

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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Since some countries or states do not allow limitation of the term of an implied warranty, or exclusion or limitation of incidental or consequential damages, the limitations and exclusions of this warranty may not apply to every buyer. If any provision of this Warranty is held invalid or unenforceable by a court of competent jurisdiction, such holding will not affect the validity or enforceability of any other provision.

In Case of Difficulty

For service or calibration, call your nearest authorized Fluke Service Center.

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)

Europe: +31 402-678-200

Japan: +81-3-3434-0181

Singapore: +65-738-5655

Anywhere in the world: +1-425-446-5500

Or, visit Fluke's Web site at www.fluke.com

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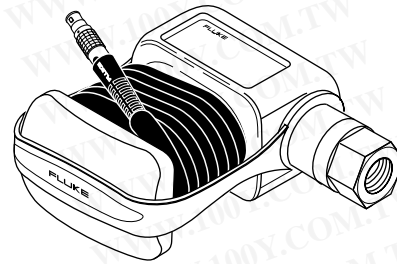
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FLUKE®

700P29, 700P30, 700P31 Pressure Modules Instruction Sheet



Introduction

Fluke Models 700P29, 700P30, and 700P31 Pressure Modules allow you to measure high pressure with the Fluke 700 Series Documenting Process Calibrators. Read this sheet before you use the pressure module. This sheet contains specifications and information about how to avoid personal injury and damage to the pressure module. This instruction sheet assumes that you know how to use the 700 Series Documenting Process Calibrator. (Refer to the *Users Manual* if necessary.)

Note

If you are using a Fluke Model 701 or 702 calibrator, it must have software V1.3 or later to achieve the specifications in this sheet. See Specifications note 1.

The pressure module measures pressure using an internal microprocessor. It receives operating power from and sends digital information to the 700 Series calibrator.

Box Contents

Pressure module, strap, and instruction sheet.

Caution

Only use with Group 2 Fluids compatible with Hastelloy C276.

⚠ WARNING

To avoid injury due to the release of high pressure fluid, use only adapters and fittings rated to withstand the appropriate pressure. Ensure that all adapters and fittings are securely connected.

⚠ WARNING

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.

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Avoiding Mechanical Damage

To avoid damaging the pressure module, never apply more than 10 ft.-lb. of torque between the pressure module fitting 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 and incorrect ways to use a wrench when applying torque to the pressure module fitting.

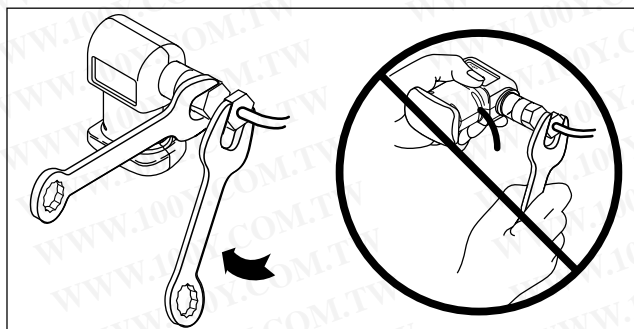


Figure 1.

Avoiding Overpressure Damage

Applying pressure in excess of the BURST PRESSURE specified on the pressure module can destroy the pressure module. Burst pressure is 2X full scale for the 700P29 and 700P30, and 1.5X full scale for the 700P31.

Avoiding Corrosion Damage

To avoid damaging the pressure module from corrosion, use it only with a medium that is compatible with Hastelloy C276.

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 with the 700 Series calibrator.

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. The accuracy of the dead weight tester or pressure calibrator must be significantly better than the pressure module specification. A 386 or better PC and Windows® 3.1 or later 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 significantly better than the pressure module 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 CLEAR (ZERO) key to remove any zero offset.

Note

The pressure zero function is available on Fluke 701 and 702 calibrators with V1.3 or later software. Contact a Fluke Service Center to upgrade your V1.0, V1.1, or V1.2 calibrator.

2. Connect the pressure module to a dead weight tester.
3. Set the dead weight tester to 20% of the pressure module's full scale value.
4. Make sure the reading agrees with the dead weight tester value within the specification in Table 1.
5. Set the dead weight tester to 40, 60, 80, and 100% of full scale and compare the respective readings.
6. If temperature sensitivity is of concern, repeat steps 1 through 5 at various controlled temperatures.

Table 1. Specifications¹ (% of full span)

Model ⁴	Range ²	Reference Uncertainty (23 ° ± 3 °C)	Stability (1 Year)	Temp (0 ° to 50 °C)	Total Uncertainty ³
700P29	0 to 3000 psi 0 to 20680 kPa 0 to 207 bar	0.050%	0.010%	0.020%	0.080%
700P30	0 to 5000 psi 0 to 34500 kPa 0 to 345 bar	0.050%	0.010%	0.020%	0.080%
700P31	0 to 10000 psi 0 to 69000 kPa 0 to 690 bar	0.050%	0.010%	0.020%	0.080%

1. Use of pressure zero function is required to achieve these specifications. Contact a Fluke Service Center to upgrade your Fluke 701 or 702 V1.0, V1.1, or V1.2 Calibrator.
2. Available pressure units (psi, kPa, bar, inHg, mmHg, inH₂O, ftH₂O, kg/cm², mmH₂O) are determined by the calibrator being used.
3. Accuracy specifications apply for 1 year for 0 to 100% of full span from 0 to 50 °C. Typical uncertainty is 1% of full span from -10 °C to 0 °C.
4. Maximum non-destructive pressure: 2X maximum rated pressure for P29 and P30, 1.5X for P31.
5. Specifications reflect a confidence interval of 95%.

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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 ₂ O/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 O/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 (C) 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.