MicroCal Pzero
MicroCal P100
MicroCal P120

eurotron

Palm-top Pressure Calibrators / Indicators

Bulletin 08-80.2 E

TEST & MEASUREMENTS

ISO 9001

CE

Pressure Calibrators and Indicators compatible with most fluid media

3 models with ranges vacuum to 1000bar

Accuracy up to ±0.025% F.S.

Hand held test pumps

RS232 and PC software for automatic production of calibration certificate

Eurotron - *One of the world leaders in high technology equipments: portable flue gas analysers - high accuracy calibrators - non-contact IR thermometers.*

MicroCal Pzero

- ***Voltage and active & passive current loop input***
- ***Two rows display***
- ***18 selectable pressure units***
- ***Alkaline or rechargeable batteries***
- ***Leak test procedure***
- ***Pressure switch test***
- ***Internal data memory***

MicroCal Pzero Pressure Calibrator is compact, hand held, rugged, with AISI 316 pressure sensor; it offers versatile pressure calibration solutions both in the laboratory and onsite.
The internal sensor is pressure and temperature (from +5°C to +45°C) characterized to have the largest range of applications.

Most important features are the following:

- **Electrical signal input** An auxiliary input is available as standard on **MicroCal PZero,** to measure process electrical signals: up to 22 mA (active and passive loop) and up to 30 V. It is possible displaying it (in engineering unit also) simultaneously with the pressure input value.
- **Peak** This function allows measurements of low and high peak values. It may also be used to measure pressure pulses.
- **Filter/Damp** A programmable digital filter for unstable readings.
- **Leak Test** Provides pressure the drop data on a programmable time interval.
- **Pressure switch test** Provides an automatic test with opening and closing values storing.
- **Digital Interface** A RS232 bidirectional serial port allows communications with a PC.

SPECIFICATIONS

- **Pressure accuracy**: ±0.05% F.S.
  The relative accuracy shown above is stated for 90 days and the operative conditions are from +5°C to +45°C. Outside the above temperature band the temperature drift is ±0.004% rdg/°C
- **Fluid media**: all liquids/gas compatible with wetted parts AISI316 SS.
- **Pressure ports**: BSPF 1/8" or NPTF 1/8"
- **Position effect**: negligible
- **Keyboard selectable technical units**: mbar, bar, psi, mmwc, mwc, cmwc, inwc, mmHg, mHg, inHg, kPa, hPa, matm, atm, torr, $Lbin^2$ kgm^2, $kgcm^2$
- **Scale factor and square root**: for direct flow measurement
- **Electrical ranges**: 0 to 30.000 V and 0 to 22.000 mA
- **Electrical ranges accuracy**: ±(0.05% of reading + 0.01% of f.s.).
  The relative accuracy shown above is stated for 90 days and the operative conditions are from +18°C to +28°C. Outside the above temperature band the temperature drift is ±0.002% of rdg/°C
- **Common mode rejection**: >140 dB at 50/60 Hz ±1Hz
- **Normal mode rejection**: >60 dB at 50/60 Hz ±1Hz
- **Shunt** (current input): <110
- **Impedence** (voltage input): >1M
- **Imput overvoltage** (voltage input): 50V
- **Input overcurrent** (current input): 50 mA
- **Maximum load** (passive loop): 900 at 20 mA
- **Display**: dot matrix LCD (2 lines of 16 characters each) with back light device.
- **Operative life**:
  8 hours without printing and without load on 20 mA passive current loop.
  4 hours without printing and with load on 20 mA passive current loop
- **Data memory**: up to 50 group of data
- **Working temperature limits**: from -5°C to 50°C
- **Storing temperature**: from -20°C to 60°C
- **Power supply**: n.4 type AA Alkaline, as standard. Ni-MH batteries package and external line power module, as option.
- **Case**: Injection molded ABS.
- **External dimensions**: 100 x 60 x 240 mm
- **Weight**: nett 1 Kg gross with packing 1,5 Kg

Ordering code

cat. 3204 - A - B - C - D - E

The basic instrument is equipped with pressure sensor, mA and V input, report of calibration and instruction manual.

Table A	**Range**
0	from -0.2 to 2bar
1	from -0.8 to 10bar
2	from -0.8 to 20bar
Table B	**Power supply / Charger**
0	alkaline / none
1	Ni-MH / 100Vac with USA plug
2	Ni-MH / 230Vac with Schuko plug
3	Ni-MH / 230Vac with UK plug
4	Ni-MH / 230Vac with European plug
5	Ni-MH / 120Vac with USA/Japan plug
Table C	**Connessione pressione**
0	1/8" NPT Female
1	1/8" BSP Female
Table D	**Option and Accessories**
0	None
2	Leather case (instrument only)
3	ABS case (instrument + accessories)
4	External hand pump from 0 to 10 bar (F3280004)
5	External hand pump from 0 to 14 bar (F3280001)
6	External hand pump from -0.8 to 0 bar (F3280005)
7V	External hand pump from -0.8 to 2 bar (F3280013)
8V	External hand pump from -0.8 to 20 bar (F3280014)
A	Electrical signal cable Kit
E	Back lite Display
Table E	**Calibration Certificate**
1	Eurotron report of calibration

TEST & MEASUREMENTS

MicroCal P120

! NEW !

- ***High accuracy: 0.025% FS***
- ***Ranges from vacuum to 1000bar***
- ***Two row 6 ½ digit display***
- ***Compact, rugged, portable and light***
- ***V and mA (active and passive loop) input***
- ***11 selectable pressure units***
- ***Pressure switch test***
- ***Leak test procedure***
- ***Internal data memory***
- ***RS232 data communication link***
- ***Rechargeable batteries***

MicroCal P120 Pressure Calibrator combines the latest developments in pressure instrumentation with advanced sensor and component technology to offer a versatile calibration instrument.
It is designed for accurate testing and calibrating the following types of pressure measuring instruments:

- Pressure Transducers
- Pressure Transmitters
- Pressure Switches
- Pressure Relief Valves
- Analogue Instrumentation (Pressure Gauges)

MicroCal P120 equipped with the hand-pumps supplied by Eurotron offers the capability of a complete pressure calibration system.

Compact size of **MicroCal P120** does not compromise functionality. It can simultaneously show pressure versus voltage, current, date & time, percentage of pressure, pressure switch status, temperature, maximum or minimum pressure values . Data can be logged and stored with time and date for documenting calibration activities.

Ordering code

cat. 3218 - A - B - C - D - E

The basic instrument is equipped with internal pressure sensor, mA and V input, report of calibration and instruction manual.

Table A	Sensor accuracy
1	0.05% F.S.
2	0.025% F.S.

Table B	Range
1	from -1 to 2bar
2	from -1 to 10bar
3	from -1 to 20bar
4	from 0 to 40bar
5	from 0 to 200bar
6	from 0 to 350bar
7	from 0 to 700bar
8	from 0 to 1000bar
9	Special

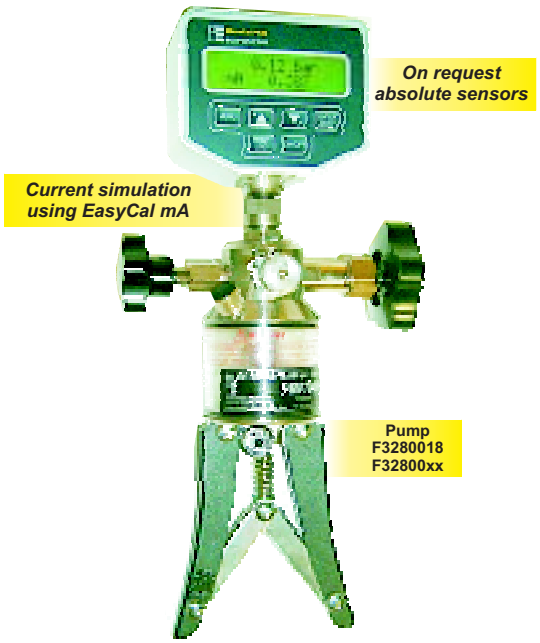
Table C	External sensor
0	none (internal only)
1	40bar
2	200bar
3	350bar
4	700bar

Table D	Option
0	None
1	External pump from -0.8 to 20 bar (F3280014)
2	External pump from 0 to 200 bar (F3280008)
2H	External pump from 0 to 350 bar (F3280018)
2X	External pump from 0 to 700 bar (F3280015)
2T	External pump from 0 to 700 bar (F3280015) with high pressure hose
4T	External pump from 0 to 1000 bar (F32800xx) with high pressure hose
6	ABS carrying case (instrument + accessories)

Table E	Calibration certificate
1	Eurotron report of calibration

SPECIFICATIONS

- **Pressure units**: bar, Mpa, kPa, Ib/in2, kg/CM2, atm, inH2O, mH20, mmH2O, inHg, mmHg, unit1, unit2 (user defined)
- **Overload Warning:** Flashing display and audible tone at 110% of FS
- **Temperature Display:** Temperature of pressure sensor module
- **Voltage Output:**
  Regulated DC supply 10V ± 0.1% max. current 30mA
  Unregulated DC supply 24V ± 10% max. current 30mA
- **Pressure Switch Test:** Status OPEN / CLOSED
- **Serial interface:** RS232
- **Zero Reset:** Manual -keyboard operation
- **Data Capacity:** 176 records into a maximum of 20 files, 8k memory (additional 204 records, 8k memory option available)
- **Display:** Back light alpha numeric LCD, 16 characters x 2 lines
- **Fluid Media:** Water, Oil, Non-corrosive gases
- **Humidity:** 5 to 95% relative humidity non condensing
- **Resolution Select:** Increase or decrease by a factor of 10
- **Pressure Connection:**
  1/4" BSP male 'quick-fit' (Pneumatic)
  3/8" BSP female 'quick-fit' (Hydraulic)
- **Operating Temperature:** 0 to 40°C
- **Calibration Temperature:** 20°C ± 2°C
- **Calibrated Temp. Range:** 10 to 40°C
- **Storage Temperature:** -20 to 70°C
- **Power Supply:** 6V rechargeable battery / mains operation via charger (supplied)
- **Battery Life:** 10 Hours fully charged
- **Low Battery:** Continuous check, audio and visual warning
- **Dimensions:** 92 x 110 x 59mm
- **Weight:** 1.2 kg



TEST & MEASUREMENTS

MicroCal P100

- ***1 year battery life***
- ***65,000 pts***
- ***Ranges up to 1000bar***
- ***Zero and Peak functions***
- ***5 selectable pressure units***
- ***RS232 data communication link***
- ***SIT calibration certificate***

MicroCal P100 is a microprocessor digital pressure gauge of new generation, its advanced analog section ensures a very high long-term stability, and its convertor A/D with 16 bits guarantee 65.000 internal divisions. This feature, together with the 0,05% accuracy class, make it an ideal laboratory instrument: the **MicroCal P100** is specifically proposed as First Line Sampling for Calibration Laboratories, and it's delivered together with the SIT certificate. The pressure gauge has internal batteries with 1 year autonomy, which is also guaranteed by the AUTO- POWER-OFF function, that turns off the pressure gauge if no pressure variation is detected within a programmable interval. The user can select different engineering units (mbar, bar, kPa, MPa, PSI), and can program different resolutions and digital filter according to the application. In order to increase the integration
level of the components, a combined traditional and SMT technology has been applied; which makes the pressure gauge more resistant against mechanical stresses and vibrations and ensures the maximum reliability of the electronic circuit. The display also show an analog indication bar of pressure always active also into a program-menu. The instrument can be used in conjunction with any of our hand held test pumps to realize a complete, functional, and portable calibration kit.

Specifications

- **Accuracy**: < ±0.05% F.S. (Including linearity and hysteresis)
- **Temperature effects @10°C**:
  Zero: <±0.015% F.S.
  Span: <±0.005% F.S.
- **Max full scale**: 65.000 div.
- **Programmable measuring units**: mbar, bar, MPa, kPa, PSI (other units on request)
- **Programmable resolution**: 1, 2, 5, 10
- **ZERO function**: 50%
- **PEAK function**: positive and negative
- **Readings per seconds**: 10 (100ms)
- **Serial Interface**: RS232 optional
- **Display**: 5 digit custom LCD
- **Power supply**: n° 4 Alkaline Battery size AA
- **Autonomy**: 1 Year
- **Mechanical limits values related to nominal pressure**:
  service pressure 100% F.S.
  max. permissible pressure 150% F.S.
  breaking pressure >300% F.S.
  high dynamic pressure 75% F.S.
- **Service temperature**: from 0 to 50 °C
- **Storage temperature**: from -10 to +60°C
- **Standard process coupling**:
  Pressure gauge 1/2" BSP male
  Pump 1/4" NPT female
- **Protection class** (DIN 40050): IP60
- **Material of the sensor**: INOX 17-4 pH
- **Dimensions**: 80x132x48 mm

Ordering code

cat. 3214 - 0 - A - B - C - D

The basic instrument is equipped with internal pressure sensor, SIT report of calibration and instruction manual.

Table A	Range
1	from 0 to 20bar
2	from 0 to 50bar
3	from 0 to 100bar
4	from 0 to 250bar
5	from 0 to 350bar
6	from 0 to 700bar
7	from 0 to 1000bar
9	Special

Tabella B	Power Supply
0	Alkaline battery

Tabella C	Option
0	None
1	External pump from -0.8 to 20 bar (F3280014)
2	External pump from 0 to 200 bar (F3280008)
2H	External pump from 0 to 350 bar (F3280018)
2X	External pump from 0 to 700 bar (F3280015)
2T	External pump from 0 to 700 bar (F3280015) with high pressure hose
3	***UniCal mA*** current calibrator
4T	External pump from 0 to 1000 bar (F32800xx) with high pressure hose
6	ABS carrying case (instrument + accessories)
7	RS232 interface

Tabella D	Calibration Certificate
1	SIT report of calibration

!! NEW !!

MicroCal P100IS *Intrisic safety*
EEx ia IIC T5
indicator-calibrator is available.

A COMPLETE PORTABLE CALIBRATION SYSTEM

UniCal mA current calibrator

- **Generating and measuring ranges:** from 0.000 to 22.000 mA and from 4.000 to 20.000 mA with active and passive loop
- **Accuracy**: ±(0.05% rdg. +10 A).
  The accuracy shown is stated for 90 days and the operative conditions are +23°C ±2°C. Typical 1 year accuracy can be calculated multiplying the "% of rdg." by 1.4.

More specifications on technical bulletin cat. 08-20

Specifications may change without notice.

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