

**FLUKE®**



2014-2015

# PROCESS CALIBRATION TOOLS CATALOG

Electrical, Multifunction,  
and mA Loop Calibration

Pressure Calibration

Data Acquisition

Temperature Calibration



## Process Calibration Tools

### From Fluke and Fluke Calibration

Working in a process environment such as pharmaceutical, refining or other industrial area can be challenging. Whether you're working at a bench, out in the plant, or in the field, you need accurate tools that you can count on.

Finding the right tools for the specific challenges you face every day is important, so we've provided an "at-a-glance" guide to the wide range of multifunction, mA loop, pressure and temperature calibrators that we carry. For complete information on our field and bench solutions to all your calibration needs visit [www.fluke.com](http://www.fluke.com), [www.flukecal.eu](http://www.flukecal.eu), or one of the product pages listed in this catalog.



### Electrical and multifunction calibration

Fluke offers a broad range of field and bench calibrators to source, simulate, and measure pressure, temperature, and electrical signals to help you verify and adjust your test equipment or almost any process instrument.



### mA loop calibration

Loop calibrators are essential tools for working with 4-20 mA current loops. Fluke loop calibrators provide mA sourcing, simulation and measurement, readouts in both mA and % of span, 24 V loop supply, simple operation and accuracy you can count on.



### Pressure calibration

Instrumentation is found in virtually every process plant. Periodic calibration of these instruments is required to keep plants operating efficiently and safely. Fluke provides a wide selection of field and bench calibration tools to help you quickly and reliably calibrate your pressure instrumentation.



### Temperature calibration

Temperature calibration refers to the calibration of any device used in a system that measures temperature—from sensors to transmitters to displays. Fluke offers bench and field solutions to ensure process temperature accuracy of not only the system's electronic temperature signals, but also the very temperature sensors that initiate those signals.

# Process Calibration Tools

## Electrical, Multifunction, and mA Loop Calibration

4

**Multifunction Calibrators ..... 5**  
 Documenting Process Calibrator.....5  
 Documenting Process Calibrator with HART.....5  
 Precision Process Calibrator .....5  
 Precision Multifunction Process Calibrator .....6  
 Multifunction Process Calibrator.....6  
 Digital Multimeters .....6  
 Precision Multimeters.....6

**mA Loop Calibrators..... 7**  
 Loop Calibrators .....7  
 IS Loop Calibrator .....7  
 Precision Loop Calibrator .....7  
 Precision Loop Calibrator with HART ....7  
 Communications/Diagnostics .....7  
 Volt/mA Calibrator .....7  
 ProcessMeter™ Tools .....8  
 Milliamp Clamp Meters .....8  
 Milliamp Process Clamp Meters .....8

## Data Acquisition

9

**Data Acquisition System.....9**

## Pressure Calibration

10

**Digital Pressure Calibrators.....11**  
 Pressure Calibrator .....11  
 Pressure Calibrator with Pump .....11  
 Portable Electric Pressure Calibrator...11  
 IS Pressure Calibrator .....11  
 Pressure Modules.....12  
 IS Pressure Modules .....12  
 Dual Range Pressure Calibrator.....12  
 Pressure Modules.....12  
 IS Pressure Modules .....12

**Pressure Comparators and Master Gauges ..... 13**  
 Gas Pressure Comparators .....13  
 Precision Pressure Gauge Calibrator...13  
 Reference Pressure Gauges.....13

**Reference Pressure Calibrators..... 14**  
 Portable Pressure Calibrator.....14

**Bench Deadweight Testers..... 14**  
 Pneumatic Deadweight Tester.....14  
 Hydraulic Deadweight Testers .....15  
 Electronic Deadweight Testers.....15

## Temperature Calibration

16

**Handheld Temperature Calibrators 17**  
 RTD Process Calibrator .....17  
 Thermocouple Calibrator .....17  
 Temperature Calibrator.....17

**Multifunction Field Temp Sources. 17**  
 Field Metrology Wells .....17

**Field Temperature Sources ..... 18**  
 Handheld Dry-Well.....18  
 Dual-Well Dry-Well .....18  
 Field Dry-Well.....18  
 Ultra-Cool Field Metrology Well.....18  
 Thermocouple Furnace .....19  
 Micro-Baths.....19  
 Metrology Wells .....19

**Infrared Temperature Sources ..... 19**  
 Precision IR Calibrators .....19  
 Field IR Calibrators .....19

**Thermometer Standards..... 20**  
 Stik Thermometer .....20  
 Handheld Thermometer Readout.....20  
 Four-Channel Thermometer Readout..20  
 Thermometer Readouts.....20

**Ambient Conditions Monitor ..... 20**  
 Precision Thermo-Hygrometer .....20

**Precision PRTs..... 21**

**Thermistors ..... 21**

**Software .....22**

**Accessories .....22**

**Electrical,  
Multifunction,  
and mA Loop  
Calibration**





753

### Multifunction Calibrators

These field and bench calibrators source, simulate, and measure pressure, temperature, and electrical signals with exceptional precision.

#### 753 Documenting Process Calibrator

Rugged handheld tool for sourcing, simulating and measuring pressure, temperature, and electrical signals.

- Measure volts, mA, RTDs, thermocouples, frequency, and ohms to test sensors, transmitters and other instruments
- Source/simulate volts, mA, thermocouples, RTDs, frequency, ohms, and pressure to calibrate transmitters
- Power transmitters during test using loop supply with simultaneous mA measurement
- Download procedures and upload calibration results from field calibrations
- NIST traceable calibration

[www.fluke.com/753](http://www.fluke.com/753)



754

#### 754 Documenting Process Calibrator with HART

Rugged, reliable tool for calibrating, maintaining, and troubleshooting HART and other instrumentation.

- Measure volts, mA, RTDs, thermocouples, frequency, and ohms to test sensors, transmitters and other instruments
- Source/simulate volts, mA, thermocouples, RTDs, frequency, ohms, and pressure to calibrate transmitters
- Supports popular models of HART transmitters, with more device-specific command support than any other HART field calibrator
- Download procedures and upload calibration results from field calibrations
- NIST traceable calibration

[www.fluke.com/754](http://www.fluke.com/754)



7526A



#### 7526A Precision Process Calibrator

Best balance of economy and accuracy for calibration of temperature and pressure process measurement instrumentation.

- Sources and measures dc voltage, current, resistance, RTDs and thermocouples
- Measures pressure using Fluke 700/525A-P pressure modules
- Includes 24 V dc loop power supply, automated switch-test function and measures 4 mA to 20 mA
- NIST traceable calibration

[www.flukecal.eu/7526A](http://www.flukecal.eu/7526A)



726



725



725Ex



8808A



8845A/8846A

### 726 Precision Multifunction Process Calibrator

Designed specifically for the process industry with broad workload coverage, calibration power and unsurpassed accuracy. Includes all the features and functions of the 725 below plus:

- Enhanced accuracy
- Pulse count sourcing and pulse measurement totalizing
- Pressure switch test
- Error % calculation
- NIST traceable calibration

[www.fluke.com/726](http://www.fluke.com/726)

### 725 Multifunction Process Calibrator

A powerful and easy-to-use field calibrator to test and calibrate almost any process parameter.

- Measure volts, mA, RTDs, thermocouples, frequency, and ohms to test sensors and transmitters
- Source/simulate volts, mA, thermocouples, RTDs, frequency, ohms, and pressure to calibrate transmitters
- Measure/source pressure using any of 29 Fluke 700Pxx Pressure Modules
- Source mA with simultaneous pressure measurement to conduct valve and I/P tests
- NIST traceable calibration

[www.fluke.com/725](http://www.fluke.com/725)

### 725EX IS Multifunction Process Calibrator

Easy-to-use, intrinsically safe field calibrator can calibrate almost any process instrument needing service where explosive gasses may be present.

- ATEX II 1 G Ex ia IIB 171 °C KEMA 04ATEX 1303X
- I.S. Class I, Division 1 Groups B-D, 171 °C compliance
- Measure Volts dc, mA, RTDs, thermocouples, frequency and ohms
- Source or simulate volts dc, mA, RTDs, thermocouples, frequency and ohms
- Measure/source pressure using any of eight Fluke 700PEX Pressure Modules
- NIST traceable calibration

[www.fluke.com/725EX](http://www.fluke.com/725EX)

### 8808A Digital Multimeter

Versatile multimeter for manufacturing, development and service applications.

- 5.5 digit resolution
- Basic V dc accuracy of 0.015 %
- Dual display
- NIST traceable calibration

[www.flukecal.eu/8808A](http://www.flukecal.eu/8808A)

### 8845A/8846A Precision Multimeters

Precision and versatility for bench or systems applications.

- 6.5 digit resolution
- Basic V dc accuracy of up to 0.0024 %
- Dual display
- /C models include accredited calibration

[www.flukecal.eu/8845A](http://www.flukecal.eu/8845A)





709



709H



## mA Loop Calibrators

Fluke loop calibrators are ideal for a wide variety of calibration applications from 4 to 20 mA.



705

### 705 Loop Calibrator

A cost-effective, integrated solution for calibration, repair and maintenance of current loops.

- mA sourcing, simulation and measurement
- Simultaneous mA and % of span display
- 24 V loop supply with mA measure
- 0 V dc to 28 V dc measurement to check loop voltage
- NIST traceable calibration

[www.fluke.com/705](http://www.fluke.com/705)



707

### 707 Loop Calibrator

A high performance, extremely fast and easy-to-use solution for calibration, repair and maintenance of current loops.

- mA sourcing, simulation and measurement
- 24 V loop supply with mA measure, including 250 Ω HART resistor
- 0 V dc to 28 V dc measurement to check loop voltage
- NIST traceable calibration

[www.fluke.com/707](http://www.fluke.com/707)



707EX

### 707EX IS Loop Calibrator

An intrinsically safe option for use in explosion endangered areas—certified in accordance with the ATEX directive (Ex II 2 G Ex ia IIC T4) in Zones 1 and 2.

- 1 µA resolution for mA source, simulate and measure
- Measures V dc to 28 V
- 0–20 mA or 4–20 mA default startup modes
- HART® compatible resistance is connected in series with the loop supply for compatibility with HART communicators
- NIST traceable calibration

[www.fluke.com/707EX](http://www.fluke.com/707EX)

### 709 Precision Loop Calibrator

Reduces the time it takes to measure or source voltage or current and power up a loop.

- Best-in-class accuracy at 0.01% reading
- Small rugged design operates on six standard AAA batteries
- Intuitive user interface with Quick-Set knob for fast setup, easy use
- Built-in selectable 250 Ω resistor for HART communication
- 24 V dc loop power with mA Measure Mode (–25% to 125%)
- Resolution of 1 µA on mA ranges and 1 mV on voltages ranges
- NIST traceable calibration

[www.fluke.com/709](http://www.fluke.com/709)

### 709H Precision Loop Calibrator with HART Communications/Diagnostics

Designed to save time and produce high-quality results

- HART Communication built in for easy HART device maintenance
- Best-in-class accuracy at 0.01% reading
- Small rugged design operates on six standard AAA batteries
- Intuitive user interface with Quick-Set knob for fast setup, easy use
- Built-in selectable 250 Ω resistor for HART communication
- 24 V dc loop power with mA Measure Mode (–25% to 125%)
- Resolution of 1 µA on mA ranges and 1 mV on voltage ranges
- NIST traceable calibration

[www.fluke.com/709H](http://www.fluke.com/709H)



715

### 715 Volt/mA Calibrator

Outstanding performance, durability and reliability.

- Measure loop current (0-20 mA, 4-20 mA) signals with very high accuracy of 0.015% and 1 mA resolution
- Measure voltage output process signals from PLCs, transmitters
- Source or simulate 24 mA loop current
- Source voltage to 100 mV or 10 V
- 24 V loop supply with simultaneous current measurement
- Enhanced voltage and current measure and source accuracy
- NIST traceable calibration

[www.fluke.com/715](http://www.fluke.com/715)



787

### 787 ProcessMeter™

A complete troubleshooting solution in the palm of your hand with a digital multimeter and loop calibrator in one tool.

- 1000 V overload protection on V, ohms, frequency
- 150 V overload protection on mA, backed up by 440 mA 1000 V fuse
- 25 % manual step plus auto step and auto ramp on mA output
- CAT III 1,000V rating

[www.fluke.com/787](http://www.fluke.com/787)



789

### 789 ProcessMeter™

The 789 includes all the popular features of the 787 and adds:

- 24 V loop power supply
- 1200 ohm drive capability on mA source
- HART mode setting with loop power and a built-in 250 ohm resistor
- 0 % and 100 % buttons to toggle between 4 and 20 mA sourcing for a quick span check
- CAT IV 600 V rating

[www.fluke.com/789](http://www.fluke.com/789)



771/772/773

### 771 Milliamp Process Clamp Meter

Saves time by making fast, accurate measurements on 4-20 mA signal loops without breaking the circuit.

- 0.01 mA resolution and sensitivity
- Measure mA signals for PLC and control system analog I/O
- Measure 10 to 50 mA signals in older control systems using the 99.9 mA range

[www.fluke.com/771](http://www.fluke.com/771)

### 772 Milliamp Clamp Meter

Expanded features of the popular 771 mA Clamp Meter by adding loop power and mA sourcing to the capabilities.

- Measure 4 to 20 mA signals with in-circuit measurement
- Simultaneous mA in-circuit measurement with 24 V loop power for powering and testing transmitters
- Source 4 to 20 mA signals for testing control system I/O or I/Ps
- Automatically ramp or step the 4 to 20 mA output for remote testing

[www.fluke.com/772](http://www.fluke.com/772)

### 773 Milliamp Process Clamp Meter

The premier mA clamp meter, adds advanced troubleshooting features and voltage source/measure for testing voltage I/O. Includes all the features of the 772 plus:

- DC voltage sourcing and measurement, verify 24 V power supplies or test voltage I/O signals
- Scaled mA output provides a continuous mA signal that corresponds to the 4 to 20 mA signal measured by the mA clamp
- Simultaneously source and measure mA signals

[www.fluke.com/773](http://www.fluke.com/773)





## Data Acquisition



2638A



2638A-100

### Data Acquisition System

Fluke Hydra Series III provides best-in-class thermocouple accuracy in a portable system.

#### 2638A Hydra Series III

Price-performance breakthrough in a stand-alone data acquisition system

- DC accuracy of 0.0024 %
- Thermocouple accuracy of 0.5 °C
- Up to 66 universal differential isolated inputs
- On-screen color trend graphing and analysis
- Easy-to-use menu system for setup and data management
- Input types: ac V, dc V, ac I, dc I, thermocouple, PRT (2, 3, 4 w), thermistor, resistance (2-4 w), frequency
- /C models include accredited calibration

#### 2638A-100 Extra Universal Input Module for 2638A

- Dedicated low burden ac/dc current channels
- 20 universal channels and two dedicated low burden current channels (ac/dc) per module



# Pressure Calibration





## Digital Pressure Calibrators

Built-in features like mA measure, loop power, switch test and transmitter error calculation make these pressure calibrators powerful tools that are easy to use.

### 717 Pressure Calibrator

Rugged, reliable and accurate calibrator with outstanding performance and durability.

- Measure pressure, 0.025 % of full scale with internal sensor up to 10,000 psi/690 bar sensor (10000G model)
- Measure mA with 0.015 % accuracy and 0.001 mA resolution, while sourcing 24 V loop power
- Measure pressure to 10,000 psi/700 bar using one of 29 Fluke 700Pxx Pressure Modules
- NIST traceable calibration

[www.fluke.com/717](http://www.fluke.com/717)

### 718 Pressure Calibrator with Pump

Provides a total pressure calibration solution for transmitters, gauges and switches.

- Pressure source and milliamp measurement to calibrate and maintain almost any pressure device
- Integrated pump is easily cleaned when accidentally exposed to fluids that reduces cost of ownership and repairs and enables servicing the pump in the field
- 1 psi, 30 psi, 100 psi and 300 psi ranges mean few extra tools required
- NIST traceable calibration

[www.fluke.com/718](http://www.fluke.com/718)

### 719 and 719PRO Portable Electric Pressure Calibrators

Calibrate and test pressure devices quickly and easily with the built-in electric pump.

- Source mA with simultaneous pressure measurement to test valves and I/Ps
- Simulate mA signals to troubleshoot 4–20 mA loops
- Power transmitters during test using 24 V loop supply with simultaneous mA measurement
- New 300 psi range, generate up to 300 psi, with internal Electric pump (719PRO)
- Precision temperature measurement combined accuracy of  $\pm 0.25$  °C (0.45 °F) when using 720 RTD probe (optional accessory for use with 719PRO)
- NIST traceable calibration

[www.fluke.com/719](http://www.fluke.com/719)

### 718EX IS Pressure Calibrator

A powerful, intrinsically safe and self-contained pressure calibrator for use in explosion endangered areas.

- ATEX II 1G Ex ia IIC T4 compliant
- Built-in pressure/vacuum hand pump, with fine adjust vernier and bleed valve
- 30 psi, 100 psi, and 300 psi ranges (2 bar, 7 bar, and 20 bar)
- Pressure measurement to 200 bar using any of eight intrinsically safe Fluke 700PEX Pressure Modules
- NIST traceable calibration

[www.fluke.com/718EX](http://www.fluke.com/718EX)





**700P**

### 700P Pressure Modules

A full range of differential, gage, absolute, vacuum, dual and intrinsically safe pressure modules are available, from -15 psi (-103 kPa) to 10,000 psi (69 MPa).

- Best-in-class 0.025 % reference uncertainty
- Rugged, chemical-resistant packaging
- Temperature compensated using proprietary micro-technology linearized output
- Digital communication to calibrators; no analog losses or errors
- NIST traceable calibration

[www.fluke.com/700P](http://www.fluke.com/700P)



**700PEX**

### 700PEX IS Pressure Modules

Intrinsically safe pressure modules to create a complete pressure test solution.

- Certified by CSA: I.S. Class I, Div 1, Groups A-D T4, Ta = 0 °C to 50 °C
- ATEX II 1G Ex ia IIC T4 compliant
- NIST traceable calibration

[www.fluke.com/700PEX](http://www.fluke.com/700PEX)



**721**

### 721 Dual Range Pressure Calibrator

Two measurement ranges plus \*temperature measurement make the 721 ideal for gas custody transfer calibration applications.

- Fourteen models
- Up to (3) displayed measurement simultaneously
- Simplified user interface for ease of use
- Rugged, durable design with protective holster
- High accuracy, 0.025% total measurement uncertainty for one year
- Pt100 RTD input for precise temperature measurement, accurate to 0.1°C (0.2°F)
- Requires 720RTD probe sold separately as an accessory
- NIST traceable calibration

[www.fluke.com/721](http://www.fluke.com/721)





**P5510**



**P5513**



**P5514**



**P5515**

**Pressure Comparators and Master Gauges**

Precise pressure generation for comparing a device under test to a master gauge.

**P5510 Gas Pressure Comparator**

Easy, efficient pressure and vacuum generation in a single device.

- Pressure to 2 MPa (300 psi)
- Vacuum to -80 kPa (-12 psi)

[www.flukecal.eu/P5510](http://www.flukecal.eu/P5510)

**P5513 Gas Pressure Comparator**

High quality, precise gas pressure generation and control.

- Precise pressure regulation to 210 MPa (3k psi) with high quality needle valves
- Built-in screw press for fine pressure adjustment
- Optional vacuum/pressure pump, -80 kPa to 2 MPa (-12 psi to 300 psi)

[www.flukecal.eu/P5513](http://www.flukecal.eu/P5513)

**P5514 Hydraulic Pressure Comparator**

Easy, efficient hydraulic pressure generation.

- Generate and precisely adjust pressure to 70 MPa (10 k psi)
- Compatible with a wide range of fluids

[www.flukecal.eu/P5514](http://www.flukecal.eu/P5514)

**P5515 Hydraulic Pressure Comparator**

High quality, precise hydraulic pressure generation and control.

- Generate and precisely adjust pressure to 140 MPa (20 k psi)
- Integrated hand pump for system priming and large volume applications
- Compatible with a wide range of fluids

[www.flukecal.eu/P5515](http://www.flukecal.eu/P5515)

**700G Precision Pressure Gauge Calibrator**

Rugged construction for reliable measurements in the field.

- Twenty-three ranges from 10 inH2O/1 bar to 10,000 psi/690 bar and 0.05 % accuracy
- Combine with a comparator kit for a complete solution
- Four new absolute pressure measurement ranges
- Use the 700G/TRACK Software to upload over 8,000 logged pressure measurements
- Up to 1500 hours battery life
- I.S. rating, CSA; Class 1, Div 2, Groups A-D rating, ATEX: rating: II 3 G Ex nA IIB T6
- NIST traceable calibration

[www.fluke.com/700G](http://www.fluke.com/700G)

**2700G Series Reference Pressure Gauges**

Best-in-class accuracy from a master pressure gauge.

- Precision pressure measurement from 100 kPa (15 psi) to 70 MPa (10,000 psi).
- Accuracy to  $\pm 0.02\%$  of full scale
- Combine with the P55XX Pressure Comparators for a complete benchtop pressure calibration solution
- /C models include accredited calibration

[www.flukecal.eu/2700G](http://www.flukecal.eu/2700G)



**700G**



**2700G**



**3130**

### Reference Pressure Calibrators

Portable, high-quality pressure gauges

#### 3130 Portable Pressure Calibrator

Everything you need for highly accurate calibrations of pneumatic field instruments.

- Measure and generate pressures from -12 psi (0.8 bar) to 2 MPa (300 psi, 20 bar)
- Accuracy of  $\pm 0.025\%$  reading to  $\pm 0.01\%$  FS
- Works with compressed plant air or internal pump
- 24 V loop power and electrical measurement for transmitters and switches
- Compatible with Fluke 700P pressure modules
- NiMH battery
- /C models include accredited calibration

[www.flukecal.eu/3130](http://www.flukecal.eu/3130)



**P3010/P3020/P3030**

### Bench Deadweight Testers

Deadweight testers are highly accurate, robust and flexible pressure measurement standards capable of calibrating a wide range of instruments.

#### P3010 Single Piston Gas Deadweight Tester

A high quality, high performance gas deadweight tester.

- 0.015 % of reading accuracy (0.008 % optional)
- Ranges cover from -100 kPa (-15 psi) vacuum to 3.5 MPa (500 psi) pressure
- Integrated vacuum/pressure pump available to 2 MPa (300 psi)
- Accredited calibration

[www.flukecal.eu/P3010](http://www.flukecal.eu/P3010)

#### P3020 Dual Piston Gas Deadweight Tester

Unique suspended piston design offers vacuum and pressure calibration in a single instrument.

- 0.015 % of reading accuracy (0.008 % optional)
- Ranges cover from 1.5 kPa (5 in H<sub>2</sub>O) to 3.5 MPa (500 psi)
- All models feature vacuum measurement to -100 kPa (-15 psi)
- Integrated vacuum/pressure pump available to 2 MPa (300 psi)
- Accredited calibration

[www.flukecal.eu/P3020](http://www.flukecal.eu/P3020)

#### P3030 High Pressure Gas Deadweight Tester

Innovative liquid-lubricated piston offers low drop rates and high tolerance to contamination.

- 0.015 % of reading accuracy (0.008 % optional)
- Ranges cover from 100 kPa (10 psi) to 14 MPa (2000 psi)
- Integrated control valves and screw press for fine adjustment
- Accredited calibration

[www.flukecal.eu/P3030](http://www.flukecal.eu/P3030)





P3110/P3120



P3210/P3220



P3800



6531



6532

**P3110 Single Piston Oil Deadweight Tester**

High quality, high performance, easy to use oil pressure calibration.

- 0.015 % of reading accuracy (0.008 % optional)
- Ranges cover from 100 kPa (10 psi) to 140 MPa (20 k psi)
- Integrated pressure generation and control is standard
- Accredited calibration

[www.flukecal.eu/P3110](http://www.flukecal.eu/P3110)

**P3120 Dual Piston Oil Deadweight Tester**

Dual piston design offers maximum hydraulic pressure calibration workload coverage.

- 0.015 % of reading accuracy (0.008 % optional)
- 100 kPa (10 psi) to 110 MPa (16 k psi) in a single instrument
- Integrated pressure generation and control is standard
- Accredited calibration

[www.flukecal.eu/P3120](http://www.flukecal.eu/P3120)

**P3210 Single Piston Water Deadweight Tester**

Specially designed to use water as a test medium.

- 0.015 % of reading accuracy (0.008 % optional)
- Ranges cover from 100 kPa (10 psi) to 70 MPa (10 k psi)
- Integrated pressure generation and control is standard
- Accredited calibration

[www.flukecal.eu/P3210](http://www.flukecal.eu/P3210)

**P3220 Dual Piston Water Deadweight Tester**

Dual piston design offers maximum water pressure calibration workload coverage.

- 0.015 % of reading accuracy (0.008 % optional)
- 100 kPa (10 psi) to 70 MPa (10 k psi) in a single instrument
- Integrated pressure generation and control is standard
- Accredited calibration

[www.flukecal.eu/P3220](http://www.flukecal.eu/P3220)

**P3800 High Pressure Oil Deadweight Tester**

High performance, easy to use very high pressure oil calibration.

- 0.02 % of reading accuracy (0.015 % optional)
- Ranges up to 400 MPa (60 k psi)
- Integrated pressure generation, intensifier and control
- Accredited calibration

[www.flukecal.eu/P3800](http://www.flukecal.eu/P3800)

**6531 Electronic Deadweight Tester**

A digital alternative to the traditional deadweight tester.

- 0.02 % of reading from 10 % to 100 % of instrument range (10:1 turndown)
- Ranges from 7 MPa (1000 psi) to 200 MPa (30 k psi)
- Integrated hydraulic pressure generation and control
- Compatible with water and a wide range of oils and other fluids
- Onboard test routines, data storage, and other advanced features
- Accredited calibration

[www.flukecal.eu/6531](http://www.flukecal.eu/6531)

**6532 Extended Range Electronic Deadweight Tester**

All the features of model 6531 with extended pressure range for maximum workload coverage.

- 0.02 % of reading from 1 % to 100 % of instrument range (100:1 turndown)
- Models with full scale ranges from 70 MPa (10 k psi) to 200 MPa (30 k psi)
- Accredited calibration

[www.flukecal.eu/6532](http://www.flukecal.eu/6532)



## Temperature Calibration







712



9142/9143/9144

### Handheld Temperature Calibrators

Suitable for calibrating temperature transmitters, panel meters, and other devices that connect to temperature sensors.



714

#### 712 RTD Process Calibrator

Delivers outstanding performance, durability and reliability in a compact, lightweight, and easy-to-carry tool.

- Measure temperature from RTD probe output
- Simulate RTD output
- Measure additional RTDs using ohms measurement function
- Simulate additional RTDs using ohms source function
- NIST traceable calibration

[www.fluke.com/712](http://www.fluke.com/712)

#### 714 Thermocouple Calibrator

Delivers outstanding performance, durability and reliability in a compact, lightweight, and easy-to-carry device.

- Measure temperature from TC probe output
- Simulate TC output
- Calibrate linear TC transmitter with mV source function
- NIST traceable calibration

[www.fluke.com/714](http://www.fluke.com/714)

#### 724 Temperature Calibrator

Powerful and easy to use to measure and source functions for testing and calibrating almost any temperature instrument.

- Measure RTDs, thermocouples, ohms, and volts to test sensors and transmitters
- Source/simulate thermocouples, RTDs, volts, and ohms to calibrate transmitters
- Perform fast linearity tests with 25 % and 100 % steps
- NIST traceable calibration

[www.fluke.com/712](http://www.fluke.com/712)

### Multifunction Field Temperature Sources

Fast, lightweight and portable with precision temperature control traceable to national standards. Suitable for calibration of thermocouples, RTDs, PRTs, and other temperature sensors.

#### 9142 Field Metrology Well

Maximizing portability, speed, and functionality for the industrial process environment.

- -25 °C to 150 °C temperature range
- Display accuracy of  $\pm 0.2$  °C over full range
- Built-in two-channel readout for PRT, RTD, thermocouple, 4-20 mA current
- Optional built-in reference thermometer readout
- Accredited calibration

[www.flukecal.eu/9142](http://www.flukecal.eu/9142)

#### 9143 Field Metrology Well

Maximizing portability, speed, and functionality for the industrial process environment.

- 33 °C to 350 °C temperature range
- Display accuracy of  $\pm 0.2$  °C over full range
- Built-in two-channel readout for PRT, RTD, thermocouple, 4-20 mA current
- Optional built-in reference thermometer readout
- Accredited calibration

[www.flukecal.eu/9143](http://www.flukecal.eu/9143)

#### 9144 Field Metrology Well

Precision calibration with fast temperature ramp-up rates for the industrial process environment.

- 50 °C to 660 °C temperature range
- Heat to 660 °C in 15 minutes
- Display accuracy from  $\pm 0.35$  °C at 420 °C to  $\pm 0.5$  °C at  $\pm 660$  °C
- Optional built-in reference thermometer readout
- Accredited calibration

[www.flukecal.eu/9144](http://www.flukecal.eu/9144)



9100S



9102S



9103/9140/9141



9009



9190A



## Field Temperature Sources

Portable and flexible temperature-controlled dry-wells suitable for high-speed calibrations or certifications of thermocouples, RTDs, PRTs and other temperature sensors

### 9100S Handheld Dry-Well

World's smallest, lightest and most portable dry-well.

- Smallest dry-wells in the world
- Ranges from 35 °C to 375 °C
- Accuracy to  $\pm 0.25$  °C, stability of  $\pm 0.07$  °C at 50 °C
- NIST traceable calibration

[www.flukecal.eu/9100S](http://www.flukecal.eu/9100S)

### 9102S Handheld Dry-Well

High-performance, convenient and easy-to-use handheld dry-well.

- Smallest dry-wells in the world
- Ranges from  $-10$  °C to 122 °C
- Accuracy to  $\pm 0.25$  °C, stability of  $\pm 0.05$  °C (full range)
- NIST traceable calibration

[www.flukecal.eu/9102S](http://www.flukecal.eu/9102S)

### 9009 Dual-Well Dry-Well

Two-in-one dry-well increases portability and productivity.

- Temperatures from  $-15$  °C to 350 °C in one unit
- Display accuracy: hot block:  $\pm 0.6$  °C; cold block:  $\pm 0.2$  °C
- Rugged, lightweight, water resistant enclosure
- NIST traceable calibration

[www.flukecal.eu/9009](http://www.flukecal.eu/9009)

### 9103 Field Dry-Well

Great performance in a portable instrument.

- $-25$  °C to 140 °C
- Accuracy to  $\pm 0.25$  °C
- Stable to  $\pm 0.02$  °C at  $-25$  °C and  $\pm 0.04$  °C at 140 °C
- NIST traceable calibration

[www.flukecal.eu/9103](http://www.flukecal.eu/9103)

### 9140 Field Dry-Well

Lightweight and portable field dry-well small enough to easily carry in one hand.

- 35 °C to 350 °C
- Accuracy to  $\pm 0.5$  °C
- Stability to  $\pm 0.03$  °C at 50 °C and  $\pm 0.05$  °C at 350 °C
- NIST traceable calibration

[www.flukecal.eu/9140](http://www.flukecal.eu/9140)

### 9141 Field Dry-Well

Ultra-fast heat and cool times increase productivity.

- 50 °C to 650 °C
- Accuracy to  $\pm 0.5$  °C to 400 °C;  $\pm 1.0$  °C to 650 °C
- Heats up to 650 °C in only 12 minutes
- NIST traceable calibration

[www.flukecal.eu/9141](http://www.flukecal.eu/9141)

### 9190A Ultra-Cool Field Metrology Well

Very low temperatures, with no fluids and best-in-class stability

- Wide temperature range from  $-95$  °C to 140 °C
- Best-in-class stability:  $\pm 0.015$  °C full range
- Accuracy using built-in reference thermometer readout:  $\pm 0.05$  °C full range
- Display accuracy:  $\pm 0.2$  °C full range
- Optional built-in two-channel readout for PRT, RTC, TC, 4-20 mA and reference thermometer
- Accredited calibration

[www.flukecal.eu/9190A](http://www.flukecal.eu/9190A)



9150

**9150 Thermocouple Furnace**

Convenient, portable thermocouple furnace.

- 150 °C to 1200 °C
- Stability of ± 0.5 °C over full range
- NIST-traceable calibration included
- RS-232 port standard
- NIST traceable calibration

[www.flukecal.eu/9150](http://www.flukecal.eu/9150)

**6102/7102/7103 Micro-Baths**

Calibrate a variety of probe diameters—no sleeves required.

- Three models covering temperatures from -30 °C to 200 °C
- World's smallest portable calibration baths
- Stability to ± 0.015 °C
- NIST traceable calibration

[www.flukecal.eu/micro-baths](http://www.flukecal.eu/micro-baths)

**9170/9171/9172/9173 Metrology Wells**

Best possible accuracy in a dry-block calibrator

- Best performing industrial temperature sources in the world (stability as good as ±0.005 °C)
- Immersion depth to 203 mm (8 in)
- Optional built-in readout reads reference PRTs to ± 0.006 °C
- Ranges:
  - 9170: -45 °C to 140 °C
  - 9171: -30 °C to 155 °C
  - 9172: 35 °C to 425 °C
  - 9173: 50 °C to 700 °C
- NVLAP accredited calibration ONLY with -R model

[www.flukecal.eu/917X](http://www.flukecal.eu/917X)



6102/7102/7103

**Infrared Temperature Sources**

Bench and field precision infrared calibrators for accurate and reliable calibrations of IR thermometers.

**4180/4181 Precision Infrared Calibrators**

Accredited performance for point and shoot calibrations.

- Calibrated radiometrically for meaningful, consistent results
- Accredited calibration included
- Accurate, reliable performance from -15 °C to 500 °C
- Large 152 mm (6 in) diameter target
- Accredited radiometric calibration report

[www.flukecal.eu/418X](http://www.flukecal.eu/418X)

**9132/9133 Field Infrared Calibrators**

Precision when you need it for infrared temperature calibration.

- Verify IR pyrometers from -30 °C to 500 °C (-22 °F to 932 °F)
- RTD reference well for contact temperature measurement
- NIST traceable contact calibration

[www.flukecal.eu/913X](http://www.flukecal.eu/913X)



9170/9171/9172/9173



4180/4181



9132



9133



1551A Ex/1552A Ex

## Thermometer Standards

Delivering exceptional accuracy, wide measurement range, and designed to go where you work.

### 1551A Ex/1552A Ex "Stik" Thermometer

The best substitute for precision mercury-filled glass thermometers.

- Accuracy of  $\pm 0.05\text{ }^{\circ}\text{C}$  ( $\pm 0.09\text{ }^{\circ}\text{F}$ ) over full range
- Intrinsically safe (ATEX and IECEx compliant)
- Two models to choose from (-50  $^{\circ}\text{C}$  to 160  $^{\circ}\text{C}$  or -80  $^{\circ}\text{C}$  to 300  $^{\circ}\text{C}$ )
- NVLAP-accredited, NIST-traceable calibration

[www.flukecal.eu/155X](http://www.flukecal.eu/155X)



1523/1524

### 1523/1524 Handheld Thermometer Readout

Measure, graph and record three sensor types with one tool.

- High accuracy: PRTs:  $\pm 0.011\text{ }^{\circ}\text{C}$ ; Thermocouples:  $\pm 0.24\text{ }^{\circ}\text{C}$ ; Thermistors:  $\pm 0.002\text{ }^{\circ}\text{C}$
- A simple user interface to see trends quickly
- Smart connectors to load probe information automatically
- Traceable cal as standard. -CAL versions with accredited cal

[www.flukecal.eu/152X](http://www.flukecal.eu/152X)



1502A/1504

### 1502A/1504 Thermometer Readouts

Best performance thermometers in their price range.

- Single-channel reference thermometers, accurate to  $\pm 0.006\text{ }^{\circ}\text{C}$  (meter only)
- Two models to choose from—reading PRTs or thermistors
- Best price/performance package
- Accredited calibration

[www.flukecal.eu/150X](http://www.flukecal.eu/150X)



1529

### 1529 Four-Channel Thermometer Readout

Lab-quality accuracy on four channels for PRTs, thermistors and thermocouples.

- Accuracy of  $\pm 0.0025\text{ }^{\circ}\text{C}$  (meter only)
- Displays eight user-selected data fields from any channel
- Logs up to 8,000 readings with date and time stamps
- Accredited calibration

[www.flukecal.eu/1529](http://www.flukecal.eu/1529)



1620A

## Ambient Conditions Monitor

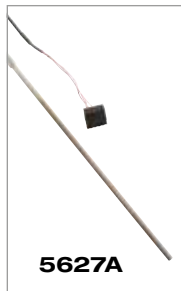
For precise measurement and recording of ambient temperature and humidity conditions wherever calibrations take place.

### 1620A Precision Thermo-Hygrometer

The most accurate temperature and humidity graphical data logger on the market.

- Superior accuracy
- Network enabled
- Powerful logging and analysis tools
- Measures temperature to  $\pm 0.125\text{ }^{\circ}\text{C}$  and humidity to  $\pm 1.5\%$  on two channels
- NIST-traceable NVLAP accredited temperature and humidity calibration

[www.flukecal.eu/1620A](http://www.flukecal.eu/1620A)



5627A



5615

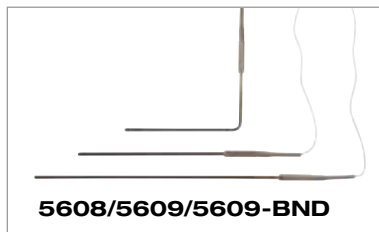
### Precision PRTs

High accuracy reference temperature measurements in temperature sources on the bench or in the field.

#### 5627A Precision Industrial PRT

- Vibration and shock resistant
- Calibration accuracy of  $\pm 0.046\text{ }^{\circ}\text{C}$  at  $0\text{ }^{\circ}\text{C}$
- Available with a  $90^{\circ}$  bend
- NVLAP-accredited calibration included, lab code 200706-0

[www.flukecal.eu/5627](http://www.flukecal.eu/5627)

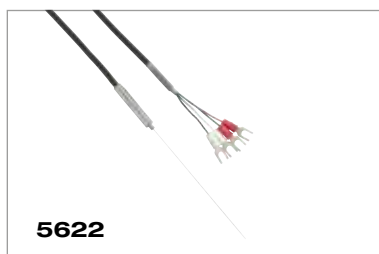


5608/5609/5609-BND

#### 5615 Secondary Reference Temperature Standards

- $-200\text{ }^{\circ}\text{C}$  to  $420\text{ }^{\circ}\text{C}$
- Calibrated accuracy  $\pm 0.010\text{ }^{\circ}\text{C}$  at  $0\text{ }^{\circ}\text{C}$
- NVLAP-accredited calibration included, lab code 200706-0

[www.flukecal.eu/5615](http://www.flukecal.eu/5615)



5622

#### 5608/5609/5609-BND Secondary Reference PRTs

Drift rate of  $\pm 0.01\text{ }^{\circ}\text{C}$  at  $0\text{ }^{\circ}\text{C}$  after 100 hours at max temperature.

- 5608:  $-200\text{ }^{\circ}\text{C}$  to  $500\text{ }^{\circ}\text{C}$  (80 mm minimum immersion)
- 5609:  $-200\text{ }^{\circ}\text{C}$  to  $670\text{ }^{\circ}\text{C}$  (100 mm minimum immersion)
- Comes with certificate of compliance - optional NVLAP-accredited calibration

[www.flukecal.eu/5608](http://www.flukecal.eu/5608)



5626/5628

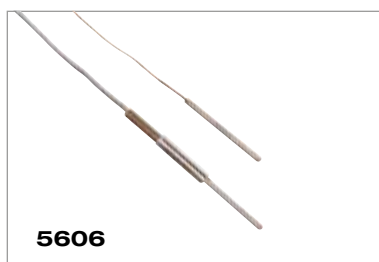


5618B

#### 5622 Fast Response PRTs

- Time constants as fast as 0.4 seconds
- Small probe diameters ranging from 0.5 mm to 3.2 mm (four models available)
- Available as DIN/IEC Class A PRTs or with optional NVLAP-accredited calibration, lab code 200348-0

[www.flukecal.eu/5622](http://www.flukecal.eu/5622)

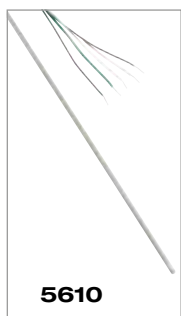


5606

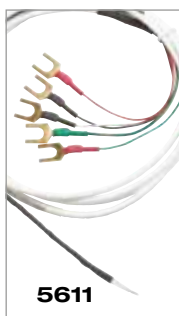
#### 5626/5628 Secondary SPRT, PRT, Temperature Sensors

- Range to  $661^{\circ}\text{C}$
- Meets all ITS-90 requirements for resistance ratios
- Rtp drift  $< 20\text{ mK}$  after 500 hours at  $661^{\circ}\text{C}$
- Calibrated accuracy of  $\pm 0.006\text{ }^{\circ}\text{C}$  at  $0\text{ }^{\circ}\text{C}$
- NVLAP accredited fixed point calibration

[www.flukecal.eu/5622](http://www.flukecal.eu/5622)



5610



5611

#### 5618B Small Diameter Industrial RTD

Fast response for time-dependent measurements.

- Small diameter sheath, 3.2 mm (0.125 in)
- Excellent stability
- Includes ITS-90 coefficients
- NVLAP accredited calibration, lab code 200706-0

[www.flukecal.eu/5618B](http://www.flukecal.eu/5618B)

#### 5606 Full Immersion PRT

Fully immerse PRT transition junction inside freezers or furnaces.

- Transition junction designed to withstand full temperature range of probe
- $-200\text{ }^{\circ}\text{C}$  to  $160\text{ }^{\circ}\text{C}$
- Calibration accuracy of  $\pm 0.05\text{ }^{\circ}\text{C}$  (full range)
- Optional NVLAP accredited calibration

[www.flukecal.eu/5606](http://www.flukecal.eu/5606)

#### Thermistors

Providing accurate and rugged temperature measurements from  $0\text{ }^{\circ}\text{C}$  to  $100\text{ }^{\circ}\text{C}$ .

#### 5610/5611/5611T Secondary Reference Thermistor Probes

Economical lab-grade thermistor probes with low drift susceptibility.

- Short-term accuracy to  $\pm 0.01\text{ }^{\circ}\text{C}$ ; one-year drift  $< \pm 0.01\text{ }^{\circ}\text{C}$
- 5610: 3.2 mm diameter stainless steel sheathed thermistor
- 5611: 1.5 mm diameter (tip) silicone coated thermistor
- 5611T: 3 mm diameter (tip) PTFE encapsulated thermistor

[www.flukecal.eu/5610](http://www.flukecal.eu/5610)



5611T

## Software/ Accessories



## Software

### 750 SW DPC/TRACK2 Software™

DPC/TRACK2 Software is a specialized calibration management database that can help you manage your instrumentation and address the documentation requirements of quality programs and regulations. With DPC/TRACK2 and a 754 DPC you can:

- Manage your inventory of tags and instruments, schedule for calibration
- Create tag specific procedures with instructions and comment
- Load those procedures to your DPC, and later upload the results to your PC
- Select and execute automated as found/as left procedures in the field, automatically capturing results
- Examine the calibration histories of your tags and instruments and print reports
- Import and export instrument data and procedures as ASCII text
- Import legacy DPC/TRACK data

[www.fluke.com/750DPCsoftware](http://www.fluke.com/750DPCsoftware)

### 700G/Track

Easy-to-use software for managing instruments and calibration data.

- Enables data download and logging configurations to the 700G Series gauges for a remote logging event
- Configure logging event reading rate, duration and measurement units
- Upload measurements logged remotely and display or export measurements

[www.fluke.com/700Gsoftware](http://www.fluke.com/700Gsoftware)

### LogWare

Turn a Fluke Calibration single-channel handheld or 1502A/1504 readout into a real-time data logger.

- Collects realtime data
- Calculates statistics and displays customizable graphs
- Allows user-selected start times, stop times and sample intervals

[www.flukecal.eu/logware](http://www.flukecal.eu/logware)

### MET/TEAM® Test Equipment Asset Management Software

Manage more workload with less work.

- Browser-based calibration asset management software
- Fully integrated with MET/CAL® Software
- Microsoft SQL Server database
- Highly customizable
- Email automation
- On-site calibration

[www.flukecal.eu/METTEAM](http://www.flukecal.eu/METTEAM)

## Accessories

### 700HTP-2 Hydraulic Test Pump

The 700HTP-2 is designed to generate pressures up to 10,000 psi/700 bar. Use the Fluke 700PRV-1 adjustable relief valves to limit pressures from 1360 psi to 5450 psi. Use the 700HTH-1 test hose to connect from the pump to the device under test.

[www.fluke.com/process\\_acc](http://www.fluke.com/process_acc)

### 700PTP-1 Pneumatic Test Pump

The 700PTP-1 is a handheld pressure pump designed to generate either vacuum to -11.6 psi/-0.8 bar or pressure to 600 psi/40 bar.

[www.fluke.com/process\\_acc](http://www.fluke.com/process_acc)

### 700LTP-1 Low Pressure Test Pump

Hand operated pressure pump designed to generate either vacuum to -13 psi/-0.90 bar or pressures to 100 psi/6.9 bar. Ideal for low pressure applications requiring accurate low pressure testing.

[www.fluke.com/process\\_acc](http://www.fluke.com/process_acc)



700HTP-2



700PTP-1



700LTP-1



**ELSO**  
riešenia na presné meranie

Elso Philips Service  
Jilemnického 2; 911 01 Trenčín  
tel: +421 32 6582410  
fax: +421 32 6582592  
email: [elso@elso.sk](mailto:elso@elso.sk)  
web: [www.elso.sk](http://www.elso.sk)