

Pressure Calibration

Technical Data



Pressure instrumentation is found in virtually every process plant. Periodic calibration of these pressure, level, and flow instruments is required to keep plants operating efficiently and safely. Fluke provides a broad range of pressure calibration tools to help you quickly and reliably calibrate your pressure instrumentation.

These pressure calibrators accurately measure pressure by using:

- Internal sensors, or
- External Pressure Modules

A pressure source may be provided by:

- A self-contained internal pressure pump, or
- An external source such as an accessory pump or a pressure bottle / regulator.

A summary of the pressure calibration capabilities of Fluke Process Tools is shown below.

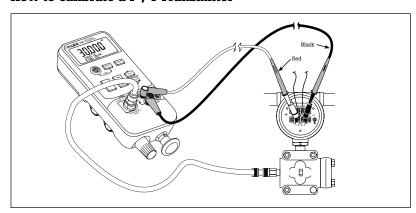
Tiuve	110	Licoonic	Calibrator

Pressure Calibration with Fluke Calibrators Function	713 30G Pressure Calibrator	713 100G Pressure Calibrator	716 Pressure Calibrator	717 30G Pressure Calibrator	718 30G Pressure Calibrator	718 100G Pressure Calibrator	725 Multifunction Process Calibrator	701 Documenting Process Calibrator	702 Documenting Process Calibrator	741 Documenting Process Calibrator	743 Documenting Process Calibrator	744 Documenting Process Calibrator	5520A Calibrator
Measure Pressure to 30 psi / 2 bar with internal sensor	•			•	•								
Measure Pressure to 100 psi / 7 bar with internal sensor		•				•							
Measure Pressure to 10,000 psi / 700 bar with Fluke-700Pxx Pressure Modules			•	•	•	•	•	•	•	•	•	•	•
Source pressure with accessory pumps	•	•	•	•	•	•	•	•	•	•	•	•	•
Source pressure with built-in pump					•	•							
Measure mA	•	•	•	•	•	•	•	•	•	•	•	•	
Loop power supply			•	•	•	•	•	•	•	•	•	•	
Multifunction source and measure							•	•	•	•	•	•	
Electronic data capture								•	•	•	•	•	
Serial communication to PC									•		•	•	
Integrated HART communication												•	



Typical Pressure Applications

How to calibrate a P / I Transmitter



With a built-in hand pump, precision measurement of both pressure and current, and a 24 volt loop supply, the Fluke 718 Pressure Calibrator is a complete, self-contained tool for the calibration of P/I transmitters. To calibrate a 3-15 psi / 4-20 mA transmitter using a Fluke 718 30G Pressure Calibrator:

- 1. Depressurize the transmitter, and then plumb the transmitter to the 1/8 inch NPT pressure port of the 718. Connect the test leads per the figure below.
- 2. Turn the calibrator on. (If you need to power the transmitter, hold down the UNITS key while turning on the calibrator.)

- Press the UNITS key until PSI shows in the display.
- 4. With the 718's bleed valve open to atmosphere, press the ZERO key. Close the bleed valve. Set the pressure / vacuum valve to +, for positive pressure.
- 5. Use the hand pump to apply roughly 3 psi to the transmitter. Partial pump strokes will apply small increments of pressure. Use the fine-adjust knob to get reasonably close to 3.00 psi.

- 6. Press the HOLD key, and record the psi and mA readings. Press the HOLD key to resume reading.
- 7. Calculate and record the error, using: Error = ([(i-4)/16] -[(P-3)/12]) * 100 where Error is in % of span, i is your measured current in mA and P is your measured pressure in psi.
- 8. Repeat steps 5 through 7 at mid-range, around 9 psi, to check linearity at mid-span.
- 9. Repeat steps 5 through 7, now at 15 psi, for a check at 100 % of span.

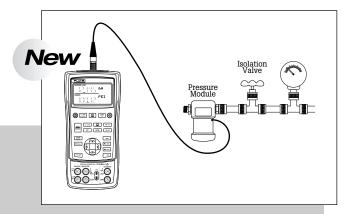
If your calculated errors are within tolerance, the transmitter has passed your As-found test, and you are done. If necessary, perform your zero and span adjustments, then repeat steps 5 through 9 for an As-left test. Depressurize the line, and disconnect the 718.

Measuring less than 9 inches in length and weighing just over two pounds, the rugged 718 is easy to carry into the field. The 718 is offered in both 30 psi and 100 psi models. Media compatibility is dry air and non-corrosive gasses. A built-in pump generates pressure or vacuum. Min, Max, and Hold functions are

available. The 718 can also measure pressure using any of the 29 Fluke-700Pxx Pressure Modules, to cover applications up to 10,000 psi. The 718 comes complete with protective holster, test leads, test clips, Users Manual, and two 9-volt batteries (installed).

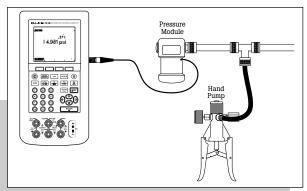


		Pressure		mA						
Model	Range	Resolution	Accuracy	Range	Resolution	Accuracy				
Fluke-718 30G	-12 to 30 psi	0.001 psi	0.05% FS	0 - 24 mA	0.001 mA	0.025% + 1 count				
Fluke-718 100G	-12 to 100 psi	0.01 psi	0.05% FS	0 - 24 mA	0.001 mA	0.025% + 1 count				



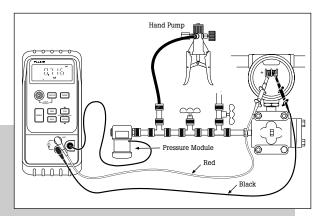
Measuring pressure

To measure pressure, the appropriate pressure module for the pressure to be tested is attached to the calibrator. The measured pressure can be displayed in a variety of engineering units. Here, a Fluke 725 Multifunction Calibrator is shown.



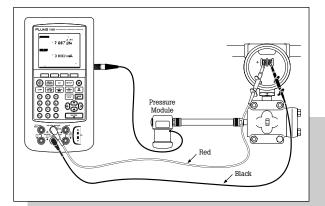
Sourcing pressure

To calibrate an instrument with pressure input, pressure from an external source (such as a hand-held pump) is applied. Prompts on the 740 Series Calibrator display indicate when to increase or decrease the input pressure, and when the specified test points are achieved. Here, a Fluke 741B Documenting Process Calibrator is shown.



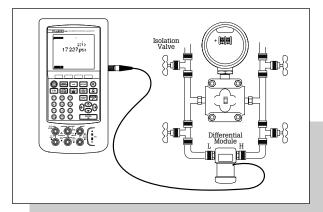
P to I device calibration

The P to I device is used to convert pneumatic analog loop control signals of 3 psi to 15 psi to electrical loop analog control signals of 4 mA to 20 mA. Here, a Fluke 716 Pressure Calibrator is used.



I to P device calibration

The I to P device is used to convert 4 mA to 20 mA electrical analog loop control to pneumatic analog loop control, generally 3 psi to 15 psi. Here, a typical configuration for using a pressure module with a 740 Series DPC is demonstrated.



Differential measurements

Differential pressure modules are useful in a wide variety of applications, e.g., measuring the fluid level in a tank or calibrating a differential pressure transmitter. A Fluke 744 Documenting Process Calibrator is shown.

Pressure Modules



A complete family of pressure modules

A family of 29 pressure modules covers the most common pressure calibrations from 0-1" H₂0 (0-.25 kPa) to 0-10,000 psi (0-70,000 kPa).

Gage pressure modules have one pressure fitting and measure the process pressure with respect to atmospheric pressure. Differential pressure modules have two pressure fittings and measure the difference between the applied pressure on the high fitting versus the low fitting. Each module is clearly labeled for range, overpressure specification, and media compatibility. A metric adapter is included with all but the P29 through P31 high pressure modules.

Quick and easy measurements

Fluke 700 Series pressure modules are easy to operate. To measure pressure, the technician plumbs the pressure module to a pressure source, and connects the pressure module cable to the calibrator. Pressure is applied, measured by the pressure module, and displayed digitally on the calibrator. At the touch of a button, the pressure may be displayed in up to 11 different engineering units. When used with the 701, 702, 741, 743 or 744 Documenting Process Calibrators, pressure readings can be date/time stamped and stored electronically for later retrieval. This saves time, eliminates errors, and supports compliance with quality standards and regulations.

Pressure module performance

Fluke 700 Series pressure modules are highly accurate, with total specifications that apply from 0% to 100% of full span and 3. The modules are fully interfrom 0° C to 50° C (32° F to 122° F)— changeable because all a feature that sets them apart from other pressure calibrators. Many ranges have total uncertainties of 0.05% of full scale and reference uncertainties of 0.025% of scale (see Table, page 5).

This performance is possible through the innovative application of mathematics and microprocessor power. Fluke pressure modules have silicon piezoresistor sensors which consist of a resistive bridge fabricated in a silicon diaphragm. Pressure applied to the diaphragm causes a change in the balance of the bridge which is proportional to the applied pressure. The bridge balance change is not linear and is very sensitive to temperature. However, since these effects are guite stable with time and through repetitive changes of condition, the sensors can be very accurate in measuring pressure provided they are carefully characterized.

During manufacture, Fluke pressure modules are characterized by reading temperature and pressure at more than 100 points. A least-squares regression is used to calculate the coefficients of a polynomial expression for pressure. The coefficients, unique to that pressure module, are stored in the module's memory.

Each module has its own microprocessor, allowing it to run the measurement circuitry and to communicate digitally with a calibrator. When connected to the

calibrator, the modules coefficients are uploaded from the pressure module to the calibrator. Then, as pressure measurements are made, raw sensor values for pressure and temperature are digitally loaded to the calibrator, where the raw sensor values and coefficients are manipulated to derive and display the pressure reading. This innovative technique provides several benefits:

- 1. Digital communication eliminates errors due to poor connections and electrical interference.
- 2. The modules are inherently temperature-compensated from 0°C to 50°C (32°F to 122°F).
- measurements are completed in the pressure module itself and then communicated to the calibrator in digitized form. Modules are calibrated independently of the calibrator, and can be used with any 700 Series calibrator. Each module has its own serial number to facilitate traceability.

Sensor protection in isolated modules

Many of these modules (see Table) incorporate a stainless steel diaphragm to isolate the sensor. With these modules, any medium that is compatible with stainless steel can be used on the high side of the module.

Rugged construction

A urethane overmolding protects against shock if a module is accidentally dropped and also seals against dirt, dust, and moisture. Pressure connections are 1/4" NPT. A BSP/ISO adapter is also provided on all but the P29, P30 and P31.

Convenient setup

A one-meter cable between the pressure module and calibrator reduces the length of connecting tubing to the pressure source. The remote pressure head also provides an extra margin of safety and convenience by removing the calibrator and operator from the pressure source.



Pressure Performance

Summary calibrator specifications: (one year, 18°C to 28°C)

713 30G	713 100G	716	717 30G	718 30G	718 100G	725 New!	701	702	741 / 741B	743 / 743B	744	5520A	Function	Range	Resolution	Accuracy	Notes
•			•	•									Measure Pressure ¹ (internal sensor) Over pressure 3xFS	-12 to 30 psi (-83 to 207 kPa)	0.001 psi	0.05% full scale	Gasses/liquids ³ (non corrosive) Zero, Min, Max, Hold, Damp
	•				•								Measure Pressure ¹ (internal sensor)	-12 to 100 psi (-83 to 690 kPa) Over pressure 2xFS	0.01 psi (0.1 kPa)	0.05% full scale	Gasses/liquids ³ (non corrosive) Zero, Min, Max, Hold, Damp
		•	•	•	•	•	•	•	•	•	•	•	Measure Pressure ¹ (with Pressure Modules) Over pres- sure per pressure module specs ²	29 Pressure Modules, 1 in. H ₂ O / 0.25 kPa to 10,000 psi / 69 MPa	To 0.0001 psi, per Pressure Module specs ²	To 0.025% of full span, per Pressure Module specs ²	Media compatibility per Pressure Module specs ² Zero, Min, Max, Hold, Damp
				•	•								Source pressure	-12 psig to full scale built-in pump	N/A	N/A	Pressure or vacuum, overpressure protected at 180 ± 10 psi
•	•	•	•	•	•								Measure mA	0 to 24 mA	0.001 mA	0.025% reading + 1 count	
						•							Measure mA	0 to 24 mA	0.001 mA	0.020% reading + 2 count	
							•	•	•	•	•		Measure mA	0 to 24 mA	0.001 mA	0.010% reading + 0.015% of full scale	
		•	•	•	•	•	•	•	•	•	•		Loop power supply	24 V dc	N/A	± 10%	

Supported Pressure Units on 701 and 702 include: psi, kPa, bar, inches Hg, mm Hg, inches H₂O (@4°C), and feet H₂O (@4°C) Supported Pressure Units on 741, 743, and 744 include all of the above, plus kg/cm², inches H₂O (@60°F), mm H₂O (@4°C). Supported Pressure Units on 713, 714, 716, 717, 718, and 725 include psi, kPa, bar, mbar, kg/cm², inches Hg mm Hg, inches H₂O (@4°C), inches H₂O (@20°C), cm $\rm H_2O$ (@4°C), and cm $\rm H_2O$ (@20°C). 2 For Pressure Module specifications, see table below.

FLUKE-700P31

10000 psi/1

New

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

0.050

0.010

69 M Pa/0.007

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		'					•	<u>'</u>			
FLUKE-700P00	1 in. H ₂ 0/0.001	0.25 kPa/0.0002	0.300	0.025	0.025	0.350	Dry	Dry	316 SS	30x	
FLUKE-700P01	10 in. H ₂ 0/0.01	2.5 kPa/0.002	0.200	0.050	0.050	0.300	Dry	Dry	316 SS	3x	¹ Total uncertaint
FLUKE-700P02	1 psi/0.0001	6900 Pa/0.7	0.150	0.070	0.080	0.300	Dry	Dry	316 SS	3x	year for tempera range 0°C to +50
FLUKE-700P22	1 psi/0.0001	6900 Pa/0.7	0.100	0.020	0.030	0.150	316 SS	Dry	316 SS	3x	uncertainty, 1.09
FLUKE-700P03	5 psi/0.0001	34 kPa/0.001	0.050	0.020	0.030	0.100	Dry	Dry	316 SS	3x	span for tempera
FLUKE-700P23	5 psi/0.0001	34 kPa/0.001	0.025	0.010	0.015	0.050	316 SS	Dry	316 SS	3x	range -10°C to 0 For POO module
FLUKE-700P04	15 psi/0.001	103 kPa/0.01	0.025	0.010	0.015	0.050	Dry	Dry	316 SS	3x	compensated
FLUKE-700P24	15 psi/0.001	103 kPa/0.01	0.025	0.010	0.015	0.050	316 SS	Dry	316 SS	3x	temperature rang
Gage											15° to 35° C.
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	² "Dry" indicates or non-corrosive
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	compatible med
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	"316 SS" indicat
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	compatible with 316 Stainless St
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	"C276" indicate:
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	compatible with
Absolute (not c	ompatible with F	luke 701 or 702)									Hastelloy C276. Use of pressure
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	required prior to
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	measurement or
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	Maximum overp specification inc
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	common mode
Vacuum (not co	mpatible with Fl	uke 701 or 702)									Modules are (
FLUKE-700PV3	-5 psi/0.0001	-34 kPa/0.001	0.040	0.015	0.015	0.070	316 SS	Dry	316 SS	3x	Metric adapter(s 1/4" NPT female
FLUKE-700PV4	-15 psi/0.001	-103 kPa/0.01	0.040	0.015	0.015	0.070	316 SS	Dry	316 SS	3x	BSP/ISO 1/4-19,
Dual		•		•		•					thread, included modules except
FLUKE-700PD2	±1 psi/0.0001	±6900 Pa/0.7	0.150	0.025	0.025	0.200	316 SS	Dry	316 SS	3x	P30, and P31. E
FLUKE-700PD3	±5 psi/0.0001	±34 kPa/0.001	0.040	0.015	0.015	0.070	316 SS	Dry	316 SS	3x	October 1996, a modules include
FLUKE-700PD4	± 15 psi/0.001	± 103 kPa/0.01	0.025	0.010	0.015	0.050	316 SS	Dry	316 SS	3x	traceable certific
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	test data.
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											1
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	
FI IIKE 700D21	10000 pgi/1	60 M Do /0 007	0.050	0.010	0.020	0.000	C276	TAT / TA	C276	1 57	1

0.020

C276

0.080

N/A

C276

Total full

air edia

ure. iale ered IST

³ Gasses only for 718.



Pressure Terminology

Absolute pressure—absolute pressure measurements are referenced to zero pressure, (a perfect vacuum.)

Absolute pressure transducer—a transducer that has an internal reference chamber sealed at or close to zero pressure (full vacuum) when exposed to atmosphere a reading of approximately 14.7 psi results.

Boyle's Law—the volume of a gas is inversely proportional to the pressure of the gas at constant temperature: V=1/P.

Common mode pressure—the underlying common pressure (or static pressure) within a system from which a differential measurement is being made.

D/P: Differential pressure, (pronounced DP)—other names used to mean the same thing are d/p cell, d/p transmitter and ΔP transmitter (where Δ is delta or differential). This is the most common type of transmitter used in most process industries. It can be used to measure level, flow, pressure, differential pressure, and density or specific gravity. With some modifications, it can measure such things as temperature and oxygen purity. The d/p transmitter can be pneumatic, electromechanical, or solid state. It can also be a smart transmitter. A typical large process plant can have hundreds or thousands of d/p transmitters in service.

Gage pressure—the pressure relative to atmospheric pressure. Gage pressure = absolute pressure minus one atmosphere.

Gage pressure transducer—
a transducer that measures pressure relative to atmospheric pressure.

Ideal Gas Law—combining
Boyle's Law and Charles' Law,
results in the Ideal Gas Law:
PV=nRT, where nR is constant
for a particular gas analogous to
the number of molecules and the
relative size of the molecule.

I/P (I to P)—a current to pressure transmitter. A common instrument in modern industrial plants. A typical large paper mill or refinery could have 5,000 I/Ps in use.

Line pressure—the maximum pressure in the pressure vessel or pipe for differential pressure measurement.

Orifice plate—a very low cost and common primary sensing element (PSE) for measuring flow. It must be used in conjunction with a d/p cell. It creates a venturi and a resulting P is developed across the plate whose square root is proportional to flow.

P/I (P to I)—a pressure to current transducer.

Pneumatic relay—refers to a pneumatic instrument that performs a function to its input and provides the result on its output (Example: square root extractor, adder, etc.).

PSI—pounds per square inch (same as psig).

PSIA—pounds per square inch absolute.

PSID—pounds per square inch differential.

PSIG—pounds per square inch gage (same as psi).

Square root extractor—an instrument or software program that takes the square root of input and puts the result on its output. Square root extraction is needed to linearize many flow signals. Example: orifice plates, venturis, target flow meters, and pitot tubes all require the transmitter's output signal to be linearized. Mag flow meters, turbine flow meters, Doppler flow meters, and vortex shedding flow meters don't require square root extraction.

Static pressure—the zero-velocity pressure at any arbitrary point within a system.

Wet/dry differential—a differential pressure transducer or transmitter that uses a metal diaphragm at the wet port where fluids can be applied, and no diaphragm at the dry port. The dry port exposes the sensor material to the medium, so only clean dry gas can be applied to this port.

Wetted parts—the diaphragm and pressure port material that comes in direct contact with the medium (gas, liquid).

Pressure Accessories

Fluke 700PTP Pneumatic Test Pump

For use with: Fluke 700 Series Pressure Modules and the Fluke 710 Series Pressure Calibrators. Description: The Fluke 700PTP is a handheld pressure pump designed to generate either vacuum to -11.6 psi/-0.8 bar or pressure to 360 psi/25 bar. The Fluke 700PTP has two pressure ports:

- 3/8-BSP (ISO228) female parallel thread fitting for the reference gauge or pressure module
- 1/8-BSP (ISO228) female parallel thread fitting for the unit under test

Application: The Fluke 700PTP features an integral pressure adjustment vernier which varies the pressurized volume by 2.0 cc over approximately eleven turns of the vernier knob. The pressure variation achievable with the vernier will depend on the nominal pressure and total pressurized volume, but with a minimum volume and maximum pressure, the vernier provided 360 ± 20 psi adjustment range. With a minimum volume and no pressure applied, the vernier can also

be used to provide a 0 to 70" $\rm H_2O$ range. Larger volumes will provide a smaller range of adjustment, but greater resolution. The length of the stroke can be adjusted to limit the maximum output pressure. Maximum output pressure is adjustable from 2.5 psi to 360 psi.



Included:

- 1. Adapter to connect the reference gauge port on the pump body to the 1/4 NPT male fitting on Fluke 700Pxx Pressure Modules (except 700P29, P30, and P31)
- 2. One-meter nylon hose to attach to unit under test port to the unit under test. The hose terminates in a 1/4-BSP (ISO228) female parallel thread fitting
- 3. Adapter to convert the 1/4-BSP female parallel thread fitting to a 1/4 NPT female
- 4. Replacement seal kit
- 5. Instruction sheet

Material: Nickel plated brass/ anodized aluminum Dimensions: 8.7" x 4.1" x 2.5" (220 mm x 105 mm x 63 mm) Weight: 1.4 lb (0.65 kg) Warranty: One year

Fluke 700HTP Hydraulic Test Pump

For use with: Fluke 700 Series Pressure Modules and the Fluke 710 Series Pressure Calibrators. **Description:** The Fluke 700HTP is designed to generate pressures up to 10,000 psi/700 bar. The Fluke 700HTP has two pressure ports:

- 3/8-BSP (ISO228) female parallel thread fitting for the reference gauge or pressure module
- 1/8-BSP (ISO228) female parallel thread fitting for the unit under test

Note: The user must provide a hose with appropriate end fittings from this port to the unit under test.

Application: This pump can provide up to 10,000 psi using distilled water or mineral-based hydraulic oil. The pump is operated by pumping several strokes to prime the system, then switching to high pressure mode when the resistance increases. An integral pressure adjustment vernier knob varies the pressurized volume by 0.6 cc. The pressure variation achievable with the vernier will depend on the nominal pressure and total pressurized volume. but with a minimum volume, the

vernier provided 150-3,000 psi (at 150 psi nominal) and 3,000-10,000 psi (at 3,000 psi nominal) adjustment ranges. With a minimum volume and no pressure applied, the vernier can also be used to provide a 0 to 1.7 psi range. Larger volumes will provide a smaller range of adjustment, but greater resolution.

Included:

- 1. Adapter to connect the reference gauge port on the pump body to the 1/4 NPT male fitting on Fluke 700Pxx Pressure Modules (except 700P29, P30, and P31)
- Adapter to connect the reference gauge port on the pump body to the 1/4 NPT female fitting on the Fluke 700P29, P30, and P31 Pressure Modules
- Adapter to convert the unit under test port to a 1/4 NPT female
- 4. Replacement seal kit
- 5. Instruction sheet

Material: Stainless steel
Dimensions: 9.3" x 6.3" x 2.8"
(236 mm x 159 mm x 70 mm)

Weight: 3.5 lb/1.6 kg Warranty: One year



Figure 13. Fluke 700HTP



Fluke 700PRV Pressure Relief Valve Kit

For use with: Fluke 700HTP Hydraulic Test Pump.

Description: The Fluke 700PRV consists of two relief valves (1360 and 5450 psi) to be used with the 700HTP Hydraulic Test Pump. These relief valves will protect the most commonly used Fluke pressure modules from damage due to accidental over-pressurization. 1/4 BSP male parallel thread to fit Fluke 700HTP.

Application: Repeatability ± 10% of nominal setting. Multiturn adjustment screw to set preload on internal disc springs. Included: The 700PRV contains two relief valves.

- One adjustable from 725-2900 psi/50-200 bar (preset at 1360 psi/94 bar)
- One adjustable from 2900-5800 psi/200-400 bar (preset at 5450 psi/376 bar)
- Instruction sheet

Material: Type 303 stainless

steel

Dimensions: 1.57" L x .87" diameter (40 mm x 22 mm) Weight: 0.13 lb/60g per relief

valve

Warranty: One year

Fluke 700PMP Pressure Pump

For use with: Fluke 700 Series Pressure Modules and the Fluke 710 Series Pressure Calibrators. **Description:** The Fluke 700PMP is a hand-operated pressure pump to provide pressures up to 150 psi/1000 kPa. Output fitting is 1/8 FNPT.

Application: Linear stroke of 1.6" (4 cm). Multi-turn vernier for fine adjustment of pressure. **Included:** Instruction sheet. **Dimensions:** 10.4" L x 1.4" diameter (265 mm L x 35 mm)

Weight: 12 oz/340g Warranty: One year



Figure 14. Fluke 700PMP

Fluke-700 PCK Calibration Kit

The Fluke 700PCK Pressure Calibration Kit makes it possible to calibrate your pressure modules at your facility using your own precision pressure standards. The kit consists of a power supply, an interface adapter, appropriate cables, and Fluke 700PC Pressure Module Calibration software. When installed on your PC, the Windows®-based software easily steps you through an asfound verification, a calibration adjustment, and an as-left verification. Calibration data is captured for import to your database. A 386 or better PC, running Windows 3.1, or later is required, along with a precision pressure standard with an uncertainty of less than 1/4 that of the pressure module being verified.

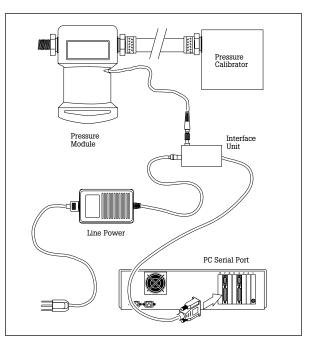


Figure 15. Calibration kit configuration.



Note: With a Fluke 700PCK and any Fluke Pressure Module, a Fluke 5520A Calibrator becomes a precision pressure standard.



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