

**FLUKE**<sup>®</sup>

**Calibration**



**7526A Precision  
Process Calibrator**  
Extended specifications



# Specifications

## General Specifications

**Warm-up Time** ..... Twice the time since last warmed up, to a maximum of 30 minutes

**Settling Time** ..... Less than 5 seconds for all functions and ranges except as noted

**Standard Interfaces**..... 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

**Temperature Coefficient** ..... Temperature coefficient for temperatures outside tcal 5 °C is 10 % of the 90-day specification (or 1 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) maximum

Non-operating..... 12,200 m (40,000 ft) maximum

**Safety** ..... EN/IEC 61010-1:2010 3<sup>rd</sup> Edition, UL 61010-1:2012,

CAN/CSA 22.2 No. 61010-1-12

**EMC** ..... Complies with EN/IEC 61326-1:2006, EN 61326-2-1:2006

for controlled EM environments except when used in the following conditions:

- In electromagnetic fields from 0.08-2.7 GHz in excess of 1V/m.
- When subjected to electrostatic discharge (ESD) to the binding posts. Good static awareness practices should be followed when handling this product such as discharging any built up static charge to the product chassis prior to handling terminals or test connections.
- When the product is used with data I/O cables in excess of 3 m.

**Analog Low Isolation** ..... 20 V

### Line Power Line Voltage (selectable)

120 V~ ..... 100 V to 120 V

240 V~ ..... 220 V to 240 V

**Line Frequency** ..... 47 to 63 Hz

**Line Voltage Variation** ..... ±10 % about setting

**Power Consumption** ..... 15 VA maximum

### Dimensions

Height ..... 14.6 cm (5.75 inch)

Width ..... 44.5 cm (17.5 inch)

Depth ..... 29.8 cm (11.75 inch) overall

**Weight (without options)** ..... 4.24 kg (9.35 lb)

### DC Voltage Specifications, Output

Ranges <sup>[1]</sup>	Absolute Uncertainty, tcal ±5°C, ±(ppm of output +µV)				Stability 24 hours, ±1 °C ±(ppm of output +µV)	Resolution	Maximum Burden <sup>[2]</sup>
	90 Days		1 Year				
0 mV to 100.000 mV	25	3	30	3	5 ppm + 2 µV	1 µV	10 mA
0 V to 1.00000 V	25	10	30	10	4 ppm + 10 µV	10 µV	10 mA
0 V to 10.0000 V	25	100	30	100	4 ppm + 100 µV	100 µV	10 mA
0 V to 100.000 V	25	1 mV	30	1 mV	5 ppm + 1 mV	1 mV	1 mA
TC Output and Input							
-10 to 75.000 mV	25	2 µV	30	2 µV	5 ppm + 2 µV	1 µV	10 Ω
[1] All outputs are positive only, unless otherwise noted.							
[2] Remote sensing is not provided. Output resistance is < 1 Ω							

Ranges	Noise	
	Bandwidth 0.1 to 10 Hz p-p ±(ppm of output +µV)	Bandwidth 10 Hz to 10 kHz rms µV
0 mV to 100.000 mV	1 µV	6 µV
0 V to 1.00000 V	10 µV	60 µV
0 V to 10.0000 V	100 µV	600 µV
0 V to 100.000 V	10 ppm+1 mV	20 mV

### DC Voltage Specifications, Isolated Input

Ranges	Absolute Uncertainty, tcal ±5 °C, ±(ppm of reading + mV)		Resolution
0 V to 10.0000 V	50	0.2	100 µV
0 V to 100.000 V	50	2.0	1 mV

### DC Current Specifications, Output

Ranges <sup>[1]</sup>	Absolute Uncertainty, tcal ±5 °C, ±(ppm of output + µA)				Resolution	Maximum Compliance Voltage	Maximum Inductive Load
	90 Days		1 Year				
0 mA to 100.000 mA	40 <sup>[2]</sup>	1	50 <sup>[2]</sup>	1	1 µA	12 V	100 mH
[1] All outputs are positive only.							
[2] For line voltages less than 95 V (±100 ppm of reading)							

Ranges	Noise	
	Bandwidth 0.1 to 10 Hz p-p	Bandwidth 10 Hz to 10 kHz rms µV
0 mA to 100.000 mA	2000 nA	20 µA

### DC Current Specifications, Isolated Input

Ranges	Absolute Uncertainty, tcal ±5 °C, ±(ppm of reading + µA)		Resolution
0 mA to 50.0000 mA	100	1	0.1 µA
0 mA to 24.0000 mA (Loop Power) <sup>[1][2]</sup>	100	1	0.1 µA
[1] Loop Power: 24 V ±10 %			
[2] HART Resistor: 250 Ω ±3 %			

### Resistance Specifications, Output

Ranges	Absolute Uncertainty, tcal ±5 °C, ± Ohms		Resolution	Nominal Current <sup>[1]</sup>
	90 Days	1 Year		
5 Ω to 400.000 Ω	0.012	0.015	0.001 Ω	1 to 3 mA
5 Ω to 4.00000 kΩ	0.25	0.3	0.01 Ω	100 µA to 1 mA
[1] For currents lower than shown, the specification becomes New Spec. = Stated Spec. x Imin/Iactual. For example, a 500 µA stimulus that measures 100 Ω has a specification of: 0.015 Ω x 1 mA/500 µA=0.03 Ω				

**Resistance Specifications, Input**

Ranges	Absolute Uncertainty, tcal ±5 °C ±(ppm of reading + Ω)		Resolution	Stimulus Current
	90 Days	1 Year		
0 Ω to 400.000 Ω	±20 ppm + 0.0035 Ω	±20 ppm + 0.004 Ω	0.001 Ω	1 mA
0 kΩ to 4.00000 kΩ	±20 ppm + 0.035 Ω	±20 ppm + 0.04 Ω	0.01 Ω	0.1 mA

**Thermocouple Specification, Output and Input**

TC Type	Range (°C)		Absolute Uncertainty, tcal ±5 °C, ±(°C) <sup>[1]</sup>	
			Output/Input	
	Minimum	Maximum	90 days	1 Year
B	600 °C	800 °C	0.35 °C	0.35 °C
	800 °C	1550 °C	0.28 °C	0.28 °C
	1550 °C	1820 °C	0.21 °C	0.22 °C
C	0 °C	1000 °C	0.15 °C	0.16 °C
	1000 °C	1800 °C	0.22 °C	0.23 °C
	1800 °C	2000 °C	0.24 °C	0.26 °C
	2000 °C	2316 °C	0.32 °C	0.35 °C
E	-250 °C	-200 °C	0.24 °C	0.25 °C
	-200 °C	-100 °C	0.10 °C	0.12 °C
	-100 °C	0 °C	0.07 °C	0.09 °C
	0 °C	600 °C	0.06 °C	0.08 °C
	600 °C	1000 °C	0.08 °C	0.10 °C
J	-210 °C	-100 °C	0.13 °C	0.14 °C
	-100 °C	800 °C	0.07 °C	0.09 °C
	800 °C	1200 °C	0.08 °C	0.10 °C
K	-250 °C	-200 °C	0.45 °C	0.46 °C
	-200 °C	-100 °C	0.15 °C	0.16 °C
	-100 °C	500 °C	0.08 °C	0.10 °C
	500 °C	800 °C	0.09 °C	0.10 °C
	800 °C	1372 °C	0.11 °C	0.13 °C
L	-200 °C	-100 °C	0.08 °C	0.10 °C
	-100 °C	900 °C	0.07 °C	0.09 °C
N	-250 °C	-200 °C	0.72 °C	0.73 °C
	-200 °C	-100 °C	0.22 °C	0.23 °C
	-100 °C	0 °C	0.11 °C	0.12 °C
	0 °C	100 °C	0.09 °C	0.11 °C
	100 °C	800 °C	0.08 °C	0.10 °C
	800 °C	1300 °C	0.10 °C	0.12 °C
R	-50 °C	-25 °C	0.54 °C	0.55 °C
	-25 °C	0 °C	0.44 °C	0.45 °C
	0 °C	100 °C	0.38 °C	0.39 °C
	100 °C	400 °C	0.27 °C	0.28 °C
	400 °C	600 °C	0.21 °C	0.22 °C
	600 °C	1000 °C	0.19 °C	0.21 °C
	1000 °C	1600 °C	0.18 °C	0.19 °C
	1600 °C	1767 °C	0.21 °C	0.23 °C

S	-50 °C	-25 °C	0.51 °C	0.51 °C
	-25 °C	0 °C	0.43 °C	0.43 °C
	0 °C	100 °C	0.37 °C	0.38 °C
	100 °C	400 °C	0.28 °C	0.29 °C
	400 °C	600 °C	0.22 °C	0.23 °C
	600 °C	1000 °C	0.21 °C	0.22 °C
	1000 °C	1600 °C	0.20 °C	0.22 °C
T	1600 °C	1767 °C	0.24 °C	0.26 °C
	-250 °C	-200 °C	0.34 °C	0.35 °C
	-200 °C	-100 °C	0.14 °C	0.16 °C
	-100 °C	0 °C	0.09 °C	0.11 °C
	0 °C	200 °C	0.07 °C	0.09 °C
U	200 °C	400 °C	0.06 °C	0.09 °C
	-200 °C	0 °C	0.15 °C	0.16 °C
	0 °C	200 °C	0.08 °C	0.10 °C
XK	200 °C	600 °C	0.07 °C	0.10 °C
	-200 °C	-100 °C	0.10 °C	0.11 °C
	-100 °C	0 °C	0.07 °C	0.09 °C
	0 °C	600 °C	0.06 °C	0.08 °C
BP	600 °C	800 °C	0.07 °C	0.09 °C
	0 °C	200 °C	0.17 °C	0.18 °C
	200 °C	600 °C	0.14 °C	0.16 °C
	600 °C	800 °C	0.15 °C	0.17 °C
	800 °C	1600 °C	0.22 °C	0.23 °C
	1600 °C	2000 °C	0.26 °C	0.28 °C
2000 °C	2500 °C	0.38 °C	0.40 °C	

[1] Does not include thermocouple wire error.

Type B, E, J, K, N, R, S and T are based on ITS-90

Type L and U are based on DIN 43710-1985

Type C is based on ASTM standard E 988-96

Type XK and BP are based on GOST R 8.585-2001

### RTD and Thermistor Specification, Output

RTD Types	Range °C		Absolute Uncertainty, tcal ±5 °C ±[°C] <sup>[1]</sup>	
	Minimum	Maximum	90 Days	1 Year
Pt 385, 100 Ω	-200 °C	800 °C	0.04 °C	0.05 °C
Pt 3926, 100 Ω	-200 °C	630 °C	0.04 °C	0.05 °C
Pt 3916, 100 Ω	-200 °C	630 °C	0.04 °C	0.05 °C
Pt 385, 200 Ω	-200 °C	400 °C	0.35 °C	0.40 °C
	400 °C	630 °C	0.42 °C	0.50 °C
Pt 385, 500 Ω	-200 °C	630 °C	0.15 °C	0.17 °C
Pt 385, 1000 Ω	-200 °C	630 °C	0.07 °C	0.09 °C
Ni 120, 120 Ω	-80 °C	260 °C	0.02 °C	0.02 °C
Cu 427, 10 Ω <sup>[2]</sup>	-100 °C	260 °C	0.30 °C	0.38 °C
YSI 400	15 °C	50 °C	0.005 °C	0.007 °C

[1] 2-wire output

[2] Based on MINCO Application Aid No. 18

**RTD and Thermistor Specification, Input**

RTD Type	Range (°C)		Absolute Uncertainty, tcal ±5 °C, ±(°C) <sup>[1]</sup>	
	Minimum	Maximum	Output/Input	
			90 Days	1 Year
Pt 385, 100 Ω	-200 °C -80 °C 100 °C 300 °C 400 °C 630 °C	-80 °C 100 °C 300 °C 400 °C 630 °C 800 °C	0.012 °C 0.018 °C 0.022 °C 0.025 °C 0.031 °C 0.037 °C	0.013 °C 0.020 °C 0.024 °C 0.026 °C 0.033 °C 0.038 °C
Pt 3926, 100 Ω	-200 °C -80 °C 0 °C 100 °C 300 °C 400 °C	-80 °C 0 °C 100 °C 300 °C 400 °C 630 °C	0.012 °C 0.014 °C 0.016 °C 0.022 °C 0.022 °C 0.024 °C	0.013 °C 0.015 °C 0.017 °C 0.022 °C 0.026 °C 0.032 °C
Pt 3916, 100 Ω	-200 °C -190 °C -80 °C 0 °C 100 °C 300 °C 400 °C 600 °C	-190 °C -80 °C 0 °C 100 °C 300 °C 400 °C 600 °C 630 °C	0.009 °C 0.012 °C 0.014 °C 0.016 °C 0.021 °C 0.024 °C 0.030 °C 0.031 °C	0.010 °C 0.013 °C 0.015 °C 0.017 °C 0.022 °C 0.026 °C 0.031 °C 0.033 °C
Pt 385, 200 Ω	-200 °C -80 °C 0 °C 100 °C 260 °C 300 °C 400 °C	-80 °C 0 °C 100 °C 260 °C 300 °C 400 °C 630 °C	0.047 °C 0.050 °C 0.053 °C 0.054 °C 0.062 °C 0.064 °C 0.079 °C	0.053 °C 0.056 °C 0.060 °C 0.060 °C 0.069 °C 0.071 °C 0.088 °C
Pt 385, 500 Ω	-200 °C 0 °C 100 °C 300 °C 400 °C	0 °C 100 °C 300 °C 400 °C 630 °C	0.023 °C 0.026 °C 0.031 °C 0.035 °C 0.041 °C	0.025 °C 0.028 °C 0.034 °C 0.038 °C 0.045 °C
Pt 385, 1000 Ω	-200 °C 0 °C 100 °C 300 °C 400 °C	0 °C 100 °C 300 °C 400 °C 630 °C	0.014 °C 0.017 °C 0.022 °C 0.024 °C 0.031 °C	0.015 °C 0.018 °C 0.024 °C 0.026 °C 0.033 °C
Ni 120, 120 Ω	-80 °C	260 °C	0.008 °C	0.009 °C
Cu 427, 10 Ω <sup>[2]</sup>	-100 °C	260 °C	0.097 °C	0.110 °C
YSI 400	15 °C	50 °C	0.005 °C	0.007 °C
SPRT	-200 °C	660 °C	0.05 °C	0.06 °C

[1] 4-wire mode. Uncertainties shown do not include probe uncertainties.

[2] Based on MINCO Application Aid No. 18.



### Pressure Measurement Specifications

The Calibrator can accept the Fluke 700 or 525A-P Series pressure modules. Pressure modules connect directly into the front panel Lemo connector with the Calibrator firmware auto-detecting the type and value of the module you connect.

Range	Accuracy and Resolution	Units
Determined by the pressure module	Determined by the pressure module	PSI (pounds per square inch)
		in H2O 4 °C (inches of water at 4 degrees Celsius)
		in H2O 20 °C (inches of water at 20 degrees Celsius)
		in H2O 60 °C (inches of water at 60 degrees Fahrenheit)
		cm H2O 4 °C (centimeters of water at 4 degrees Celsius)
		cm H2O 20 °C (centimeters of water at 20 degrees Celsius)
		mm H2O 4 °C (millimeters of water at 4 degrees Celsius)
		mm H2O 20 °C (millimeters of water at 20 degrees Celsius)
		BAR (bars)
		mBAR (millibars)
		kPa (kilopascals)
		MPa (megapascals)
		in HG 0 °C (inches of mercury at 0 degrees Celsius)
		mm HG 0 °C (millimeters of mercury at 0 degrees Celsius)
		kg/cm2 (kilograms per square centimeter)

### Switch Test Specifications, Isolated Input

Contact Closure Resistance	<1 kΩ
Excitation Current	27 mA Max

## Ordering Information

<b>7526A Precision Process Calibrator</b>	
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

<b>Recommended Accessories</b>	
Model	Description
Y7526A	Rack Mount Kit
7526A-CASE	Carrying Case
5520A-525A/LEADS	Thermocouple and Test Leads Set

<b>Fluke 525A Series Pressure Modules</b>		
Type	Model	Range
Differential	525A-P02	1 psi (6900 Pa)
Gage	525A-P03	5 psi (34 kPa)
	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)

<b>Fluke 700 Series Pressure Modules</b>			
Type	Model	Range	
Differential	FLUKE-700P00	1 in. H <sub>2</sub> O (0.25 kPa)	
	FLUKE-700P01	10 in. H <sub>2</sub> 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)	
	FLUKE-700P24	15 psi (103 kPa)	
	Gage	FLUKE-700P05	30 psi (207 kPa)
		FLUKE-700P06	100 psi (690 kPa)
FLUKE-700P27		300 psi (2070 kPa)	
FLUKE-700P07		500 psi (3400 kPa)	
FLUKE-700P08		1000 psi (6900 kPa)	
FLUKE-700P09		1500 psi (10 Mpa)	
Absolute	FLUKE-700PA3	5 psi (34 kPa)	
	FLUKE-700PA4	15 psi (103 kPa)	
	FLUKE-700PA5	30 psi (207 kPa)	
	FLUKE-700PA6	100 psi (690 kPa)	
Vacuum	FLUKE-700PV3	-5 psi (-34 kPa)	
	FLUKE-700PV4	-15 psi (-103 kPa)	
Dual	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)	

<b>Fluke 700 Series Pressure Modules (continued)</b>		
Type	Model	Range
Dual	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)

<b>Pumps and Accessories</b>	
Model	Description
FLUKE-700PTP-1	Pneumatic Test Pump
FLUKE-700LTP-1	Low-pressure Test Pump
FLUKE-700PRV-1	Pressure Relief Valve Kit

<b>Comparison Test Pumps</b>	
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)

<b>Hydraulic Test Pump</b>	
Model	Description
FLUKE-700HHT-1	Hydraulic Test Hose
FLUKE-700HTP-2	Hydraulic Test Pump, 10 000 PSI (690 bar)

<b>700 PMP Pressure Pump</b>	
Model	Description
Fluke-71X	Hose Kit Accessory
FLUKE-700ILF	In-line Filter

<b>Pressure Calibration Kit</b>	
Model	Description
FLUKE-700PCK	Pressure Calibration Kit

<b>Thermocouple Plug Kit</b>	
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

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

Electrical	RF	Temperature	Pressure	Flow	Software
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