

United Instruments' portable LPC low pressure calibration system provides accurate laboratory or "field" measurement, calibration, and verification of pressure sensors.

Measure gauge and differential pressure in the low H₂O range with an accuracy of better than $\pm 0.035\%$ FS, provide reliable pressure control, and program specific calibration curves of pressure sensors - all with the LPC.

Feature-rich, the LPC offers:

- **Ease of Use**

Select 13 different engineering units
Large Alphanumeric display
Soft touch numeric keypad

- **Three-Modes of Operation**

Measurement, control and program.
Easy programming via numeric keypad permits measurement intervals and dwell-times. Select up to (10) user defined data curves with up to (99) data points.

- **Unique Auto Zero function**

Saves time, improves accuracy and eliminates the need for operator adjustment.

- **Three Pressure Ranges**

(choose from):

Measure: -1.5 to +10" H₂O (± 25 mbar);
Control ± 10 " H₂O

Measure: -1.5 to +30" H₂O (± 82 mbar);
Control ± 30 " H₂O

Measure: -1.5 to +150" H₂O (± 412 mbar);
Control ± 150 " H₂O

- **Remote Operation**

Operates on standard 120/220VAC or via internal rechargeable NiCad batteries.

- **RS232 Interface with Software**

Enables automated operations and data logging of measurements - and it even converts units.

The LPC is a unique self-contained transfer standard and represents a significant advancement in the field of pressure calibration.



LPC SERIES

Low Pressure Calibrator



LPC SERIES

THE ULTIMATE YARDSTICK IN DRAFT PRESSURE

The Innovative design of the LPC coupled with the advanced signal processing and intelligent software algorithms make this unit the next generation of pressure calibration systems. Combined with employment of state-of-the-art piezo-resistive strain gauge technology, accuracies of $\pm 0.035\%$ full span (inclusive of zero, span, hysteresis and repeatability) are achievable.

The unique, proprietary pressure control servo mechanism incorporated in the instrument generates both positive and negative pressures internally -without the need for vacuum/pressure pumps or compressed gas sources normally associated with calibration standards. The LPC is designed for both laboratory and field use and comes calibrated against NIST traceable standards.

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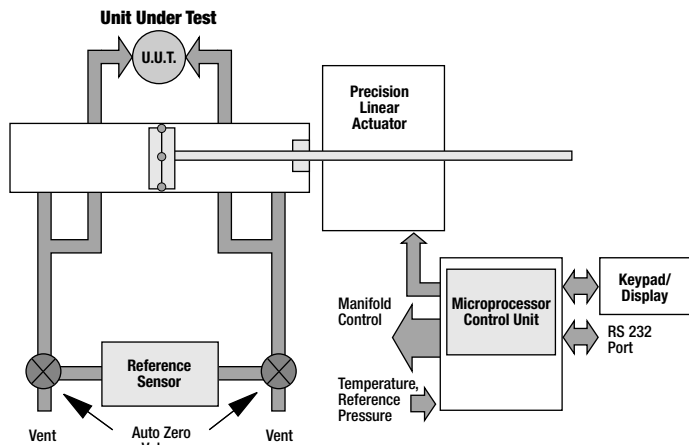


Fig. 1 - Closed Loop Differential Control

Reliable pressure control is a fundamental requirement when calibrating pressure devices. Errors introduced as a result of fluctuations in the pressure source and interconnections to the unit under test (UUT) multiply through the entire system. This reflects in the UUT exhibiting poor performance, which can ultimately result in inaccurate process control, lower production yields and higher costs. The LPC takes the guesswork out of pressure control by generating and sustaining the required pressure for the programmed dwell time automatically. Gone are the days of hand-pumps, volume adjustment and manual fine-tuning. See Fig.1

SPECIFICATIONS

Sensor Technology: Solid State, Piezoresistive Strain Gage
Signal Processing: Intelligent, microprocessor governed, 29 point calibration with temperature compensation of span, software resident in non-volatile (E²) memory

Analogue to Digital Conversion: 14 Bit dual slope
Auto Zero Certainty: Better than +/- 0.005% of FS
Measurement Accuracy: +/- 0.035% of FS @ 25°C ambient after two (2) hour warm-up.
Including:

- Zero Certainty: +/- 0.005%
- Cal Certainty: +/- 0.010%
- Pressure Hysteresis/Repeatability: +/- 0.015%
- Non-Linearity (between point): +/- 0.005%
- Thermal Hysteresis/Repeatability & Compensation Errors: +/- 0.015%

Maximum Static Line Pressure: 50 PSI common mode
Sensor Over-Pressure Capability (without accuracy deterioration): 5 PSI
Over-Pressure Protection: to 150 PSI
Pressure Synthesis: via balanced differential piston array, servo actuated closed loop digitally governed.

Servo Volumetric Drive Capability: 1 to 3 cubic inches
Pressure Servo Hysteresis: +/- 0.01% typical
Pressure Servo Resolving Capability: .00875% FS
Pressure Synthesis Certainty: +/- 0.015% FS maximum
Digital Interface: via 4800 Baud, bi-directional RS-232 enables direct control of MEASURE and CONTROL mode

System Stability: +/- 0.05% FS/year typical
Temperature Range:

- Operational: 0 to 50°C
- Calibrated: 10 to 30°C
- Storage: -20 to 50°C

Input Power: 105-135VAC or switch selectable • 210-270VAC 50/60 Hz @ 48VA
Battery Operation: via 2.3 Amp Hour, 9.6V internal Ni Cad (standard)
Battery Endurance: Approximately 1.5 Hours
Display: 2 X 20 Alphanumeric Fluorescent characters .2 inch High (5mm)
Indicators: Rectangular red LEDs: Measure, Control, Program, Power, Standby, and Battery (battery indicator = red and green state)

Operating Modes: MEASURE – Measurement only

- LPC-10 -1.5 to 10" Water Column @ 20°C
- LPC-30 -1.5 to 30" Water Column @ 20°C
- LPC-150 -1.5 to 150" Water Column @ 20°C

CONTROL – Generation of Single Pressure/Vacuum Point Control Ranges

- LPC-10 +/- 10" Water Column @ 20°C
- LPC-30 +/- 30" Water Column @ 20°C
- LPC-150 +/- 150" Water Column @ 20°C

PROGRAM – Selection of up to 99 points on a user defined calibration slope (accuracy band limited to greater than 0.05% of Full Scale point spacing)

Dwell Period Interval: 5, 10, 20, 30, 45, 60, and 90 seconds
Control & Program Modes: user selectable
Dimensions: 10"W – 4.25" H – 8.25" D (250 mm W – 110mm H – 210mm D)
Weight: 7.8 LBS (3.5 Kgs)
Warranty: One year Parts and Labor (battery 90 Days) From date of shipment.

HOW TO ORDER



Fig. 2 - Typical Setup and Operation

Model	Description
LPC-10	Low Pressure Calibrator: measures : -1.5 to +10" H ₂ O; controls: +/-10" H ₂ O
LPC-30	Low Pressure Calibrator: measures : -1.5 to +30" H ₂ O; controls +/-30" H ₂ O
LPC-150	Low Pressure Calibrator: measures : -1.5 to +150" H ₂ O; controls +/-150" H ₂ O

Note: We strive to constantly improve our products. Due to this, specifications are subject to change without notice.