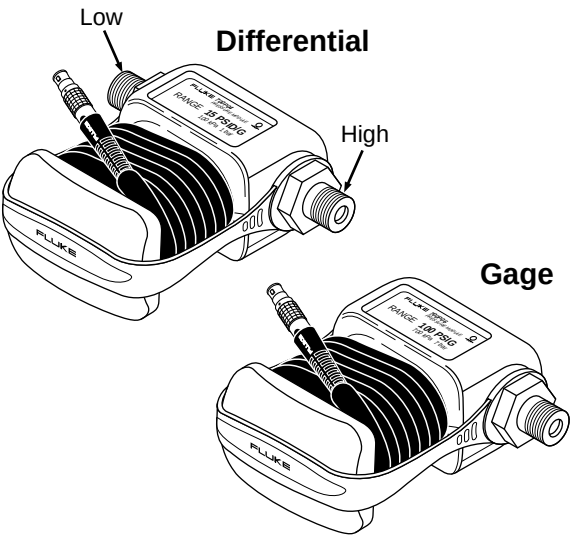
FLUKE®

700 Series Dual-Range and Vacuum Pressure Modules

Instruction Sheet



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Introduction

The Fluke 700PDX Series Pressure Modules measure positive and negative pressure. The 700PVX modules measure vacuum. The 700PDX modules work with the Fluke 700 Series Documenting Process Calibrators. The 700PVX modules work only with the 740 Series Calibrators. Read this sheet before you use the pressure module. This sheet contains specifications and information about how to avoid damaging the pressure module. See the calibrator's Users Manual for operating instructions.

Note

If you are using a Fluke-701 or Fluke-702, software V1.3 or higher is required. See specification footnote 1.

The pressure module measures pressure or vacuum using an internal microprocessor. It receives operating power from and sends digital information to the calibrator.

Gage pressure modules have one pressure fitting and measure 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. A differential pressure module functions like a gage module when the low fitting is open.

PN 602513
July 1996 Rev.3, 11/01

Box Contents
Pressure module, strap, 1/4 NPT to 1/4 ISO metric adapters (one for gage, two for differential), and instruction sheet.

Protecting Yourself from Pressure Releases
To avoid a violent release of pressure in a pressurized system, shut off the isolation valve and slowly bleed off the pressure before you attach or remove the pressure module from the pressure line.

Avoiding Overpressure Damage
Applying pressure in excess of the BURST PRESSURE specified on the pressure module can destroy the pressure module. Burst pressure is 3X full scale.

Avoiding Mechanical Damage
To avoid damaging the pressure module, never apply more than 10 ft.-lbs. of torque between the pressure module fittings or between the fittings and the body of the module. Always apply appropriate torque between the pressure module fitting and connecting fittings or adapters. Figure 1 shows the correct way and incorrect ways to use a wrench when applying torque to the pressure module fitting.

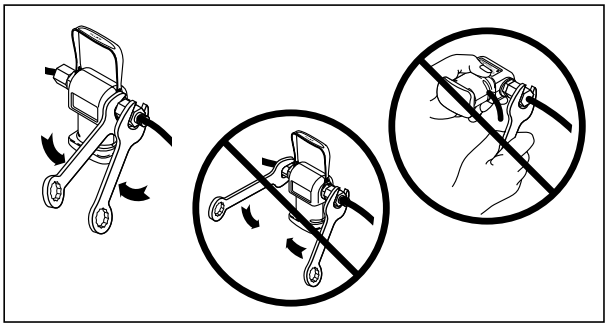

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Figure 1.

Table 1. Specifications [1] (% of full scale)

Model	Range[2]	Gage or Differential	Isolated or Nonisolated	Reference Uncertainty (23 ° ± 3 °C)	Stability (1 Year)	Temp (0 ° to 50 °C)	Total Uncertainty[3]
Fluke-700PD2	-1 to 1.0000 psi -6.89 to 6.8900 kPa -6.89E-2 to 6.89 E-2 bar	Differential	Isolated	0.150%	0.025%	0.025%	0.200%
Fluke-700PD3	-5 to 5.0000 psi -34 to 34.000 kPa -0.34 to 0.3400 bar	Differential	Isolated	0.040%	0.015%	0.015%	0.070%
Fluke-700PD4	-15 to 15.000 psi -100 to 100.00 kPa -1 to 1.0000 bar	Differential	Isolated	0.025%	0.010%	0.015%	0.050%
Fluke-700PD5	-15 to 30.000 psi -100 to 200.00 kPa -1 to 2.0000 bar	Gage	Isolated	0.025%	0.010%	0.015%	0.050%
Fluke-700PD6	-15 to 100.00 psi -100 to 700.00 kPa -1 to 7.0000 bar	Gage	Isolated	0.025%	0.010%	0.015%	0.050%
Fluke-700PD7	-15 to 200.00 psi -100 to 1400.0 kPa -1 to 14.000 bar	Gage	Isolated	0.040%	0.015%	0.015%	0.070%
Fluke-700PV3	0 to -5.0000 psi 0 to -34.000 kPa 0 to -0.3400 bar	Differential	Isolated	0.040%	0.015%	0.015%	0.070%
Fluke-700PV4	0 to -15.000 psi 0 to -100.00 kPa 0 to -1.0000 bar	Differential	Isolated	0.040%	0.015%	0.015%	0.070%

1. Use of the pressure zero function is required to achieve these specifications. Contact your Fluke Service Center for upgrade of your Fluke 701 or Fluke 702 V1.0, V1.1, or V1.2 Calibrator. (PV3 and PV4 not compatible with the 701 and 702.)
2. Available pressure units (psi, kPa, bar, inHg, mmHg, inH_20, ftH_20, kg/cm^2, mmH_20) are determined by the calibrator being used.
3. Accuracy specifications apply for 1 year for full span from 0 °C to 50 °C. Typical uncertainty is 1% of full span from -10 °C to 0 °C.
4. Maximum non-destructive pressure: 3X maximum rated pressure, including common mode pressure.
5. Maximum common mode pressure: 3X maximum rated pressure.
6. Specifications reflect a confidence interval of 95%.

Avoiding Corrosion Damage

To avoid damaging the pressure module from corrosion, use it only with specified media as shown below:

- Isolated: any medium that is compatible with type 316 stainless steel on the high side. Use dry, noncorrosive gasses only on the low side.
- Nonisolated: dry, noncorrosive gasses only.

Recommended Measurement Technique

For best results, it is recommended that the module be pressurized to full scale and then vented to zero pressure (atmosphere) prior to zeroing and making measurements.

Note

Low range pressure modules may be sensitive to gravity. For best results, pressure modules 30 psi and below should be held at the same physical orientation from the time they are zeroed until the measurement is complete.

Pressure Calibration Kit

The Fluke-700PCK Pressure Calibration Kit makes it possible to calibrate pressure modules at ambient temperature with a precision pressure calibrator or dead weight tester at least 4X better than the module specification. A 386 or better PC and Windows® 3.1 are required. The kit is an optional accessory available from your distributor or Fluke.

Performance Test

If you need to check that the pressure module meets its accuracy specification, use a dead weight tester or suitable pressure calibrator. The accuracy of the dead weight tester or pressure calibrator should be at least 4X better than the module's pressure specification. Proceed as follows to verify that a pressure module is operating within specification:

1. Read the pressure value with no externally applied pressure to make sure the 0% of scale is correct. When reading the pressure with a 700 Series calibrator, press the ZERO key to remove any zero offset.

   Note

   If you are using a Fluke-701 or Fluke-702, the pressure ZERO function is available only with V1.3 or higher software. Contact your Fluke Service Center for upgrade of earlier calibrators.

2. Connect the pressure module to a dead weight tester.
3. Choose pressure test values that give approximately 20% of full span steps.
4. Set the dead weight tester to each of these pressures and verify that each reading is within the specification in Table 1. Percent of full span is calculated as follows: 100% x (reading - dead weight tester setting) / (top of span - bottom of span).
5. If temperature sensitivity is of concern, repeat steps 1 through 4 at various controlled temperatures.

Certifications

CE Conforms to European Standard EN61010-1, EN61326.

Limited Warranty

Each Fluke product is warranted to be free from defects in material and workmanship under normal use and service. The warranty period is one year and begins on the date of shipment. Parts, product repairs and services are warranted for 90 days. This warranty extends only to the original buyer or end user customer of a Fluke authorized reseller, and does not apply to fuses, disposable batteries or to any product which, in Fluke's opinion, has been misused, altered, neglected or damaged by accident or abnormal conditions of operation or handling. Fluke warrants that software will operate substantially in accordance with its functional specifications for 90 days and that it has been properly recorded on nondefective media. Fluke does not warrant that software will be error free or operate without interruption.

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Fluke's warranty obligation is limited, at Fluke's option, to refund of the purchase price, free of charge repair, or replacement of a defective product which is returned to a Fluke authorized service center within the warranty period.

To obtain warranty service, contact your nearest Fluke authorized service center or send the product, with a description of the difficulty, postage and insurance prepaid (FOB Destination), to the nearest Fluke authorized service center. Fluke assumes no risk for damage in transit. Following warranty repair, the product will be returned to Buyer, transportation prepaid (FOB Destination). If Fluke determines that the failure was caused by misuse, alteration, accident or abnormal condition of operation or handling, Fluke will provide an estimate of repair costs and obtain authorization before commencing the work.

Following repair, the product will be returned to the Buyer transportation prepaid and the Buyer will be billed for the repair and return transportation charges (FOB Shipping Point).

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In Case of Difficulty

For service or calibration, call your nearest authorized Fluke Service Center. A list of service centers is available on the World Wide Web at www.fluke.com or you can call Fluke using any of the phone numbers listed below.

For application or operation assistance or information on Fluke products, call:

USA: 1-888-99-FLUKE (1-888-993-5853)
Canada: 1-800-36-FLUKE (1-800-363-5853)
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