

# MicroCal P20



Innovative Instrumentation Solutions  
A unit of E Instruments Group LLC

## Hand-Held Pressure Documenting Calibrator

- ▶ Up to 2 Internal Pressure Sensors
- ▶ External Pressure Modules
- ▶  $\pm 0.025\%$  FS Accuracy
- ▶ Large Graphic Back Light Display
- ▶ mV, V & mA (active and passive loop) Measuring and Simulating for TRX Calibration
- ▶ Temperature with RTD for Flow Transmitters
- ▶ Pressure Switch Test
- ▶ Rechargeable Batteries
- ▶ RS232 for Instrumentation Management with CalpMan Software
- ▶ Real-Time Clock with Memory for In-Field Calibration Procedures ("as found" + "as left")



  
Available soon

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

The **MicroCal P20** Pressure Calibrator is a versatile calibration instrument that combines advanced sensor technology with the latest developments in pressure instrumentation. It allows calibration and accurate testing procedures of pressure process instrumentation such 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 in the field. Between several functions, the **MicroCal P20** allows you to use the calibrator as a TRX, using the scalable output option.

### Internal Pressure Sensors

Optional one or two built-in pressure sensors are available to cover main pressure applications including gauge, differential, absolute, and vacuum. The calibration matrix pressure/temperature

is stored in internal non-volatile memory.

### External Pressure Modules

Each instrument is equipped with a connector for external pressure "smart" modules. A wide selection of modules are available as accessories for ranges up to 281,000 inH<sub>2</sub>O (700 bar). Plug and Play connectivity requires no set-up or calibration. Instrument range expansion is simply achieved by connecting the module.

# MicroCal P20

# Documenting Pressure Calibrator

## 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<sup>2</sup>, kg/m<sup>2</sup>, psi, mmH<sub>2</sub>O, cmH<sub>2</sub>O, mH<sub>2</sub>O, Torr, atm, lb/ft<sup>2</sup>, inH<sub>2</sub>O, ftH<sub>2</sub>O, mmHg, cmHg, mHg, inHg, programmable.

### Internal Sensors

**Accuracy:** ±0.025% F.S.

**Ranges:** see table on ordering code

**Resolution:** see table on ordering code

**Overpressure:** 125% F.S.

**Port:** (female) 1/8 BSP

### External Modules

**Accuracy:** ±0.025% F.S.

**Ranges:** see table on ordering code

**Resolution:** see table on ordering code

**Overpressure:** 125% F.S.

**Port:** (male) 1/4 BSP

**Connection Wire length:** 6.6 ft

### General

**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 ±0.002% of rdg/°C (w.t.r. +23°C/+73°F).

**Compensation Temperature Range:** +0 to +45°C (+32°F +113°F)

**Calibration:** self learning technique with

automatic procedure

**Common Mode Rejection:** 140 dB at ac operation

**Normal Mode Rejection:** 60 dB at 50/60 Hz

**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

**Battery Life** (typical):

10 h on Tc and mV input/output (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 Operation:** 100V - 120 V - 230V - 240 Vac with the external battery charger

**Line Transformer Insulation:** 2500 Vac

**Operating Environment Temperature Range:** from -10°C to +55°C / 14°F to 130°F

**Storage Temperature Range:** from 0°C to +60°C / 32°F to 140°F (excluding batteries)

**Humidity:** max 95%RH non-condensing

**Case:** Injection moulded polycarbonate case

**Sealing:** IP54

**Weights:** nett 3 lbs - gross 5.5 lbs

**Dimensions:** 11.4" x 3.9" x 2.2"

## Ordering Code

### 3240 basic - AA - B - C - D

**MicroCal P20 Basic:** 2 internal sensor + external sensors pressure connector

### 3240 plus - AA - B - C - D

**MicroCal P20 plus:** 2 internal sensor + external sensors pressure connector + mA/V/Pt100 input/output

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

#### Table A Internal Sensors - AISI316SS - ±0.025% F.S.

0	None
2	-100 to 100 mbar Gauge - res. 0.001mbar
3	-500 to 500 mbar Gauge - res. 0.01mbar
4	-0.95 to 1 bar Gauge - res. 0.01mbar
5	-0.95 to 2 bar Gauge - res. 0.01mbar
5A	2 bar Absolute - res. 0.01mbar
6	-0.95 to 7 bar Gauge - res. 0.1mbar
7	-0.95 to 20 bar Gauge - res. 0.1mbar
7A	20 bar Absolute - res. 0.1mbar

#### Table B 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 C Options

0	None
1	HART protocol (plus model only)
2	EC module (T + RH% + barometric measurements)

#### Table D Report of Calibration

1	E Instruments Certificate
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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)

### PNEUMATIC & HYDRAULIC PUMPS AND ACCESSORIES AVAILABLE ON SEPARATE BULLETIN

### SOFTWARE

BB530203 RS232 PC cable  
BB260167 CalpMan 2004 - Calibration procedure manager software

### MISCELLANEOUS

EE300040 Electrical signal test lead kit  
BB880043 Vinyl protection carrying case with shoulder strap  
BB880048 Vinyl carrying case with shoulder strap  
BB880033 Aluminum carrying case  
BB880049 Rubber holster

### 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 -0.95 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



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