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FLUKE®
Calibration

7250LP

Ruska Low Pressure Calibrator

Technical Data



Features

- Dual range, select from 2.5/7.5 kPa (10/30 in$H_2$0) or 5/15 kPa (20/60 in$H_2$0) or 10/25 kPa (35/100 inH20) range combinations
- Precision: 0.005 % of reading from 25 % to 100 % Full Scale (FS)
- Control stability: 0.004 % of each range
- Resolution to 0.01 Pa (0.0001 in$H_2$0)
- Time to set point: 30 seconds with no overshoot
- Languages: English, French, Chinese, German, Japanese, Spanish and Italian

The 7250LP low pressure controller/calibrator, part of the versatile Series 7250 family, is specifically designed to meet the demanding performance requirements of calibrating low pressure sensors, transducers, mechanical gauges, portable calibrators and their plug-in modules. To accommodate bidirectional devices, the 7250LP can be supplied to operate in both positive and negative gauge modes.

The 7250LP offers unmatched performance and enhanced control stability. Utilizing multiple ranges in a single instrument, the 7250LP combines precision, stability, speed and affordability. The 7250LP has a unique quartz sensor, the most accurate pressure sensing technology available in a digital pressure calibrator. Each quartz sensor is manufactured and tested to provide the ultimate performance required by a Fluke Calibration pressure calibrator, ensuring that every customer receives the highest quality, precision and stability in their instrument.

Advanced precision

The 7250LP is available in three different range configurations:
- 2.5/7.5 kPa (10/30 in$H_2$0)
- 5/15 kPa (20/60 in$H_2$0)
- 10/25 kPa (35/100 in$H_2$0)

Each combination provides a precision to 0.005 % of reading from 25 to 100 % of the higher range. For pressures from 0 to 25 %, the precision is a fixed error equal to 0.005 % of 25 % FS. This unmatched precision is achieved by the unique quartz pressure sensing technology that puts the pressure in direct contact with the quartz element, eliminating mechanical linkages and metal diaphragms. Since this is a differential sensor, the reference side of the 7250LP can be connected to the reference side (low side) of the device under test. Therefore, disturbances due to room drafts, HVAC systems and opening/closing doors, which can have a detrimental effect on the calibration process, are minimized.

The 7250LP provides both unequalled precision and excellent long term stability due to the inherent properties of quartz. For example, the total uncertainty for a 10/30 inH_2O range combination over a one year calibration interval is 0.009% of reading from 7.5 to 30 inH_2O. Below 7.5 inH_2O, the uncertainty is the root-sum-square of 0.0075% Reading and 0.000375 inH_2O.

High-speed pressure control

The 7250LP will reach the commanded setpoint in thirty seconds or less into a 15 cubic inch volume, with no overshoot. Once at pressure, the proprietary pulse width modulated valves will maintain the setpoint to within 0.004% of each range. Therefore, when using the 10 inH_2O range in active mode, the control stability is 0.0004 inH_2O.

Dual control modes

The 7250LP also provides two user selectable control modes; active and passive. In active mode, the 7250LP is continually maintaining the set point and can compensate for small leaks and pressure changes due to temperature. In passive mode, the user defines a control band and the 7250LP will turn off the controller once it achieves the setpoint within the control band.



The 7250LP features a unique fused-quartz sensor. This rugged transducer offers unequalled precision and a stability of 0.0075% of reading per year. The media is in direct contact with the quartz, eliminating mechanical linkages and diaphragms, to provide the highest performance available in an automatic controller.

Automating pressure test and calibration

The 7250LP is easy to use and can automate your calibrations in several ways:

Step up/down: for calibrations where the increments are fixed intervals, enter a user-defined step value. The 7250LP increases or decreases the pressure by the step amount with the jog dial—no more lengthy keystroke sequences to program.

Sweep test: For simple exercising routines, as with mechanical gauges, enter a start value, a stop value, and number of times to repeat the cycle. The 7250LP will automatically exercise the device under test prior to the calibration run.

Onboard programs: For frequently used or lengthy calibrations, the 7250LP can store up to 20 user-defined programs/profiles with up to 1000 steps in internal memory.

Computer interface: The 7250LP is provided with both an RS-232 and IEEE-488 interface, and syntax for all Series 7250s follows SCPI protocol for easy programming. COMPASS for Pressure, an off-the-shelf software package, is available. As a standard feature, software written for Ruska's previous generation Series 7215, 7010 and 6000 instruments is fully supported by the 7250LP. The 7250LP can be set to 510 emulation mode to use software originally written for the GE Druck DPI 510. Firmware updates can be performed over the RS-232 interface. A LabVIEW driver is available.



The 7250LP is specifically designed to calibrate low pressure gauges, transducers and portable calibrators such as the Fluke 750 series, as well as Magnahelics and virtually any low pressure sensor, gauge or test equipment.

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Versatility to handle any pneumatic pressure calibration

The 7250LP is versatile enough to handle almost any type of low pressure calibration.

Dual range: The 7250LP has two ranges in one instrument and will automatically change ranges to ensure the highest performance at the requested pressure.

Pressure units/scales: The 7250LP includes more than 12 standard units of measure, including inH_2O at 4 °C, 20 °C, and 25°C, in Hg at 0 °C and 68 °F, kPa, bar, psi, kg/cm^2, mm Hg at 0 °C , cm Hg at 0 °C, and cm H_2O at 4°C, and two user-defined units.

Head pressure: The 7250LP automatically corrects for head pressure differences.

Autovent and autozero: With a few keystrokes, the 7250LP will vent the test port to atmosphere or automatically zero itself.

Protection of the device under test—The 7250LP sets upper and lower pressure limits to ensure protection of the device under test.

Options and accessories

The 7250LP can be provided for gauge mode operation, or with:

- Vacuum (negative gauge) mode for bidirectional devices
- Rack mount kit
- COMPASS® for Pressure software

The 7250LP low pressure digital pressure calibrator can easily automate low pressure test and calibration workload. The 7250LP is easy to use, easy to maintain and has the reliability, performance, and features you want.

Calibration

All Ruska 7250LP Low Pressure Controller/Calibrators come standard with an accredited calibration report.

Specifications

General	
Temperature	Operating: 18 °C to 36 °C (64 °F to 97 °F) Storage: –20 °C to 70 °C (–4 °F to 158 °F)
Humidity	5 % to 95 % RH, non-condensing
Weight	All models: 7.7 kg (17 lb)
Dimensions (H x W x D)	178 mm x 419 mm x 483 mm (7 in x 16.5 in x 19 in)
Pressure medium	Nitrogen or clean dry air
Display	TFT, VGA, active matrix, 162.5 mm (6.4 in) 640 x 480 resolution, 65,000 colors
Test port and reference connection	1/4 in NPT female
Warm up time	24 hours; may be left on indefinitely
Precision is defined as the combined effects of linearity, repeatability and hysteresis throughout the operating temperature range. Expression of accuracy (uncertainty) conforms with the recommendations of the ISO guide to the expression of uncertainty in measurement.	
Pressure ranges	
7250LP	Select from three range combinations: 10 inH_2O and 30 inH_2O or 20 inH_2O and 60 inH_2O or 35 inH_2O and 100 inH_2O
Optional mode	Vacuum (negative gauge)
Other Series 7250 digital pressure controllers are available in a variety of ranges from 5 psig to 3 000 psig (350 mbar to 207 bar).	
Performance	
Precision	0.005 % of reading from 25 % FS to 100 % FS. Fixed error of 0.005 % of 25 % FS from 0 % to 25 % FS
Stability	0.0075 % of reading per year
Control stability	Active mode: 0.004 % of each range Passive mode: no additional uncertainty
Display resolution	User selectable to 1:1,000,000
Control response	Optimized for 5 in3 load volume (included with 7250LP). Maximum 30 in3 load volume
Negative gauge precision (optional)	Equal to the precision at the corresponding positive pressure.
Total uncertainty	
The maximum deviation from the value of pressure including precision, stability, temperature effects and the calibration standard is: 10 inH_2O range/30 inH_2O range: 0.009 % of reading or 0.00038 inH_2O or root-sum-square of 0.0075 % reading and 0.00075 inH_2O 20 inH_2O range/60 inH_2O range: 0.009 % of reading or 0.00075 inH_2O or root-sum-square of 0.0075 % reading and 0.00188 inH_2O 35 inH_2O range/100 inH_2O range: 0.009 % of reading or 0.00125 inH_2O or root-sum-square of 0.0075 % reading and 0.00313 inH_2O	
Languages	
The Series 7250LP is capable of displaying menus and functions in: English, French, Chinese, German, Japanese, Spanish and Italian	

Fluke Calibration. ***Precision, performance, confidence.***™

Electrical | RF | Temperature | Pressure | Flow | Software

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