

# 729 Pro

## Automatic Pressure Calibrator/ Pressure Measurement Module

### *Safety Information*



3-Year Limited Warranty.

See the Users Manual for the full warranty.

Go to Fluke's website at [www.fluke.com](http://www.fluke.com) to read the User Manual and find more information about your Product.

To register your product, visit <http://register.fluke.com>.

To view, print, or download the latest manual supplement, visit <http://us.fluke.com/user/support/manuals>.

A **Warning** identifies conditions and procedures that are dangerous to the user.

#### **Warning**

**To prevent possible electrical shock, fire, or personal injury:**

- Read all safety information before you use the Product.
- Carefully read all instructions.
- Do not use the Product around explosive gas, vapor, or in damp or wet environments.
- Use the Product only as specified, or the protection supplied by the Product can be compromised.
- Do not apply more than the rated voltage, between the terminals or between each terminal and earth ground.
- Do not touch voltages >30 V ac rms, 42 V ac peak, or 60 V dc.
- Do not use the Product if it is altered or damaged.
- Disable the Product if it is damaged.

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Specifications are subject to change without notification.

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- Do not use the Product if it operates incorrectly.
- Use the correct terminals, function, and range for measurements.
- Remove all probes, test leads, and accessories before the battery door is opened.
- The battery door must be closed and locked before you operate the Product.
- Use only the mains power cord and connector approved for the voltage and plug configuration in your country and rated for the Product.
- Replace the mains power cord if the insulation is damaged or if the insulation shows signs of wear.
- Examine the case before you use the Product. Look for cracks or missing plastic. Carefully look at the insulation around the terminals.
- Do not use test leads if they are damaged. Examine the test leads for damaged insulation, exposed metal, or if the wear indicator shows. Check test lead continuity.
- Keep fingers behind the finger guards on the probes.
- Only assemble and operate high-pressure systems if you know the correct safety procedures. High-pressure liquids and gases are hazardous and the energy from them can be released without warning.
- Remove the input signals before you clean the Product.
- Use only specified replacement parts.
- Have an approved technician repair the Product.
- Do not disassemble or crush battery cells and battery packs.
- Batteries contain hazardous chemicals that can cause burns or explode. If exposure to chemicals occurs, clean with water and get medical aid.
- Do not put battery cells and battery packs near heat or fire. Do not put in sunlight.
- Use only Fluke approved power adapters to charge the battery.
- Disconnect the battery charger and move the Product or battery to a cool, non-flammable location if the rechargeable battery becomes hot ( $>50\text{ }^{\circ}\text{C}$ ) during the charge period.
- Replace the rechargeable battery after 5 years of moderate use or 2 years of heavy use. Moderate use is defined as recharged twice a week. Heavy use is defined as discharged to cutoff and recharged daily.
- Do not short the battery terminals together.
- Do not disassemble the battery.
- Pressure Measurement Modules can be damaged and/or personnel injury can occur due to improper application of pressure. Vacuum should not be applied to any gauge pressure sensor. The Product shows "OL" when an inappropriate pressure is applied. When "OL" is shown on any pressure, the pressure should be reduced or vented immediately to prevent Product damage or possible personnel injury. "OL" is shown when the pressure exceeds 100 % of the nominal range of the

Pressure Measurement Module or when a vacuum in excess of -13 psi is applied on gauge range sensors. Push **CLEAR (ZERO)** to zero the Pressure Measurement Module when vented to atmospheric pressure.

- Do not point the exhaust port toward the operator during venting.
- Use the Pressure Measurement Modules only with the 729 Pro Pressure Calibrator.
- Pressure Measurement Modules must be installed correctly for the Calibrator to operate and to prevent pressure leakage during a test.

## Symbols

Symbol	Description
	WARNING. RISK OF DANGER.
	WARNING. HAZARDOUS VOLTAGE. Risk of electric shock.
	Consult user documentation.
 Li-ion	This product contains a Lithium-ion battery. Do not mix with solid waste stream. Spent batteries should be disposed of by a qualified recycler or hazardous materials handler per local regulations. Contact your authorized Fluke Service Center for recycling information.
	This product complies with the WEEE Directive marking requirements. The affixed label indicates that you must not discard this electrical/electronic product in domestic household waste. Product Category: With reference to the equipment types in the WEEE Directive Annex I, this product is classed as category 9 "Monitoring and Control Instrumentation" product. Do not dispose of this product as unsorted municipal waste.

## Safety Specifications

### Environmental Specification

#### Operating Temperature

measurement .....	-10 °C to 50 °C
pressure control.....	0 °C to 50 °C
battery charging.....	0 °C to 40 °C

Storage Temperature ..... -20 °C to 60 °C

Operating Altitude..... <3000 m

Storage Altitude ..... <13 000 m

Operating Humidity..... Non condensing (<10 °C)  
 ≤90 % RH (at 10 °C to 30 °C)  
 ≤75 % RH (at 30 °C to 40 °C)  
 ≤45 % RH (at 40 °C to 50 °C)

## Pressure Specification

Control Range

729 Pro 4MPa ..... 4 MPa

729 Pro 7MPa ..... 7 MPa

Control Specification ..... 0.005 % full scale for installed PMM minimum

## Pressure Module Measurement Specification

Pressure Measurement Module	Range (psi) Resolution	Range (kPa) Resolution	Range (bar) Resolution	Specification (Total Uncertainty) <sup>[3]</sup>	
				15 °C to 35 °C	<15 °C, >35 °C
FLK-PMM-200K <sup>[1]</sup>	-15.0000 to 30.0000	-100.000 to 200.000	-1.00000 to 2.00000	Max 0.02 %FS/yr	Max 0.04 %FS/yr
FLK-PMM-200KA <sup>[2]</sup>	0 to 30.0000	0 to 200.000	0 to 2.00000	Max 0.05 %FS/yr	Max 0.07 %FS/yr
FLK-PMM-2000K <sup>[1]</sup>	-14.000 to 300.000	-95.00 to 2000.00	-0.9500 to 20.0000	Max 0.02 %FS/yr	Max 0.04 %FS/yr
FLK-PMM-4000K <sup>[1]</sup>	-14.00 to 600.00	-95.00 to 4000.00	-0.9500 to 40.0000	Max 0.02 %FS/yr	Max 0.04 %FS/yr
FLK-PMM-7000K <sup>[1]</sup>	-14.00 to 1000.00	-95.00 to 7000.00	-0.9500 to 70.0000	Max 0.02 %FS/yr	Max 0.04 %FS/yr
FLK-PMM-7000KA <sup>[2]</sup>	0 to 1000.00	0 to 7000.00	0 to 70.0000	Max 0.02 %FS/yr	Max 0.04 %FS/yr

[1] Gauge Reference  
 [2] Absolute Reference  
 [3] Dry air or non-corrosive gas only.

## Electrical Specification

All specifications are valid to 110 % of range, except 24 mA source and simulate which are valid to 100 % of range.

Ranges

mA ..... 0 mA to 24 mA

Volts ..... 0 V dc to 30 V dc

Resolution

mA Ranges ..... 1 µA

Voltage Range ..... 1 mV

Accuracy ..... 0.01 % RD ±2 digits

Temperature Coefficient ..... Add 0.1 x specified accuracy for each degree C above 28 °C or below 18 °C

Loop Compliance Voltage ..... 24 V dc @ 20 mA

mA Simulate External Voltage

Requirement ..... 12 V dc to 30 V dc

Temperature Measurement Only/ 100 Ω Pt (385) RTD.....	-50 °C to 150 °C
Temperature Resolution.....	0.01 °C
Temperature Accuracy .....	±0.1 °C ±0.25 °C combined uncertainty when using 720 RTD probe (optional accessory)
Drive Capability	
without HART resistor .....	1200 Ω
with internal HART resistor.....	950 Ω

## Safety

General.....	IEC 61010-1, Pollution Degree 2
Lithium Battery .....	IEC 62133, UN 38.3; 14.4 V, 6.7Ah, 97Wh, 4ICR19/66-2 (4s2p) Charge input 19.5 V, 1.6 A

## Electromagnetic Compatibility (EMC)

International.....	IEC 61326-1: Basic Electromagnetic Environment; CISPR 11: Group 1, Class A
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*Group 1: Equipment has intentionally generated and/or uses conductively-coupled radio frequency energy that is necessary for the internal function of the equipment itself.*

*Class A: Equipment is suitable for use in all establishments other than domestic and those directly connected to a low-voltage power supply network that supplies buildings used for domestic purposes. There may be potential difficulties in ensuring electromagnetic compatibility in other environments due to conducted and radiated disturbances.*

*Caution: This equipment is not intended for use in residential environments and may not provide adequate protection to radio reception in such environments.*

Korea (KCC).....	Class A Equipment (Industrial Broadcasting & Communication Equipment)
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*Class A: Equipment meets requirements for industrial electromagnetic wave equipment and the seller or user should take notice of it. This equipment is intended for use in business environments and not to be used in homes.*