

MicroCal P200

Documenting Process
Pressure Calibrator



PRESSURE CALIBRATORS

- ▶ Internal + External Pressure Modules
- ▶ $\pm 0.025\%$ FS Accuracy
- ▶ Built-In Pressure/Vacuum Pump (Hydraulic and Pneumatic Available)
- ▶ Large Graphic 6 Digit Backlighted Display
- ▶ IP65 Sealed
- ▶ mV, V & mA (Active and Passive Loop) Measuring and Simulating for TRX Calibration
- ▶ Temperature with Pt100 for Flow Transmitters
- ▶ Pressure Switch Test
- ▶ Leak Test Procedure
- ▶ Rechargeable Batteries
- ▶ Real-time Clock With Memory for In-Field Calibration Procedures ("As Found" + "As Left")
- ▶ RS232/USB Connection for the Instrumentation Management with the CalpMan 2007 Software



www.eurotron.com

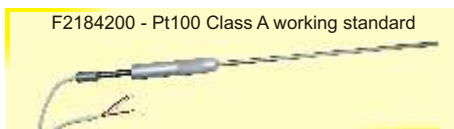


General

MicroCal P200 Pressure Calibrator is a versatile calibration instrument that combines advanced sensor technology with latest developments in pressure instrumentation. It allows calibration and accurate testing procedures of the pressure process instrumentation as: pressure transducers and transmitters, switches, relief valves, analogue pressure gauges. Combined with Eurotron hand pressure pump, and related fittings, it becomes a complete calibration system to be used on field. Between several functions, **MicroCal P200** allows you to use the calibrator as a TRX using the scalable output option. Simultaneous display of pressure versus current, voltage, percentage, or switch status.

4-wire Pt100 thermometer

Resistance and temperature with resistance thermometer may be measured on a 2, 3 and 4 wire connections for best accuracy and resolution (0.01°C).



Pressure modules (INT & EXT)

The internal pressure module can be configured to provide a lot of combinations for gauge, absolute and differential pressure measurements. External interchangeable pressure module can be connected to extend the pressure range up to 700 bar. The calibrator includes 23 selectable pressure units.



Report of Calibration

Each MicroCal is factory calibrated and certified against Eurotron Standards, that are periodically certified by an Internationally recognised Laboratory to ensure traceability, and shipped with a Report of Calibration stating the nominal and actual values and the deviation errors, stating the nominal and actual values and the deviation errors.

Transmitter Calibration

The ChIn&ChP display configures MicroCal P200 to simultaneously display the output pressure and input current. From the menu, the user can select the desired pressure unit too suit the transmitter. The passive loop connection offer the 24 Vdc loop power supply to the transmitter. No external power is required. The input signal can be scaled to pressure or % of FS allowing the user to make a direct comparison between the actual pressure and the output of the transmitter. The pneumatic or hydraulic generation system allows users to easily apply pressure to transmitters. The volume adjuster take the pressure to the desired set point. When the calibration routine is performed through a documenting procedure, the set point and errors are automatically displayed along with the pass and fail report. You just need to press enter to store the results.

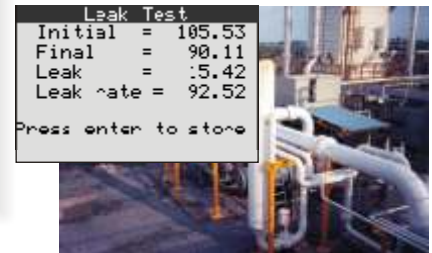


Data logging

The calibrator can be used as a two channel datalogger. The graphic mode allows you to display the trend. The LogMan PC software permits storage of data on the hard-disk.

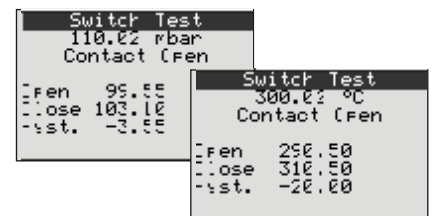
Leak Test

This procedure allows you to measure the pressure fall in a programmable time interval.



Switch test

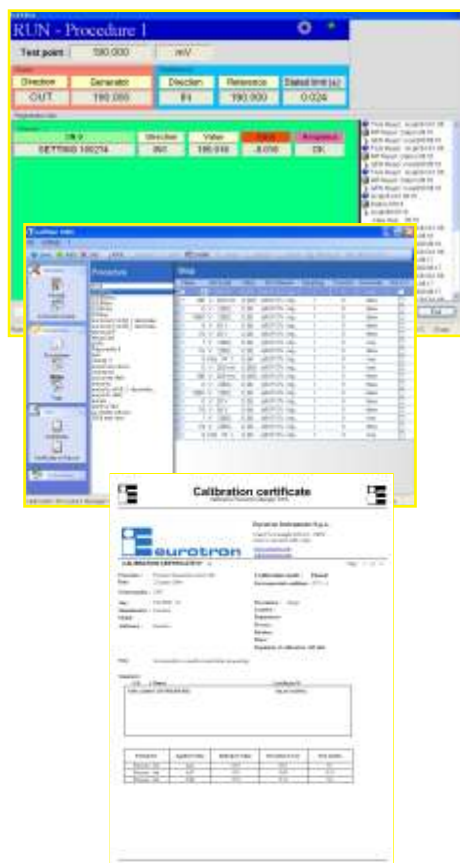
The advanced pressure switch testing facility allow the operator to display the applied pressure and the switch status OPEN or CLOSED. When the routine is performed through a documenting procedure, the MicroCal P200 display the hysteresis of the contact and the data can be recalled for an online analysis or stored for a detailed report. The leak test function checks for leak before calibration or testing routine. The leak time is selectable and the P200 display will show the drop in pressure over the selected time. Due to its concept of "Built up Pump" the MicroCal P200 pressure head can be disconnected from the pump and used "in Line" to search for pressure leak. Additionally, pressure can be monitored through graph function.



Documenting Capability

MicroCal P200 is a powerful documenting pressure calibrator with a field error calculation with include the Pass/Fail result calculation. The calibration procedure are downloaded from a PC to the internal memory of the unit. By simplify pressing the CAL button on the keyboard, each single procedure can be recall. By selecting the appropriate TAG number the calibrator will take you through the procedure reducing possible error due to operator negligence and improving the efficiency of the calibration routine.

The calibration data are then stored and downloaded to the PC for a post analysis and generate calibration report. CalPMan 2007 include a powerful instruments data base enable the user to create calibration procedure, maintain instruments and print calibration report all in accordance with the ISO 9001 quality standard. The whole documenting process takes a fraction of the time, it usually takes with a manual procedure.



Specifications

Pressure

Pressure media: AISI 316 SS compatible fluids (water, gas, and oil)

Temperature compensation: Automatic with built-in calibration matrix.

Engineering units: mbar, bar, Pa, hPa, kPa, MPa, kg/cm², kg/m², psi, mmH₂O, cmH₂O, mH₂O, Torr, atm, lb/ft², inH₂O, ftH₂O, mmHg, cmHg, mHg, inHg, programmable.

Accuracy: the accuracies are stated for 365 days and includes non linearity, hysteresis, and repeatability. The average temperature coefficient, inside the temperature compensated range, is $\pm 0.002\%$ of rdg/°C (w.t.r. +23°C/+73°F).

Compensation temperature range: +0 to +45°C (+32°F +113°F)

Internal sensors

Accuracy: $\pm 0.025\%$ F.S.

Overpressure: 125% F.S.

Port: (male) 3/8" BSP

External modules

Accuracy: $\pm 0.025\%$ F.S.

Overpressure: 125% F.S.

Port: (male) 1/4" BSP

Connection wire length: 2 meters

General

Display: graphic LCD display with automatic and manual backlight device

Measurement sampling time: 250 ms

Digital interface: full bidirectional RS232

Power supply: external charger and rechargeable Ni-MH battery pack

Battery life (typical):

10 h on measure (backlight Off)

4 h with 20 mA simulation (backlight Off)

Recharging time (typical): 5 h at 90% and 6 h at 99% with instrument switched off.

Battery charge indication: bar graph on the LCD display (flashing on charge)

Line transformer insulation: 2500 Vac

Operating environment temperature range: from -10 °C to +55 °C

Storage temperature range: from -30 °C to +60 °C

Humidity: max 95%RH non condensing

Case: Injection moulded polycarbonate case

Sealing: IP65

Weights: nett 1.4 Kg gross 2.5 Kg

Dimensions: 130x120x70 mm

Measure/ Generate	Range	Resolution	Accuracy
mV	-20 to 200mV	1mV	$\pm(0.02\% \text{ rdg.} + 3 \text{ mV})$
V	-0.2 to 2V	10mV	$\pm(0.02\% \text{ rdg.} + 10 \text{ mV})$
	-2 to 20V	100mV	$\pm(0.02\% \text{ rdg.} + 100 \text{ mV})$
mA	-5 to 22mA	0.1mA	$\pm(0.02\% \text{ rdg.} + 0.4\text{mA})$
Measure Only:			
Pt100 IEC	-200 to 850°C	0.01°C	$\pm(0.02\% \text{ rdg.} + 0.05^\circ\text{C})$
OIML, $\alpha = .3926$	-330 to 1570°F	0.01 °F	$\pm(0.02\% \text{ rdg.} + 0.09^\circ\text{F})$

Ordering Code

3224 basic - A - B - C - D - E

MicroCal P200 Basic: internal sensor + external sensor connector

3224 plus - A - B - C - D - E

MicroCal P200 plus: internal sensor + external sensors connector
 + mA/V in/out + Pt100 input

Standard package includes: Unit, Charger, Instruction Manual, Report of calibration.

Table A Pressure Accuracy

1	±0.05% F.S.
2	±0.025% F.S.

Table B Internal sensor range

2	-100 to 100 mbar Gauge sensor	res. 0.001mbar
3	-500 to 500 mbar Gauge sensor	res. 0.01mbar
4	-0.95 to 1 bar Gauge sensor	res. 0.01mbar
5	-0.95 to 2 bar Gauge sensor	res. 0.01mbar
5A	0 to 2 bar Absolute sensor	res. 0.01mbar
6	-0.95 to 7 bar Gauge sensor	res. 0.1mbar
7	-0.95 to 20 bar Gauge sensor	res. 0.1mbar
7A	0 to 20 bar Absolute sensor	res. 0.1mbar
8	0 to 35 bar Gauge sensor	res. 1mbar
9	0 to 70 bar Gauge sensor	res. 1mbar
A	0 to 150 bar Gauge sensor	res. 10mbar
B	0 to 350 bar Gauge sensor	res. 10mbar
C	0 to 700 bar Gauge sensor	res. 10mbar

Table C Line charger

1	120V 50/60 Hz with USA plug	
2	230V 50/60 Hz with Schuko plug	
3	230V 50/60 Hz with UK plug	
4	230V 50/60 Hz with European plug	
5	100V 50/60 Hz with USA/Japan plug	

Table D Accessories

0	None
1X	-0.95 to 40 bar pneumatic hand-held pump (F3280019)
2X	700 bar hydraulic hand-held pump (F3280015)
2T	700 bar hydraulic hand-held pump (F3280015) + high pressure hose
8	ABS carrying case

Table E Report of Calibration

1	Eurotron certificate
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F3280019 Pneumatic hand pump for vacuum and pressure up to 40 bar



F3280015 Hydraulic hand pump for pressure up to 700 bar

EE372008 High pressure hydraulic hose

Accessories

EXTERNAL PRESSURE MODULES - AISI 316SS - ±0.025% F.S.

GAUGE

BB480009	from -100 to 100 mbar (1.5 PSI)	res. 0.001mbar
BB480010	from -500 to 500 mbar (7 PSI)	res. 0.01mbar
BB480011	from -0.95 to 1 bar (15 PSI)	res. 0.01mbar
BB480012	from -0.95 to 2 bar (30 PSI)	res. 0.01mbar
BB480013	from -0.95 to 7bar (100 PSI)	res. 0.1mbar
BB480014	from -0.95 to 20 bar (300 PSI)	res. 0.1mbar
BB480015	from 0 to 35 bar (500 PSI)	res. 1mbar
BB480016	from 0 to 70 bar (1000 PSI)	res. 1mbar
BB480017	from 0 to 150 bar (2000 PSI)	res. 1mbar
BB480018	from 0 to 350 bar (5000 PSI)	res. 10mbar
BB480019	from 0 to 700 bar (10000 PSI)	res. 10mbar

ABSOLUTE

BB480020	from 0 to 2 bar (30 PSI)	res. 0.01mbar
BB480021	from 0 to 20 bar (300 PSI)	res. 0.1mbar

SOFTWARE

BB530203	RS232 adapter cable
BB530213	USB adapter cable
BB260198	LogMan - Data Logging Windows™ Software
BB260167	CalpMan 2007 - Calibration Procedure Manager Windows™ Software

MISCELLANEOUS

EE300203	Electrical signal test lead kit
EE480053	1/4" BSPM to NPT adapter kit (1/8"; 1/4"; 3/8"; 1/2")
EE480054	1/4" BSPM adapter kit (1/2" M; 1/2" F, 3/8" F, 1/8" F)
EE880052	ABS transit carrying case (for Calibrator and Accessories)
F2184200	Pt100 Working Standard Class A

Pneumatic Kit

Includes:

40 bar pneumatic hand pump

A set of BSP adaptors:
 1/8", 1/4", 3/8" and 1/2" BSP female

ABS transit carrying case



Hydraulic Kit

Includes:

700 bar hydraulic hand pump

A set of BSP adaptors:
 1/8", 1/4", 3/8" and 1/2" BSP female

ABS transit carrying case

