

7526A Precision Process Calibrator



The Fluke Calibration 7526A Precision Process Calibrator offers the best balance of economy and accuracy for benchtop calibration of pressure and temperature process instrumentation.

Incorporating an isolated measurement channel, the 7526A lets you simultaneously source and measure voltage, current or resistance, making it easy to calibrate temperature and pressure transmitters, RTD and thermocouple readouts, pressure gauges, digital process simulators, data loggers, multimeters and more.

Everything you need in one box

The 7526A packs a lot of capability into one box, allowing you to calibrate a wide-ranging and varied workload. One calibrator performs all of these functions:

- Sources and measures dc voltage, current, resistance, RTDs and thermocouples
- Measures pressure using Fluke 700 or 525A-P Series Pressure Modules
- Measures 4–20 mA loop current
- Sources 24 V dc transmitter loop power supply
- Simulates and measures nine RTD and thirteen thermocouple types
- Accurately measures pressure up to 10 000 PSI (69 MPa) when combined with Fluke 700 or 525A-P Series Pressure Modules
- Sources and measures dc voltage to within 0.004 % of reading
- Sources and measures dc resistance up to 4 k Ω
- Sources dc current from 0 mA to 100 mA
- Accurately measures dc current from 0 mA to 50 mA
- Sources 24 V dc loop power



- Tests pressure and thermal switches with an automated switch-test function
- Measures thermistors up to 4 k Ω
- Stores up to nine programmable setpoints for each input/output parameter
- Accepts ITS-90 coefficients for accurate SPRT measurements
- Compatible with MET/CAL[®] Plus Calibration Management Software

A “best fit” for your process calibration requirements

“Doing more with less” is a requirement every process manufacturer faces today. To maintain product quality, reduce waste, improve efficiency and conform to regulatory standards, instruments that measure process variables such as temperature and pressure must be calibrated at regular intervals. Selecting the right calibrator for the job, however, can be tricky—especially when attempting to balance precision and versatility with cost. Less expensive than high-end multi-product calibrators, yet more precise and versatile than handheld field calibrators, the 7526A is a “best fit” for instrument shops that value precision, versatility and economy.

7526A Precision Process Calibrator

FLUKE®

Calibration

The user interface includes cursor controls, function keys and a ten-key keypad, making it easy to navigate through intuitive menus; store and recall up to nine setpoints for each input/output parameter; enter RTD or SPRT coefficients; and easily change display units with a key press.

With two LCD displays, you can easily view both source and measurement results simultaneously.

DC voltage output terminals. 0 mV to 100 V.
Accuracy: 30 ppm (+3 μ V), 1 year*. Five-way berylliumcopper binding posts reduce thermal EMFs and accept common cable terminations (standard single/dual pin banana plug, spade lug, pin connector, bare wire).

DC current output terminals. 0 mA to 100 mA.
Accuracy: 50 ppm, 1 year

RTD/ Ω output terminals (two-wire). 5 Ω to 4 k Ω .
Accuracy: ± 0.05 °C*. Accepts Pt-100 (385, 3926, 3916), Pt-200, Pt-500, Pt-1000, Ni-120, Cu-427, SPRT.

Thermocouple input/output terminal. Accuracy: ± 0.1 °C*.
User selectable internal or external cold junction compensation for improved thermocouple measurement accuracy. Accepts thermocouple types: B,C,E,J,K,L,N,R,S,T,U,XK,BP

Isolated input terminals for dc voltage/current measurement, unique switch-test input for testing pressure and thermal switches, and a 24 V dc loop power supply for powering 4–20 mA transmitters.



Isolated pressure module input. Connect either a Fluke 700 or 525A-P Series Pressure Module to the front panel LEMO connector and the calibrator auto-detects the type and value of the module.

Four-wire RTD/ Ω input terminals.
Accuracy: ± 0.02 °C*. Accepts Pt-100 (385, 3926, 3916), Pt-200, Pt-500, Pt-1000, Ni-120, Cu-427, SPRT.

Isolated input controls. A HART key enables a 250 Ω loop resistor allowing HART devices to read a digital HART signal superimposed on the 4–20 mA loop current.

* See extended specifications for more details.

7526A Precision Process Calibrator

Don't forget the sensor

Calibrating the electronics portion of a temperature transmitter is only a part of a complete calibration. You also need to calibrate the temperature sensor itself, whether an RTD or thermocouple. Ignoring the sensor can be a mistake, because temperature sensors are responsible for more than 75 % of the output errors in temperature transmitters. You can calibrate the temperature sensor individually, or calibrate both the sensor and the transmitter as a system using a dry-block calibrator such as the Fluke Calibration 914X Series Field Metrology Wells. The Field Metrology Wells were designed specifically with process calibration in mind—optimizing speed to temperature, portability, stability and accuracy. The 7526A and a 914X dry-block calibrator make a perfect combination for calibrating just about any temperature transmitter.



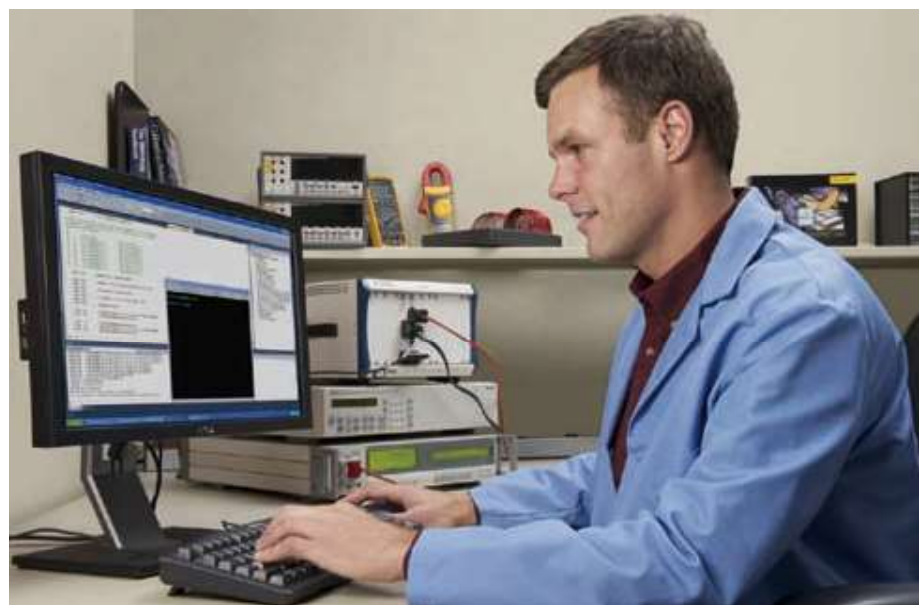
Source as well as measure pressure

The P5500 Series Comparison Test Pumps can be used with the 7526A and Fluke 700 Series Pressure Modules to generate or control test pressures. The unique test port configuration allows for easy, tool-free connections of a wide variety of connection sizes and types, including NPT, BSP, and metric threads. The P5510 includes a built-in hand pump to generate vacuum or positive pressure up to 300 psi (2 MPa). The P5513 allows for precise control of pneumatic pressures up to 3000 psi (20 MPa). An external pressure supply is required. The P5514 allows for generation of hydraulic pressures up to 10 000 psi (70 MPa). The P5515 includes a built-in priming pump and screw pump

that allows for pressure generation up to 20 000 psi (140 MPa). Both the P5514 and P5515 can be used with oil or water. Special versions are available with ethylene propylene seals for use with more aggressive fluids.

Calibration and repair services

Fluke Calibration offers extensive calibration support and service to ensure your long-term satisfaction and return on investment. Our worldwide network of calibration centers offers accredited calibrations traceable to national standards. We also offer fast, quality repair and calibration services including a module exchange program and full support in setting up your lab.



7526A Precision Process Calibrator

Summary specifications

DC voltage, output

| Range ^[1] | Absolute uncertainty, ± (ppm of output + μV), 1 year | | Resolution |
|----------------------------|--|------|------------|
| 0 mV to 100 mV | 30 | 3 | 1 μV |
| 0 V to 1 V | 30 | 10 | 10 μV |
| 0 V to 10 V | 30 | 100 | 100 μV |
| 0 V to 100 V | 30 | 1 mV | 1 mV |
| TC output and input | | | |
| -10 mV to 75 mV | 30 | 2 | 10 Ω |

[1] All outputs are positive only unless otherwise noted

DC voltage, isolated input

| Range | Absolute uncertainty, ± (ppm of reading + mV), 1 year | | Resolution |
|---------------|---|-----|------------|
| 0 V to 10 V | 50 | 0.2 | 100 μV |
| 10 V to 100 V | 50 | 2.0 | 1 mV |

DC current, output

| Range ^[1] | Absolute uncertainty, ± (ppm of reading + μA), 1 year | | Resolution |
|----------------------|---|---|------------|
| 0 mA to 100 mA | 50 | 1 | 1 μA |

[1] For line voltages less than 95 V, ±100 ppm of reading

DC current, isolated input

| Range | Absolute uncertainty, ± (ppm of reading + μA), 1 year | | Resolution |
|--|---|---|------------|
| 0 mA to 50 mA | 100 | 1 | 0.1 μA |
| 0 mA to 24 mA ^{[1] [2]} (Loop Power) | 100 | 1 | 0.1 μA |

[1] Loop Power: 24 V ±10 % [2] HART Resistor: 250 Ω ± 3 %

Resistance, output

| Range | Absolute uncertainty, tcal ± 5 °C, ± ohms, 1 year | Resolution | Nominal current |
|--------------|---|------------|-----------------|
| 5 Ω to 400 Ω | 0.015 | 0.001 Ω | 1 mA to 3 mA |
| 5 Ω to 4 kΩ | 0.3 | 0.01 Ω | 100 μA to 1 mA |

Resistance, input

| Range | Absolute uncertainty, ± (ppm of reading + Ω), 1 year | | Resolution |
|--------------|--|-------|------------|
| 0 Ω to 400 Ω | 20 | 0.004 | 0.001 Ω |
| 0 Ω to 4 kΩ | 20 | 0.04 | 0.01 Ω |

Sample thermocouple accuracy, input/output (does not include all available TC types)^[1]

| TC type | Temperature range (°C) | | Absolute uncertainty, tcal ± 5 °C, ± (°C), 1 year ^[2] |
|---------|------------------------|------|--|
| | Min | Max | |
| J | -210 | 1200 | 0.09 |
| K | -250 | 1372 | 0.1 |
| S | -50 | 1767 | 0.29 |
| T | -250 | 400 | 0.11 |

[1] See extended specifications for all TC types (B,C,E,J,K,L,N,R,S,T,U,XK,BP).
[2] Best accuracy within specified TC temperature range.

Sample RTD and thermistor, output (does not include all available RTD types)^[1]

| RTD type | Temperature range (°C) | | Absolute uncertainty, tcal ± 5 °C, ± (°C), 1 year |
|---------------|------------------------|-----|---|
| | Min | Max | |
| Pt 385, 100 Ω | -200 | 630 | 0.05 |
| YSI 400 | 15 | 50 | 0.007 |

[1] See extended specifications for all RTD types: Pt-100 (385, 3926, 3916), Pt-200, Pt-500, Pt-1000, Ni-120, Cu-427, SPRT.

Sample RTD and thermistor, input (does not include all available RTD types)^[1]

| RTD type | Temperature range (°C) | | Absolute uncertainty, tcal ± 5 °C, ± (°C), 1 year |
|---------------|------------------------|-----|---|
| | Min | Max | |
| Pt 385, 100 Ω | -80 | 100 | 0.020 |
| | 100 | 300 | 0.024 |
| YSI 400 | 15 | 50 | 0.007 |

[1] See extended specifications for all RTD types: Pt-100 (385, 3926, 3916), Pt-200, Pt-500, Pt-1000, Ni-120, Cu-427, SPRT.

General specifications

Accessories

| | | |
|-------------------------------|---|----------------|
| Standard interface | RS-232, IEEE-488 (GPIB) | |
| Temperature performance | Operating: 0 °C to 50 °C Calibration (tcal): 18 °C to 28 °C Storage: -20 °C to 70 °C | |
| Electromagnetic compatibility | CE: Conforms to EN61326; operation in controlled EM environments | |
| Temperature coefficient | Temperature coefficient for temperatures outside tcal 5 °C is 10 % of the 90-day specification (or one year if applicable) per °C | |
| Relative humidity | Operating: | <80 % to 30 °C |
| | | <70 % to 40 °C |
| | | <40 % to 50 °C |
| Altitude | Operating: 3,000 m (9,800 ft) max Non-operating: 12,200 m (40,000 ft) max | |
| Safety | EN/IEC 61010-1:2010 3rd Edition, UL 61010-1:2012, CAN/CSA 22.2 No. 61010-1-12 | |
| Analog low isolation | 20 V | |
| Line power | 120 V~: 100 V to 120 V | |
| | 240 V~: 220 V to 240 V | |
| Line frequency | 47 Hz to 63 Hz | |
| Line voltage variation | ± 10 % about setting | |
| Power consumption | 15 VA maximum | |
| Dimensions | Height: 14.6 cm (5.75 in) | |
| | Width: 44.5 cm (17.5 in) | |
| | Depth: 29.8 cm (11.75 in) | |
| Weight (without options) | 4.24 kg (9.35 lb) | |

7526A Precision Process Calibrator

700 Series Pressure Modules Specifications

| | Model | Range/ resolution | Range (approx)/ resolution | Reference ^[1] uncertainty (23 ± 3 °C) | High ² side media | Low ² side media | Fitting material |
|--------------|--------------|------------------------------|----------------------------|--|------------------------------|-----------------------------|------------------|
| Differential | Fluke 700P00 | 1 in. H ₂ O/0.001 | 0.25 kPa/0.0002 | 0.300 % | Dry | Dry | 316 SS |
| | Fluke 700P01 | 10 in. H ₂ O/0.01 | 2.5 kPa/0.002 | 0.200 % | Dry | Dry | 316 SS |
| | Fluke 700P02 | 1 psi/0.0001 | 6900 Pa/0.7 | 0.150 % | Dry | Dry | 316 SS |
| | Fluke 700P22 | 1 psi/0.0001 | 6900 Pa/0.7 | 0.100 % | 316 SS | Dry | 316 SS |
| | Fluke 700P03 | 5 psi/0.0001 | 34 kPa/0.001 | 0.050 % | Dry | Dry | 316 SS |
| | Fluke 700P23 | 5 psi/0.0001 | 34 kPa/0.001 | 0.025 % | 316 | SS Dry | 316 SS |
| | Fluke 700P04 | 15 psi/0.001 | 103 kPa/0.01 | 0.025 % | Dry | Dry | 316 SS |
| Gage | Fluke 700P24 | 15 psi/0.001 | 103 kPa/0.01 | 0.025 % | 316 SS | Dry | 316 SS |
| | Fluke 700P05 | 30 psi/0.001 | 207 kPa/0.01 | 0.025 % | 316 SS | N/A | 316 SS |
| | Fluke 700P06 | 100 psi/0.01 | 690 kPa/0.07 | 0.025 % | 316 SS | N/A | 316 SS |
| | Fluke 700P27 | 300 psi/0.01 | 2070 kPa/0.1 | 0.025 % | 316 SS | N/A | 316 SS |
| | Fluke 700P07 | 500 psi/0.01 | 3400 kPa/0.1 | 0.025 % | 316 SS | N/A | 316 SS |
| | Fluke 700P08 | 1000 psi/0.1 | 6900 kPa/0.7 | 0.025 % | 316 SS | N/A | 316 SS |
| Absolute | Fluke 700P09 | 1500 psi/0.1 | 10 M Pa/0.001 | 0.025 % | 316 SS | N/A | 316 SS |
| | Fluke 700PA3 | 5 psi/0.0001 | 34 kPa/0.001 | 0.050 % | 316 SS | N/A | 316 SS |
| | Fluke 700PA4 | 150 psi/0.001 | 103 kPa/0.001 | 0.050 % | 316 SS | N/A | 316 SS |
| | Fluke 700PA5 | 30 psi/0.001 | 207 kPa/0.01 | 0.050 % | 316 SS | N/A | 316 SS |
| Vacuum | Fluke 700PA6 | 100 psi/0.01 | 690 kPa/0.001 | 0.050 % | 316 SS | N/A | 316 SS |
| | Fluke 700PV3 | -5 psi/0.0001 | -34 kPa/0.001 | 0.040 % | 316 SS | Dry | 316 SS |
| Dual | Fluke 700PV4 | -15 psi/0.001 | -103 kPa/0.01 | 0.040 % | 316 SS | Dry | 316 SS |
| | Fluke 700PD2 | ± 1 psi/0.0001 | ± 6900 Pa/0.7 | 0.150 % | 316 SS | Dry | 316 SS |
| | Fluke 700PD3 | ± 5 psi/0.0001 | ± 34 kPa/0.001 | 0.040 % | 316 SS | Dry | 316 SS |
| | Fluke 700PD4 | ± 15 psi/0.001 | ± 103 kPa/0.01 | 0.025 % | 316 SS | Dry | 316 SS |
| | Fluke 700PD5 | -15/30 psi/0.001 | -100/207 kPa/0.01 | 0.025 % | 316 SS | N/A | 316 SS |
| | Fluke 700PD6 | -15/100 psi/0.01 | -100/690 kPa/0.07 | 0.025 % | 316 SS | N/A | 316 SS |
| High | Fluke 700PD7 | -15/200 psi/0.01 | -100/1380 kPa/0.1 | 0.040 % | 316 SS | N/A | 316 SS |
| | Fluke 700P29 | 3000 psi/0.1 | 20.7 MPa/0.001 | 0.050 % | C276 | N/A | C276 |
| | Fluke 700P30 | 5000 psi/0.1 | 34 MPa/0.001 | 0.050 % | C276 | N/A | C276 |
| | Fluke 700P31 | 10 000 psi/1 | 69 MPa/0.007 | 0.050 % | C276 | N/A | C276 |

1 Total uncertainty, one year for temperature range 0 °C to +50 °C. Total uncertainty, 1.0 % of full span for temperature range -10 °C to 0 °C. For POO module only, compensated temperature range is 15 °C to 35 °C. 2 "Dry" indicates dry air or non-corrosive gas as compatible media. "316SS" indicates media compatible with Type 316 Stainless Steel. "C276" indicates media compatible with Hastelloy C276. Use of pressure zero is required prior to measurement or source. Max. overpressure specification includes common mode pressure. Modules are CE rated. Metric adapter(s): 1/4 inch NPr female-to-male BSP/ISO 1/4-19, tapered thread, included with all modules except P29, P30, and P31, all modules include a NIST traceable certificate and test data.

525A-P Series Precision Pressure Transducers

| Type | Model | Range/resolution | Range/resolution | Reference uncertainty (23 ± 3 °C) |
|--------------|----------|---------------------|------------------|-----------------------------------|
| Differential | 525A-P02 | 1 psi/0.00001 | 6900 Pa/0.01 | 0.008 % FS |
| Gage | 525A-P03 | 5 psi/0.00001 | 34 kPa/0.001 | 0.008 % FS |
| Gage | 525A-P04 | 15 psi/0.001 | 103 kPa/0.001 | 0.008 % FS |
| Gage | 525A-P05 | 30 psi/0.0001 | 207 kPa/0.001 | 0.008 % FS |
| Gage | 525A-P06 | 100 psi/0.001 | 690 kPa/0.001 | 0.008 % FS |
| Gage | 525A-P07 | 500 psi/0.001 | 3400 kPa/0.01 | 0.008 % FS |
| Gage | 525A-P08 | 1000 psi/0.01 | 6900 kPa/0.01 | 0.008 % FS |
| Gage | 525A-P29 | 3000 psi/0.01 | 20.7 M Pa/0.0001 | 0.008 % FS |
| Absolute | 525A-PA4 | 15 psi/0.0001 | 103 kPa/0.001 | 0.008 % FS |
| Absolute | 525A-PA5 | 30 psi/0.0001 | 207 kPa/0.001 | 0.008 % FS |
| Absolute | 525A-PA6 | 100 psi/0.001 | 690 kPa/0.001 | 0.008 % FS |
| Absolute | 525A-PA7 | 500 psi/0.001 | 3400 kPa/0.01 | 0.008 % FS |
| Absolute | 525A-PA8 | 1000 psi/0.01 | 6900 kPa/0.01 | 0.008 % FS |
| Vacuum | 525A-PV4 | -15 TO 0 psi/0.0001 | -34 kPa/0.001 | 0.008 % FS |

7526A Precision Process Calibrator

Ordering Information

7526A Precision Process Calibrator

| Model | Description |
|-------|--|
| 7526A | Precision Process Calibrator Includes traceable calibration report, user manual CD, getting started guide, power cord, thermocouple shorting jumper and USB-to-serial adapter cable |

Recommended Accessories

| Model | Description |
|------------------|---------------------------------|
| Y7526A | Rack Mount Kit |
| 7526A-CASE | Carrying Case |
| 5520A-525A/LEADS | Thermocouple and Test Leads Set |

Fluke 525A Series Pressure Modules

| Type | Model | Range |
|--------------|----------|----------------------------|
| Differential | 525A-P02 | 1 psi (6900 Pa) |
| | 525A-P03 | 5 psi (34 kPa) |
| Gage | 525A-P04 | 15 psi (103 kPa) |
| | 525A-P05 | 30 psi (207 kPa) |
| | 525A-P06 | 100 psi (690 kPa) |
| | 525A-P07 | 500 psi (3400 kPa) |
| | 525A-P08 | 1000 psi (6900 kPa) |
| | 525A-P29 | 3000 psi (20.7 M Pa) |
| | Absolute | 525A-PA4 |
| 525A-PA5 | | 30 psi (207 kPa) |
| 525A-PA6 | | 100 psi (690 kPa) |
| 525A-PA7 | | 500 psi (3400 kPa) |
| 525A-PA8 | | 1000 psi (6900 kPa) |
| Vacuum | 525A-PV4 | -15 psi to 0 psi (-34 kPa) |

Pumps and Accessories

| Model | Description |
|----------------|---------------------------|
| FLUKE-700PTP-1 | Pneumatic Test Pump |
| FLUKE-700LTP-1 | Low-pressure Test Pump |
| FLUKE-700PRV-1 | Pressure Relief Valve Kit |

Comparison Test Pumps

| Model | Description |
|------------|--|
| P5510-2M | Pneumatic Test Pump, vacuum to 300 psi (2 MPa) |
| P5513-20M | Pneumatic Test Pump, vacuum to 3000 psi (20 MPa) |
| P5514-70M | Hydraulic Test Pump, 0 psi to 10 000 psi (70 MPa) |
| P5515-140M | Hydraulic Test Pump, 0 psi to 20 000 psi (140 MPa) |

Hydraulic Test Pump

| Model | Description |
|----------------|---|
| FLUKE-700HTH-1 | Hydraulic Test Hose |
| FLUKE-700HTP-2 | Hydraulic Test Pump, 10 000 PSI (690 bar) |

Fluke 700 Series Pressure Modules

| Type | Model | Range |
|--------------|--------------|---------------------------------------|
| Differential | FLUKE-700P00 | 1 in. H ₂ O (0.25 kPa) |
| | FLUKE-700P01 | 10 in. H ₂ O (2.5 kPa) |
| | FLUKE-700P02 | 1 psi (6900 Pa) |
| | FLUKE-700P22 | 1 psi (6900 Pa) |
| | FLUKE-700P03 | 5 psi (34 kPa) |
| | FLUKE-700P23 | 5 psi (34 kPa) |
| | FLUKE-700P04 | 15 psi (103 kPa) |
| Gage | FLUKE-700P24 | 15 psi (103 kPa) |
| | FLUKE-700P05 | 30 psi (207 kPa) |
| | FLUKE-700P06 | 100 psi (690 kPa) |
| | FLUKE-700P27 | 300 psi (2070 kPa) |
| | FLUKE-700P07 | 500 psi (3400 kPa) |
| Absolute | FLUKE-700P08 | 1000 psi (6900 kPa) |
| | FLUKE-700P09 | 1500 psi (10 Mpa) |
| | FLUKE-700PA3 | 5 psi (34 kPa) |
| | FLUKE-700PA4 | 15 psi (103 kPa) |
| Vacuum | FLUKE-700PA5 | 30 psi (207 kPa) |
| | FLUKE-700PA6 | 100 psi (690 kPa) |
| | FLUKE-700PV3 | -5 psi (-34 kPa) |
| Dual | FLUKE-700PV4 | -15 psi (-103 kPa) |
| | FLUKE-700PD2 | ±1 psi (±6900 Pa) |
| | FLUKE-700PD3 | ±5 psi (±34 kPa) |
| | FLUKE-700PD4 | ±15 psi (±103 kPa) |
| | FLUKE-700PD5 | -15 psi to 30 psi (-100 to 207 kPa) |
| | FLUKE-700PD6 | -15 psi to 100 psi (-100 to 690 kPa) |
| | FLUKE-700PD7 | -15 psi to 200 psi (-100 to 1380 kPa) |
| High | FLUKE-700P29 | 3000 psi (20.7 MPa) |
| | FLUKE-700P30 | 5000 psi (34 MPa) |
| | FLUKE-700P31 | 10 000 psi (69 MPa) |

700 PMP Pressure Pump

| Model | Description |
|--------------|--------------------|
| Fluke-71X | Hose Kit Accessory |
| FLUKE-700ILF | In-line Filter |

Pressure Calibration Kit

| Model | Description |
|--------------|--------------------------|
| FLUKE-700PCK | Pressure Calibration Kit |

Thermocouple Plug Kit

| Model | Description |
|--------------|--|
| FLUKE-700TC1 | TC Mini-Plug Kit, Types J,K,T,E,R/S,B/Cu,L,U,C,N |
| FLUKE-700TC2 | TC Mini-Plug Kit, Types J,K,T,E,R,S |