MicroCal P200

2 Models for Your Applications

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 + 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 mbar Gauge sensor	res. 0.001mbar
3	500 mbar Gauge sensor	res. 0.01mbar
4	1 bar Gauge sensor	res. 0.01mbar
5	2 bar Gauge sensor	res. 0.01mbar
5A	2 bar Absolute sensor	res. 0.01mbar
6	7 bar Gauge sensor	res. 0.1mbar
7	20 bar Gauge sensor	res. 0.1mbar
7A	20 bar Absolute sensor	res. 0.1mbar
8	35 bar (500 PSI)	res. 1mbar
9	70 bar (1000 PSI)	res. 1mbar
A	150 bar (2000 PSI)	res. 1mbar
B	350 bar (5000 PSI)	res. 10mbar
C	700 bar (10000 PSI)	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

Tabella 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
2S	1000 bar hydraulic hand-held pump (F3280016) + high pressure hose
8	ABS carrying case

Table E	Report of Calibration
1	E Instruments certificate

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
BB260198	LogMan - Data Logging Windows™ Software
BB260167	CalpMan 2000 - Calibration Procedure Manager Windows™ Software

MISCELLANEOUS

EE300203	Electrical signal test lead kit
EE880052	ABS carying case (for Calibrator and Accessories)
F2184200	Pt100 Working Standard Class A
F3280022	700 bar compact hydraulic pressure generator

MicroCal P200 coupled with the F3280015 700bar hydraulic hand pump

F3280014
20 bar pneumatic hand pump

NON-CONTRACT DOCUMENT - SUBJECT TO CHANGE

Eurotron Microcal
Innovative Instrumentation Solutions
www.einstrumentsgroup.com

E Instruments Group LLC
172 Middletown Blvd
Suite B 201
Langhorne, PA 19047
Tel: 215 750 1212
Fax: 215 750 1399
e-mail: info@einstrumentsgroup.com
Eurotron Microcal is a member of E Instruments Group LLC

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MicroCal P200

Eurotron Microcal
Innovative Instrumentation Solutions
A unit of E instruments Group LLC

Documenting Process Pressure Calibrator

- **Internal Sensor + External Modules**
- **±0.025% FS Accuracy**
- **Built-In Pressure/Vacuum Pump (hydraulic and pneumatic available)**
- **Large Graphic 6 digit Backlit Display**
- **IP65 Sealed**
- **mV, V & mA (active and passive loop) Reading and Simulating for TRX Calibration**
- **Temperature with Pt100 for Flow Transmitters**
- **Pressure Switch Test**
- **Rechargeable Batteries**
- **RS232 Serial Interface**
- **Real-time Clock With Memory for In-Field Calibration Procedures ("as found" + "as left")**

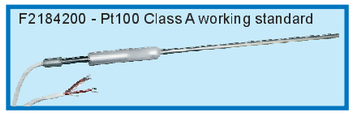
All descriptions are related to a fully optioned instrument. See last page for the different configurations.

MicroCal P200

Highlights

The **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 E Instruments 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 resistance 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°F).



Internal pressure sensors
Optional one or two built-in pressure sensors are available to cover main pressure application including gauge, differential, absolute, and vacuum. The calibration matrix pressure/temperature is stored in the internal non-volatile memory.

External pressure modules
Each unit is equipped with a connector for external pressure "smart" modules. The pressure module includes the sensor characterization table and is automatically recognised by the calibrator.
A complete selection of modules is available for ranges up to 10000PSI.

Firmware
The firmware is stored on a flash memory and allows a fast and easy upgrade of the instrument using a RS232 and PC software.

Scale factor - Math functions
All non temperature ranges are fully programmable to read both input and output values in terms of engineering unit. Four programmable alphanumeric characters are available on the display to show the symbol of the parameter (i.e. mbar, % RH, % CO, etc.). Square root function is used to calibrate ΔP flow transmitters.
Tare function is available to zeroing sensor offset.

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.

Switch test
Temperature, signal and pressure switches can be tested using this advanced procedure. The calibrator will hold the display reading when the contact changes status.

Report of Calibration
Each MicroCal is factory calibrated and certified against E Instruments 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.

EMC Conformity
The instrument fulfils the prevision of the directive 89/336/CEE Electromagnetic Compatibility.

Quality system
Research, development, production, inspection and certification activities are defined by methods and procedures of the E Instruments Quality System inspected for compliance and certified ISO9001 by GASTEC, a Dutch notified body.

Modular Design Giving Total Flexibility

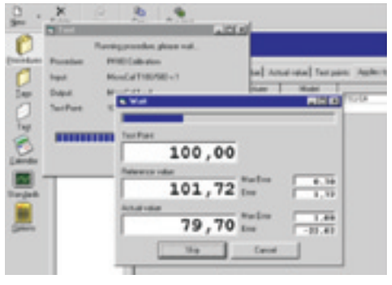
Software Packages

The **MicroCal P200** has a RS232 interface to download procedures created with CalpMan software. With expanded memory, the MicroCal P200 can store a full week of calibrations.

CalpMan 2004
The Calibration Procedure Manager software is able to transfer calibration routines (test points, error and warning bands, etc.) from a PC to the internal memory of the instrument in order to automate field calibrations. Select the appropriate tag number by keyboard directly, the calibrator will ask you step by step for all operation and test and calibration data ("As found" and "As left" values) can be memory stored. Upload your calibration data back to your PC. Print reports or export data.

CalpMan 2004 calibration procedure manager, is designed to support all E Instruments portable Calibrators. It includes an instrumentation database which makes it quick and easy to generate and manage calibration procedures, set and read data from calibrators, store the data on a database and generate a calibration report. **CalpMan 2004** help you to document the calibration/inspection activities.

LogMan
Windows™ software to download logged data from internal memory to PC. Data can be saved on disks, loaded from disks, exported in Excel format file.



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/cm^2, kg/m^2, psi, mmH_2O, cmH_2O, mH_2O, Torr, atm, lb/ft^2, inH_2O, ftH_2O, mmHg, cmHg, mHg, inHg, programmable.
Accuracy: the above accuracies are stated for 365 days and includes non linearity, histeresis, and repeability. The average temperature coefficient, inside the temperature compensated range, is ±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: ±0.025% F.S.
Overpressure: 125% F.S.
Port: (male) 3/8" BSP

External modules
Accuracy: ±0.025% F.S.
Overpressure: 125% F.S.
Port: (male) ¼" BSP
Connection wire lenght: 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 (14°F to 130°F)
Storage temperature range: from -30 °C to +60 °C (-22°F to 140°F)
Humidity: max 95%RH non condensing
Case: Injection moulded policarbonate case
Sealing: IP65
Weights: nett 1.4 Kg/50 oz gross 2.5 Kg/88 oz
Dimensions: 130x120x70 mm (5.7"x4.7"x2.8")

Parameter	Range	Resolution	Accuracy (% of reading)
mV	-20 to 200mV	1µV	±(0.02% rdg. + 3 µV)
V	-0.2 to 2V	10µV	±(0.02% rdg. + 10 µV)
	-2 to 20V	100µV	±(0.02% rdg. + 100 µV)
mA	-5 to 22mA	0.1µA	±(0.02% rdg. + 0.4µA)
Pt100 IEC	-200 to 850°C	*0.01*°C	±(0.02% rdg. + 0.05°C)
OIML, α=.3926	*-330 to 1570°F*	*0.01 °F*	*±(0.02% rdg. + 0.09°F)*

All descriptions are related to full options instrument. See latest page for the different configurations.