FLUKE®

Fluke 740 Series Documenting Process Calibrators: Ready for anything

Technical Data

Whether you're calibrating instruments, troubleshooting a problem or running routine maintenance, Fluke 740 Series process calibrators can help you get the job done faster. It does so many different tasks, so quickly and so well, it's the only process calibrator you need to carry.

- **Multifunctional.** Calibrate temperature, pressure, voltage, current, resistance, and frequency. Since it both measures and sources, you can troubleshoot and calibrate all with one rugged tool.
- **Powerful, yet easy to use.** The easy-to-follow, menu-driven display guides you through any task. Programmable calibration routines enable you to create and run automated as-found/as-left procedures to ensure fast, consistent, calibrations.
- **Records and documents results.** To support your ISO-9000 or regulatory standards, the Fluke 741B, 743B, and 744 capture your calibration results, eliminating the need to juggle a pen and pad in the field. The RS-232 interface in the Fluke 743B and 744 lets you transfer the results to a PC, thus saving the time of having to manually transcribe them when you return to the shop.
- **Supports popular instrumentation management software.** The 743B and 744 work with the Fluke DPC/TRACK™ software, and with popular programs from Honeywell Loveland, Cornerstone, Yokogawa, Prime Tech-nologies, On-Time Support, and others. It allows you to create procedures, instructions, and action lists to deliver fast, easy documentation.
- **Truly hand-held.** Small enough to fit easily into a tool bag and to use in tight spaces. Runs an entire shift on a rechargeable NiCd or NiMH battery pack.
- **Rugged and reliable.** Overmolded urethane case stands up to rough handling in industrial environments. Calibrators offer one- or two-year calibration cycles and three-year warranty.
- **Bright white display** lets you read your results in any kind of light.
- **Soft keys** provide one-touch access to enhanced functions such as task lists, automated procedures, scaling, min/max, stepping and ramping, and review memory.
- **Three operating modes** Measure, Source, or simultaneous Measure/Source, — enable technicians to troubleshoot, calibrate, or maintain instrumentation with just one tool.
- **Integrated HART communication capability** lets you program and control HART instrumentation (744 only).
- **Multi-lingual interface** displays instructions in English, French, German, Spanish, and Italian.
- **AutoStep** allows technicians to set the calibrator for a delayed start and a specific sequence of steps, so it can run unattended as a continuously varying test source.
- **User entered values** enable users to capture readings measured or sourced by other devices.
- **Custom units** allow readings to be scaled and displayed in any user-defined units.
- **Limit switch calibration procedures** perform fast, automated calibration of one- and two-point limit switches for voltage, current, temperature, and pressure.
- **Differential pressure flow instrument calibration** routines use a square root function to directly calibrate DP flow instruments.

- **Built-in algebraic calculator** with four functions—plus square root—stores, recalls, and performs calculations required for setting up instruments or evaluating data in the field. Use it to set the source function to a calculated value. There's no need to carry a pencil and paper or a separate calculator.
- **Programmable measurement delay** inside automated procedures permits calibrating instruments that respond slowly.

WE'VE GOT HART ABILITY

Two bonus features available with product registration:
- **Transmitter mode**
- **Bar code entry (except 741B)**

740 Series

The Fluke 740 Calibrators, offered in three models, let you choose the right set of capabilities for your needs.

- The **Fluke 741B** offers simultaneous source and measure capabilities for all common process parameters. Create and execute automated procedures and automatically capture the results.
- The **Fluke 743B** offers all the capability of the 741B, plus adds a serial interface for two-way communication with popular PC-based instrumentation management applications.
- The **Fluke 744** offers all of the capabilities of the 743B, plus the ability to maintain and calibrate selected HART transmitters without a second tool.

Capability	741B	743B	744
Source / Measure	•	•	•
Automated procedures	•	•	•
Results capture	•	•	•
Uses all Fluke pressure modules	•	•	•
Transmitter mode	•	•	•
Bar code entry		•	•
Serial interface		•	•
Data logging		•	•
HART communications			•
Pulsed RTD simulation to 1 ms	•	•	•
NiMH battery with "Gas Gauge"			•

744 upgrades available

Fluke periodically releases new internal software for the Fluke 744. These upgrades include:

- New revisions of previously supported instruments.
- Device-specific command support for new instruments.
- New HART communication capability.

The upgrade can be easily loaded from a PC to a 744.

What's new in Version 2.5

- **Device-specific calibration support for new instruments:**
  - Micro Motion 2000, 2000 IS, 9701, 9712 and 9739 coriolis flow transmitters
  - Fuji FCX and FCXA2 pressure and FRC temperature transmitter
- **New features:**
  - Support for New Hart Scientific dry blocks: 7103, 9007, 9011, 9023, 9103, 9105, 9107, 9122, 9127, 9132, 9133 and 9150
  - Enhanced dry block delay setting for temperature switch testing
  - Switch test without reset

The first field calibrator for HART instruments that's both powerful and easy to use.

The 744 offers the most complete HART implementation of any process calibrator. The 744:

- Requires no external box or second tool for everyday HART calibration and maintenance.
- Offers fast HART communication.
- Supports popular models of HART transmitters, with more device-specific command support than any other HART field calibrator.
- Fully complies with the Data Link Layer of the HART protocol, including multiple masters, burst mode, and multi-drop configurations.
- Is easy to update as additional instruments are added and new HART versions are released.
- Is based on the 743B, the most rugged, reliable multifunction field calibrator available.
- Is backed by the service and support of the Fluke organization, a member of the HART Communications Foundation.

Manufacturer	Pressure Instruments	Temperature Instruments	Coriolis Instrument
ABB/Kent-Taylor	600T	658T[1]	
ABB/ Hartmann & Braun	Contrans P,[1] AS 800 Series		
Endress & Hauser	CERABAR S, CERABAR M, DELTABAR S	TMT 122[1], TMT 182[1], TMT 162[1]	
Foxboro Eckardt		TI/RTT20[1]	
Foxboro/Invensys	I/A Pressure		
Fuji	FCX, FCXAZ	FRC	
Honeywell	ST3000	STT25T[1], STT25H[1]	
Micro Motion			2000, 2000 IS, 9701, 9712, 9739
Moore Products		344[1]	
Rosemount	1151 2088 3001C 3051, 3051S	3044C 644 3144 3244, 3144P	
Siemens	SITRANS P DS SITRANS P ES		
SMAR	LD301	TT301[1]	
Viatran	I/A Pressure		
Wika	UNITRANS	T32H[1]	
Yokogawa	EJA	YTA 110, 310 and 320	

[1]Sensor Trim not supported

Technical Specifications

Measurement Function

DC voltage measurement

Range (full scale)	Accuracy (% of reading + % of full scale)	
	1 year	2 years
110.000 mV	0.025% + 0.015%	0.05% + 0.015%
1.10000 V	0.025% + 0.005%	0.05% + 0.005%
11.0000 V	0.025% + 0.005%	0.05% + 0.005%
110.000 V	0.05% + 0.005%	0.1% + 0.005%
300.00 V	0.05% + 0.005%	0.1% + 0.005%

Temperature coefficient: (0.001% reading + 0.0015% f.s.)/°C from –10 °C to 18 °C and 28 °C to 50 °C
Input impedance: 5 MΩ
Common mode error: 0.008% f.s./(Common Mode Volt)
Maximum input voltage: 300 V rms

AC voltage measurement

Frequency range	Accuracy (% of reading + counts)	
	1 year	2 years
20 to 40 Hz	2% + 10	2% + 10
40 to 500 Hz	0.5% + 5	0.5% + 5
500 Hz to 1 kHz	2% + 10	2% + 10
1 to 5 kHz	10% + 20	10% + 20

Ranges: 1.1000, 11.000, 110.00, 300.0 V
Specifications apply for 10% to 100% of range
Input impedance: 5 MΩ and <100 pF
Input coupling: AC only
Temperature coefficient:
10% of spec/°C from –10 °C to 18 °C and 28 °C to 50 °C
Maximum input voltage: 300 V rms
Minimum input voltage: 0.5 V above 1 kHz

DC current measurement

Range (full scale)	Accuracy (% of reading + % of full scale)	
	1 year	2 years
30.000 mA	0.01% + 0.015%	0.02% + 0.015%
110.00 mA	0.01% + 0.015%	0.02% + 0.015%

Temperature coefficient: (0.001% reading + 0.002% f.s.)/°C from –10 °C to 18 °C and 28 °C to 50 °C
Common mode error: 0.01% f.s./(Common Mode Volt)
Maximum input voltage: 30 V dc

Resistance measurement

Range (full scale)	Accuracy (% of reading + ohms)	
	1 year	2 years
11.000 Ω	0.05% + 50 mΩ	0.075% + 50 mΩ
110.00 Ω	0.05% + 50 mΩ	0.075% + 50 mΩ
1.1000 kΩ	0.05% + 0.5 Ω	0.075% + 0.5 Ω
11.000 kΩ	0.1% + 10 Ω	0.1% + 10 Ω

Temperature coefficient: (0.01% f.s. + 2 mΩ)/°C from –10 °C to 18 °C and 28 °C to 50 °C
Common mode error: 0.005% f.s./(Common Mode Volt)
Maximum input voltage: 30 V dc
Continuity: Continuous tone <25 Ω, No tone >400 Ω

Frequency measurement

Range	Accuracy	
	1 year	2 years
1.00 to 109.99 Hz	0.05 Hz	0.05 Hz
110.0 to 1099.9 Hz	0.5 Hz	0.5 Hz
1.100 to 10.999 kHz	0.005 kHz	0.005 kHz
11.00 to 50.00 kHz	0.05 kHz	0.05 kHz

For frequencies <109.99 Hz, specification applies for signals with slew rates >5 V/ms
Minimum amplitude for Hz measurement: (Squarewaves) 1 Hz to 1 kHz, 300 mV p-p; 1 kHz to 30 kHz, 1.4 V p-p; >30 kHz, 2.8 V p-p
Maximum input: 1 Hz to 1 kHz, 300 V rms; >1 kHz, 30 V rms
Input impedance: 5 MΩ

Sourcing (Simulation) Function

DC voltage output

Range (full scale)	Accuracy (% of output + % of full scale)	
	1 year	2 years
110.000 mV	0.01% + 0.005%	0.015% + 0.005%
1.10000 V	0.01% + 0.005%	0.015% + 0.005%
15.0000 V	0.01% + 0.005%	0.015% + 0.005%

Temperature coefficient: (0.001% output + 0.001% f.s.)/°C from –10 °C to 18 °C and 28 °C to 50 °C
Maximum output current: 10 mA
Loading: (0.001% f.s. +1 µV)/mA
Common mode error: 0.008% f.s./(Common Mode Volt)
Maximum input voltage: 30 V dc

DC current output

Range (full scale)	Accuracy (% of output + % of full scale)	
	1 year	2 years
22.000 mA	0.01% + 0.015%	0.02% + 0.015%
Current sink (simulate transmitter)	0.02% + 0.03%	0.02% + 0.03%

Specification applies from 2 to 22 mA; below 2 mA typical accuracy is 0.15% of full scale
Maximum burden voltage: 24 V
Temperature coefficient: (0.003% output + 0.003% f.s.)/°C from –10 °C to 18 °C and 28 °C to 50 °C
Common mode error: 0.008% f.s./(Common Mode Volt)
Maximum input voltage: 30 V dc

Resistance sourcing

Range (full scale)	Accuracy (% of output + ohms)	
	1 year	2 years
11.000 Ω	0.01% + 20 mΩ	0.02% + 20 mΩ
110.00 Ω	0.01% + 40 mΩ	0.02% + 40 mΩ
1.1000 kΩ	0.02% + 0.5 Ω	0.03% + 0.5 Ω
11.000 kΩ	0.03% + 5 Ω	0.04% + 5 Ω

Temperature coefficient: 0.01% f.s./°C from –10 °C to 18 °C and 28 °C to 50 °C
Maximum and minimum current through source resistance:

	Maximum	Minimum
11 Ω range:	3 mA dc	0.1 mA dc
110 Ω range:	3 mA dc	0.1 mA dc
1.1 kΩ range:	3 mA dc	0.01 mA dc
11 kΩ range:	1 mA dc	0.01 mA dc

Common mode error: 0.008% f.s./(Common Mode Volt)
Maximum input voltage: 30 V dc

Frequency sourcing

Range	Accuracy	
	1 year	2 years
0.00 to 10.99 Hz	0.01 Hz	0.01 Hz
11.00 to 109.99 Hz	0.1 Hz	0.1 Hz
110.0 to 1099.9 Hz	0.1 Hz	0.1 Hz
1.100 to 21.999 kHz	0.002 kHz	0.002 kHz
22.000 to 50.000 kHz	0.005 kHz	0.005 kHz

Waveforms: Squarewave w/50% duty cycle, sinewave
Amplitude: 0.1 to 10 V p-p
Amplitude accuracy: 3% of output + 0.5% of f.s., 1 to 1099 Hz; 10% of output + 0.5% of f.s., 1.1 to 10.9 kHz; 30% of output + 0.5% f.s., 11 to 50 kHz
Maximum input voltage: 30 V dc

Temperature Measurement and Simulation

Temperature, RTDs

	Accuracy			
	Measure		Source	
Type and range	1 year	2 years	1 year	2 years
10 Ω Cu (427)				
–100 to 0 °C	2 °C	2 °C	1 °C	1 °C
0 to 260 °C	2 °C	2 °C	1 °C	1 °C
100 Ω Pt (3916)				
–200 to –190 °C	0.3 °C	0.4 °C	0.3 °C	0.4 °C
–190 to 0 °C	0.3 °C	0.4 °C	0.1 °C	0.2 °C
0 to 630 °C	0.5 °C	0.8 °C	0.2 °C	0.4 °C
100 Ω Pt (3926)				
–200 to 0 °C	0.3 °C	0.4 °C	0.1 °C	0.2 °C
0 to 630 °C	0.5 °C	0.8 °C	0.2 °C	0.4 °C
100 Ω Pt (385)				
–200 to 0 °C	0.3 °C	0.5 °C	0.1 °C	0.2 °C
0 to 400 °C	0.5 °C	0.8 °C	0.2 °C	0.4 °C
400 to 800 °C	0.8 °C	1.0 °C	0.4 °C	0.5 °C
200 Ω Pt (385)				
–200 to 0 °C	0.3 °C	0.5 °C	0.1 °C	0.2 °C
0 to 400 °C	0.5 °C	0.8 °C	0.2 °C	0.4 °C
400 to 630 °C	0.8 °C	1.0 °C	0.4 °C	0.5 °C
500 Ω Pt (385)				
–200 to 0 °C	0.3 °C	0.5 °C	0.1 °C	0.2 °C
0 to 400 °C	0.5 °C	0.8 °C	0.2 °C	0.4 °C
400 to 630 °C	0.8 °C	1.0 °C	0.4 °C	0.5 °C
1000 Ω Pt (385)				
–200 to 0 °C	0.3 °C	0.5 °C	0.1 °C	0.2 °C
0 to 400 °C	0.5 °C	0.8 °C	0.2 °C	0.4 °C
400 to 630 °C	0.8 °C	1.0 °C	0.4 °C	0.5 °C
120 Ω Ni (672)				
–80 to 260 °C	0.3 °C	0.4 °C	0.1 °C	0.2 °C

For 2-wire and 3-wire measurements add 0.4 °C
Sensor inaccuracies not included

Resolution: 0.1 °C, except 1 °C for 10 Ω Cu
Temperature coefficient: 0.02 °C/°C from –10 °C to 18 °C and 28 °C to 50 °C
Maximum input voltage: 30 V dc
Maximum input current for RTD Source function:

10 Ω RTD	8 mA dc
100, 120 Ω RTDs	8 mA dc*
200, 500, 1000 Ω RTDs	1 mA dc

741B*, 743B*, 744: Addresses pulsed transmitters and PLCs with pulses as short as 1 ms

* For 741B serial number 7935XXXX and greater.
For 743B serial number 7940XXXX and greater.
Otherwise, 3 mA and 100 ms.

How to compare calibrators based on specifications.

Analyzing specifications can be complex. To get a true picture of calibrator performance, you should be aware of the key components of a specification and how to interpret them. Specifications must be carefully considered when comparing calibrators from different vendors. The most important components of a process calibrator specification are:

- Reference uncertainty. Performance of a calibrator at 23 °C ± 3°C at the time it is verified by the manufacturer. This specification does not include the effects of time and temperature, two of the largest components of calibrator error.
- Time. Fluke 740 Series calibrators are delivered with both one-year and two-year specs, to limit your calibration support costs. You choose your cal interval based upon the performance you need.
- Temperature. Fluke process calibrator specs reflect performance from 18 ° to 28 °C. Compensation factors are provided to permit specified use of the calibrators over a wide –10 ° to 50 °C range.
- Allowance for traceability. Fluke specs are not relative specs, but total specs, including an allowance for uncertainty of standards that provide traceability to national standards.
- Confidence level. Fluke uses a conservative 95% confidence level when setting specifications, increasing your confidence that your calibrator will remain in spec for its stated calibration interval.

For more information, refer to the application note "Understanding Specifications For Process Calibrators", downloadable from the Fluke website **www.fluke.com** (choose your region)

Temperature, Thermocouples

	Accuracy			
	Measure		Source	
Type and range	1 year	2 years	1 year	2 years
E				
–250 to –200 °C	1.3 °C	2.0 °C	0.6 °C	0.9 °C
–200 to –100 °C	0.5 °C	0.8 °C	0.3 °C	0.4 °C
–100 to 600 °C	0.3 °C	0.4 °C	0.3 °C	0.4 °C
600 to 1000 °C	0.4 °C	0.6 °C	0.2 °C	0.3 °C
N				
–200 to –100 °C	1.0 °C	1.5 °C	0.6 °C	0.9 °C
–100 to 900 °C	0.5 °C	0.8 °C	0.5 °C	0.8 °C
900 to 1300 °C	0.6 °C	0.9 °C	0.3 °C	0.4 °C
J				
–210 to –100 °C	0.6 °C	0.9 °C	0.3 °C	0.4 °C
–100 to 800 °C	0.3 °C	0.4 °C	0.2 °C	0.3 °C
800 to 1200 °C	0.5 °C	0.8 °C	0.2 °C	0.3 °C
L				
–200 to –100 °C	0.6 °C	0.9 °C	0.3 °C	0.4 °C
–100 to 800 °C	0.3 °C	0.4 °C	0.2 °C	0.3 °C
800 to 900 °C	0.5 °C	0.8 °C	0.2 °C	0.3 °C
K				
–200 to –100 °C	0.7 °C	1.0 °C	0.4 °C	0.6 °C
–100 to 400 °C	0.3 °C	0.4 °C	0.3 °C	0.4 °C
400 to 1200 °C	0.5 °C	0.8 °C	0.3 °C	0.4 °C
1200 to 1372 °C	0.7 °C	1.0 °C	0.3 °C	0.4 °C
T				
–250 to –200 °C	1.7 °C	2.5 °C	0.9 °C	1.4 °C
–200 to 0 °C	0.6 °C	0.9 °C	0.4 °C	0.6 °C
0 to 400 °C	0.3 °C	0.4 °C	0.3 °C	0.4 °C
U				
–200 to 0 °C	0.6 °C	0.9 °C	0.4 °C	0.6 °C
0 to 600 °C	0.3 °C	0.4 °C	0.3 °C	0.4 °C
B				
600 to 800 °C	1.3 °C	2.0 °C	1.0 °C	1.5 °C
800 to 1000 °C	1.0 °C	1.5 °C	0.8 °C	1.2 °C
1000 to 1820 °C	0.9 °C	1.3 °C	0.8 °C	1.2 °C
R				
–20 to 0 °C	2.3 °C	2.8 °C	1.2 °C	1.8 °C
0 to 100 °C	1.5 °C	2.2 °C	1.1 °C	1.7 °C
100 to 1767 °C	1.0 °C	1.5 °C	0.9 °C	1.4 °C
S				
–20 to 0 °C	2.3 °C	2.8 °C	1.2 °C	1.8 °C
0 to 200 °C	1.5 °C	2.1 °C	1.1 °C	1.7 °C
200 to 1400 °C	0.9 °C	1.4 °C	0.9 °C	1.4 °C
1400 to 1767 °C	1.1 °C	1.7 °C	1.0 °C	1.5 °C
C				
0 to 800 °C	0.6 °C	0.9 °C	0.6 °C	0.9 °C
800 to 1200 °C	0.8 °C	1.2 °C	0.7 °C	1.0 °C
1200 to 1800 °C	1.1 °C	1.6 °C	0.9 °C	1.4 °C
1800 to 2316 °C	2.0 °C	3.0 °C	1.3 °C	2.0 °C

Sensor inaccuracies not included
Accuracy with external cold junction; for internal junction add 0.2 °C
Resolution: 0.1 °C
Temperature scale: ITS-90 or IPTS-68, selectable
Compensation: ITS-90 per NIST Monograph 175 for E, N, J, K, T, B, R, S thermocouples; IPTS-68 per IEC 584-1 for E, J, K, T, B, R, S thermocouples; IPTS-68 per DIN 43710 for L, U thermocouples
Temperature coefficient: 0.05 °C/°C from –10 °C to 18 °C and 28 °C to 50 °C
Common mode error: 0.01 °C/(Common Mode Volt)
Maximum input voltage: 30 V dc

Note: When simulating temperature in As Found/As Left procedures, steps may be either linear by temperature or linear by mV potential.

Fluke 700 Pressure Modules

The Fluke family of 29 pressure modules:

Covers virtually any pressure application including gage, differential, dual (compound), absolute, and vacuum.

- Display pressure readings in any of 10 different pressure units you specify in the calibrator setup.
- Rugged urethane molded cases protect the modules from rough handling and harsh conditions.
- Features internal temperature compensation from 0° to 50 °C for full–accuracy performance.
- Includes NIST–traceable calibration certificate.
- Modules can be calibrated locally, helping to control costs.

Pressure module specifications (all specifications in % of full span. Specifications reflect a confidence interval of 95%.)

Model	Range/ Resolution	Range (approx)/ Resolution	Reference uncertainty (23 ± 3 °C)	Stability (1 year)	Temperature (0 to 50 °C)	Total[1] uncertainty	High[2] side media	Low[2] side media	Fitting material	Max over-pressure (x nominal)
Differential										
FLUKE-700P00	1 in. H_2O/0.001	0.25 kPa/0.0002	0.300	0.025	0.025	0.350	Dry	Dry	316 SS	30x
FLUKE-700P01	10 in. H_2O/0.01	2.5 kPa/0.002	0.200	0.050	0.050	0.300	Dry	Dry	316 SS	3x
FLUKE-700P02	1 psi/0.0001	6900 Pa/0.7	0.150	0.070	0.080	0.300	Dry	Dry	316 SS	3x
FLUKE-700P22	1 psi/0.0001	6900 Pa/0.7	0.100	0.020	0.030	0.150	316 SS	Dry	316 SS	3x
FLUKE-700P03	5 psi/0.0001	34 kPa/0.001	0.050	0.020	0.030	0.100	Dry	Dry	316 SS	3x
FLUKE-700P23	5 psi/0.0001	34 kPa/0.001	0.025	0.010	0.015	0.050	316 SS	Dry	316 SS	3x
FLUKE-700P04	15 psi/0.001	103 kPa/0.01	0.025	0.010	0.015	0.050	Dry	Dry	316 SS	3x
FLUKE-700P24	15 psi/0.001	103 kPa/0.01	0.025	0.010	0.015	0.050	316 SS	Dry	316 SS	3x
Gage										
FLUKE-700P05	30 psi/0.001	207 kPa/0.01	0.025	0.010	0.015	0.050	316 SS	N/A	316 SS	3x
FLUKE-700P06	100 psi/0.01	690 kPa/0.07	0.025	0.010	0.015	0.050	316 SS	N/A	316 SS	3x
FLUKE-700P27	300 psi / 0.01	2070 kPa / 0.1	0.025	0.010	0.015	0.050	316 SS	N/A	316 SS	3x
FLUKE-700P07	500 psi/0.01	3400 kPa/0.1	0.025	0.010	0.015	0.050	316 SS	N/A	316 SS	3x
FLUKE-700P08	1000 psi/0.1	6900 kPa/0.7	0.025	0.010	0.015	0.050	316 SS	N/A	316 SS	3x
FLUKE-700P09	1500 psi/0.1	10 MPa/0.001	0.025	0.010	0.015	0.050	316 SS	N/A	316 SS	2x
Absolute (not compatible with Fluke 701 or 702)										
FLUKE-700PA3	5 psi/0.0001	34 kPa/0.001	0.050	0.010	0.010	0.070	316 SS	N/A	316 SS	3x
FLUKE-700PA4	15 psi/0.001	103 kPa/0.01	0.050	0.010	0.010	0.070	316 SS	N/A	316 SS	3x
FLUKE-700PA5	30 psi/0.001	207 kPa/0.01	0.050	0.010	0.010	0.070	316 SS	N/A	316 SS	3x
FLUKE-700PA6	100 psi/0.01	690 kPa/0.07	0.050	0.010	0.010	0.070	316 SS	N/A	316 SS	3x
Vacuum (not compatible with Fluke 701 or 702)										
FLUKE-700PV3	–5 psi/0.0001	–34 kPa/0.001	0.040	0.015	0.015	0.070	316 SS	Dry	316 SS	3x
FLUKE-700PV4	–15 psi/0.001	–103 kPa/0.01	0.040	0.015	0.015	0.070	316 SS	Dry	316 SS	3x
Dual										
FLUKE-700PD2	±1 psi/0.0001	±6900 Pa/0.7	0.150	0.025	0.025	0.200	316 SS	Dry	316 SS	3x
FLUKE-700PD3	±5 psi/0.0001	±34 kPa/0.001	0.040	0.015	0.015	0.070	316 SS	Dry	316 SS	3x
FLUKE-700PD4	±15 psi/0.001	±103 kPa/0.01	0.025	0.010	0.015	0.050	316 SS	Dry	316 SS	3x
FLUKE-700PD5	–15/30 psi/0.001	–100/207 kPa/0.01	0.025	0.010	0.015	0.050	316 SS	N/A	316 SS	3x
FLUKE-700PD6	–15/100 psi/0.01	–100/690 kPa/0.07	0.025	0.010	0.015	0.050	316 SS	N/A	316 SS	3x
FLUKE-700PD7	–15/200 psi/0.01	–100/1380 kPa/0.1	0.040	0.015	0.015	0.070	316 SS	N/A	316 SS	3x
High										
FLUKE-700P29	3000 psi/0.1	20.7 M Pa/0.001	0.050	0.010	0.020	0.080	C276	N/A	C276	2x
FLUKE-700P30	5000 psi/0.1	34 M Pa/0.001	0.050	0.010	0.020	0.080	C276	N/A	C276	2x
FLUKE-700P31	10000 psi/1	69 M Pa/0.007	0.050	0.010	0.020	0.080	C276	N/A	C276	1.5x

[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 P00 module only, compensated temperature range is 15 ° to 35 °C.

[2] "Dry" indicates dry air or non–corrosive gas as compatible media. "316 SS" 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. Maximum overpressure specification includes common mode pressure. Modules are CE rated. Metric adapter(s): 1/4" NPT female to male BSP/ISO 1/4–19, tapered thread, included with all modules except P29, P30, and P31. Effective October 1996, all modules include a NIST traceable certificate and test data.

General Specifications

Data log function (except 741B)
Measure functions: Voltage, current, resistance, frequency, temperature, pressure
Reading rate: 1, 2, 5, 10, 20, 30, or 60 readings per minute
Maximum record length: 8000 readings (7980 for 30 or 60 readings per minute)

Ramp function
Source functions: Voltage, current, resistance, frequency, temperature
Rate: 4 steps/second
Trip detect: Continuity* or voltage

**Continuity detection not available when sourcing current*

Loop power function
Voltage: Selectable, 24 V or 28 V
Accuracy: 5%
Maximum current: 22 mA, short-circuit protected
Maximum input voltage: 30 V dc

Note: 250Ω series resistance is automatically supplied whenever loop power is enabled on 744.

HART modem interface (744 only)
Maximum input voltage: 30 V dc

Environmental specifications
All calibrator specifications apply from +18 °C to +28 °C unless stated otherwise.
Operating temperature: -10 °C to 50 °C, (-20 °C typical except for frequency and ac voltage measurement)
Storage temperature: -20 °C to 60 °C
Operating altitude: 2800 m above mean sea level (9186 ft)
90-day specifications: The standard specification intervals for the 740 Series are 1 and 2 years. Typical 90-day measurement and source accuracy can be estimated by dividing the one year "% of reading" or "% of output" specifications by 2. Floor specifications, expressed as "% of f.s." or "counts" or "ohms" remain constant.

Power: Internal battery pack NiCd, 7.2 V, 1700 mAh; NiMH (744 only) 7.2 V, 3500 mAh
Battery Life: Typical usage, >8 hours
Dimensions: 130 x 236 x 61 mm (5.1 x 9.3 x 2.4 in.)
Weight: 1.4 kg (3 lbs. 1 oz.)
Side Port Connections:
- Pressure module connector
- RS-232 connector (743B and 744) to interface to your PC
- Connection for optional battery eliminator

Safety: Complies with CAN/CSA C22.2 No 1010.1-92, ANSI/ISA S82.01-1994, UL3111, and EN610-1:1993.
Data Storage Capacity:
Fluke 741B—1 day of calibration results
Fluke 743B and 744—1 week of calibration results

Ordering Information

FLUKE-741B Documenting Process Calibrator
FLUKE-743B Documenting Process Calibrator
FLUKE-744 Documenting Process Calibrator-HART
Included with the Fluke 740 Series:
Type TL224 Industrial Test Leads (two sets), AC220 Test Clips (2 sets), TP220 Test Probes (1 set), Battery Pack, Battery Charger, serial port cable (except 741B), HART communications cable (744 only), DPC/TRACK Sample with free PC communication utility software (except 741B), Instruction Manual, NIST-traceable calibration report and data, three-year warranty.

FLUKE-700SW DPC/TRACK Software (for use with Model 743B or 744 calibrators)
Included with DPC/TRACK software:
Software media, Instruction Manual, Serial Port Cable, DB9 to DB25 (9 pin to 25 pin) Adapter.

FLUKE-700 Pxx Pressure Modules
Included with each Fluke Pressure Module:
BP-ISO Adapter(s) (except with P29 - P31), Instruction Sheet, NIST traceable calibration report and data, one-year warranty.

FLUKE-744 Upgrade

Fluke-744V20	HART Upgrade Revision 2.3

Accessories

Fluke-700PMP	Pressure Pump; 100 psi/7 bar
Fluke-700LTP	Low Pressure Test Pump
Fluke-700PTP	Pneumatic Test Pump; 360 psi/25 bar
Fluke-700HTP	Hydraulic Test Pump; 10,000 psi/ 700 bar
Fluke-700HTH	Hydraulic Test Hose
Fluke-700PRV	Pressure Relief Valve Kit for HTP
Fluke-700-IV	Current Shunt (for mA/mA applications)
Fluke-700PCK	Pressure Calibration Kit
Fluke-700BCW	Bar Code Wand
Fluke-700TC1	TC Mini-Plug Kit, 9 types
Fluke-700TC2	TC Mini-Plug Kit, JKTERS
80T-IR	Infrared Probe
80PK-IR	Infrared Probe
BE9005	Battery Eliminator
BC7217	Battery Charger
BP7217	NiCd Battery Pack
BP7235	NiMH Battery Pack
C700	Hard Carrying Case
C781	Soft Carrying Case
C789	Soft Carrying Case
C75	Test Lead Case

When registering your Fluke 740 Series at www.fluke-warranty.com you will receive two bonus features:

- Transmitter mode, allowing the 740 calibrator to be programmed as a transmitter. Ideal for emergency use. Any valid combination of in- or output can be used.
- Bar code entry for automatic input of Tag-id and s/n data (except 741B)

Fluke tools for the Process Industry:

Calibrate and troubleshoot all your process instrumentation.

The Fluke range of process tools give you all the choice you need to maintain and calibrate virtually all types of sensors and transmitters.
Whether you want all the required functionality in just one tool, or a dedicated tool for temperature or pressure only, the choice is yours.
Check our complete line of Process Meters, Documenting, Multifunction, Temperature, Pressure and Loop Calibrators and see for yourself how you can maximize your maintenance efficiency.

Fluke 707Ex, the fast, one-handed tool for loop checks in EX zones

The 707Ex is an intrinscally safe loop calibrator for use in explosion endangered areas. The Fluke 707Ex is certified in accordance with the ATEX directive (Ex II 2 G Eex ia IIC T4) in Zones 1 and 2. The 707Ex is also certified to operate in accordance with Factory Mutual N.I. Class 1, Division 2 areas Group A–D.

FLUKE®

Fluke. *Keeping your world up and running.*

Fluke Corporation
PO Box 9090, Everett, WA USA 98206

Fluke Europe B.V.
PO Box 1186, 5602 BD
Eindhoven, The Netherlands

For more information call:
U.S.A. (800) 443-5853 or Fax (425) 446-5116
Europe/M-East/Africa +1 (31 40) 2 675 200 or
Fax +1 (31 40) 2 675 222
Canada 1-800-36-FLUKE or Fax (905) 890-6866
Other countries +1 (425) 446-5500 or
Fax +1 (425) 446-5116
Web access: http://www.fluke.com

10/2004 Pub-ID 10119-eng Rev 03