω	0.10Ω to 1.0Ω	
Frequency	2.0 to 1000.0 CPM 1 to 1000 Hz 1.0 to 10.0 kHz	0.1 CPM 1 Hz 0.1 kHz	±.05% ±.05% ±.25%	For frequency source, waveform is 5V p-p squarewave, –0.1V offset
Loop Supply	24V dc	N/A	10%	

Temperature coefficient, –10°C to 18°C, 28°C to 55°C, ±.005% of range per °C.

Thermocouple accuracy specifications

Thermocouple	Measure or Source	
J	–200 to 0°C 0 to 1200°C	1.0°C 0.7°C
K	–200 to 0°C 0 to 1370°C	1.2°C 0.8°C
T	–200 to 0°C 0 to 400°C	1.0°C 0.8°C
E	–200 to 0°C 0 to 950°C	0.9°C 0.7°C
R	–20 to 0°C 0 to 500°C 500 to 1750°C	2.5°C 1.8°C 1.4°C
S	–20 to 0°C 0 to 500°C 500 to 1750°C	2.5°C 1.8°C 1.5°C
B	600 to 800°C 800 to 1000°C 1000 to 1800°C	2.2°C 1.8°C 1.4°C
L	–200 to 0°C 0 to 900°C	0.85°C 0.7°C
U	–200 to 0°C 0 to 400°C	1.1°C 0.75°C
N	–200 to 0°C 0 to 400°C	1.5°C 0.9°C
Resolution		
J, K, T, E, L, N, U		0.1°C, 0.1°F
B, R, S		1°C, 1°F
Notes		
Accuracy specifications include 0.2°C cold junction uncertainty.		

RTD ranges and accuracy specifications

RTD Types, Ranges and Accuracies			
		Measure (4 wire)	**Source**
Ni 120	–80°C to 260°C	0.2°C	0.2°C
Pt 100 – 385	–200°C to 800°C	0.33°C	0.33°C
Pt 100 – 3926	–200°C to 630°C	0.3°C	0.3°C
Pt 100 – 3916 (JIS)	–200°C to 630°C	0.3°C	0.3°C
Pt 200 – 385	–200°C to 250°C 250°C to 630°C	0.2°C 0.8°C	0.2°C 0.8°C
Pt 500 – 385	–200°C to 500°C 500 to 630°C	0.3°C 0.4°C	0.3°C 0.4°C
Pt 1000 – 385	–200°C to 100°C 100°C to 630°C	0.2°C 0.3°C	0.2°C 0.2°C
Resolution			
RTD	0.1°C, 0.1°F		

General specifications

Maximum voltage: 30V
Storage temperature: –40°C to 71°C
Operating temperature: 10°C to 55°C
Relative humidity: 95% (10°C to 35°C); 75% (30°C to 40°C); 45% (40°C to 50°C); 35% (50°C to 55°C)
Shock: 30g, 11ms, half-sine shock (or 1meter drop test)
Vibration: Random, 2g, 5–500 Hz
Safety: CSA C22.2 No. 1010.1:1992
EMC: EN50082-1:1992 and EN55022:1994 Class B
Size/weight: 96 x 200 x 47 mm (3.8 x 7.9 x 1.9 inches)
650g (23 oz)
Battery: Four AA alkaline batteries. Battery life: 25 hours typical
Warranty: Three years