

MicroCal P20

Hand-Held Documenting
Pressure Calibrator



PRESSURE CALIBRATORS

- ▶ Up to 2 Internal Pressure Sensors
- ▶ External Pressure Modules
- ▶ $\pm 0.025\%$ FS Accuracy
- ▶ Large Graphic Backlit Display
- ▶ mV, V & mA (Active and Passive loop) Measuring and Simulating for TRX Calibration
- ▶ Temperature with RTDs for Flow Transmitters
- ▶ Pressure Switch Test
- ▶ Rechargeable Batteries
- ▶ RS232/USB for Instrumentation Management with CalPMan 2007 Software
- ▶ Real-time Clock with Memory for In-Field Calibration Procedures ("as found" + "as left")
- ▶ ATEX Compliant Model ATEX Ex II 1G EEx ia IIC T4 (-20°C Tamb +50°C) X



General

MicroCal P20 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.

Intrinsic Safety

The Intrinsic Safety for zone 0 with ATEX certification, class **II 1G EEx ia IIC T4 (-20°C T_{Amb} + 50°C) X** is available.

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 internal non volatile memory.

External pressure modules

Each unit is equipped with a connector for external pressure "smart" modules. A wide selection of modules are available as accessories for ranges up to 700bar. The calibration matrix pressure/temperature is stored in internal non volatile memory.

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/ff², inH₂O, ftH₂O, 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: 2 meters

Accuracy: the above 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)

General

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 (not available on IS model)

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 T_c and mV input/output (backlight Off)-(8h on IS model)

4 h with 20 mA simulation (backlight Off) - (3h on IS model)

Recharging time (typical): 5 h (8 h on IS model) at 90% and 6 h (10 h on IS model) at 99% with instrument switched off.

Battery charge indication: bar graph on the LCD display (flashing on charge) - not available on IS model

Line operation: 100V - 120 V - 230V - 240 Vac with the external battery charger

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

Storage temperature range: from 0 °C to +60 °C (excluding batteries)

Humidity: max 95%RH non condensing

Case: injection moulded polycarbonate case

Sealing: IP54

Weights: nett 1.4 Kg gross 2.5 Kg

Dimensions: 290x98x57 mm

| Measure/Generate | 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. + 0.4 µA) |
| Pt100** | -200 to 850°C | 0.01°C | ±(0.02% rdg. + 0.05°C) |
| | -330 to 1570°F | 0.01 °F | ±(0.02% rdg. + 0.09°F) |

*Loop supply: 24 Vdc ±5% - 12 Vdc ±5% on IS model

**Pt100 measure only

Ordering codes

3240 basic - AA - B - C - D

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

3240 plus - AA - B - C - D

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

Intrinsically Safe Model

3241 IS plus - AA - B - C - D

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

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. 0.001 mbar |
| 3 | -500 to 500 mbar Gauge | res. 0.01 mbar |
| 4 | -0.95 to 1 bar Gauge | res. 0.01 mbar |
| 5 | -0.95 to 2 bar Gauge | res. 0.01 mbar |
| 5A | 2 bar Absolute | res. 0.01 mbar |
| 6 | -0.95 to 7 bar Gauge | res. 0.1 mbar |
| 7 | -0.95 to 20 bar Gauge | res. 0.1 mbar |
| 7A | 20 bar Absolute | res. 0.1 mbar |

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), <i>not available on IS model</i> |
| 2 | EC module (T + RH% + barometric measurements), <i>not available on IS model</i> |

Table D Report of Calibration

| | |
|---|----------------------|
| 1 | Eurotron certificate |
|---|----------------------|

ACCESSORIES

| | |
|----------|---|
| BB530203 | RS232 PC cable |
| BB530212 | USB PC cable |
| BB260215 | CalpMan 2007 - 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 |

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

GAUGE

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

ABSOLUTE

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