

# Intrinsically-Safe Pressure Calibrator Ex-CPX 1000

22



The Ex-CPX 1000 guarantees simple operation through its optimised design. The robust, ergonomic housing with central handle enables easy use of the pump, with a firm hold of the device. Thanks to the large LCD, it is easy to track all setpoint and actual values and, like potential operating modes or special functions, all important data are shown according to the selected operating mode. Measured values for reference pressure and output of the specimen are displayed with textual information. This makes it easy to compare the setpoint and actual values.

Various versions of the Ex-CPX 1000 are available: as a pneumatic calibrator, hydraulic calibrator and calibrator without internal pressure generation. Each version can store up to 10,000 measured values. The internal measuring range can be expanded by fitting the Ex-CPX 1000 with external sensors. The device can be hung from the bag's shoulder strap, leaving both hands free for operation.

### Maintenance and calibration of pressure sensors and pressure measuring transducers in the Ex-area:

- Internal/external measuring range from 70 mbar to 700 bar
- Multi-lingual user guidance
- highly accurate to 0.025% from final value
- robust, user-friendly housing
- Max./min. display of measured value
- memory for up to 10,000 measured values

### Ex-data:

Ex designation:  
Ex II 1 G EEx ia IIC T4

EC-type-examination certificate no.  
Baseefa 03 ATEX 0343 X

### Standard delivery:

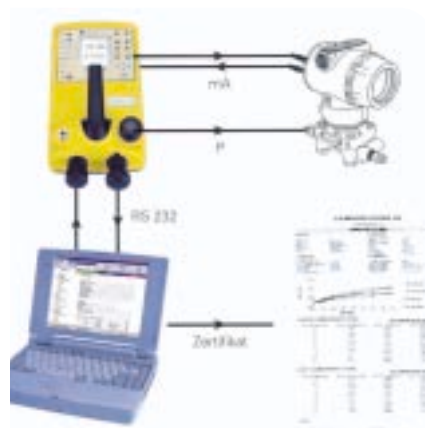
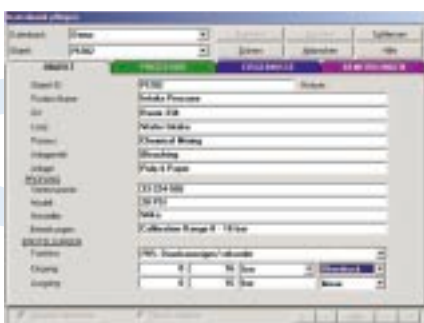
- Ex-CPX 1000
- Batteries
- Carry case
- Connection leads / terminals
- Calibration certificate

### Optional accessories:

- Documentation software
- External sensors
- Hand pump 411 (see Page 37)

### Technical data

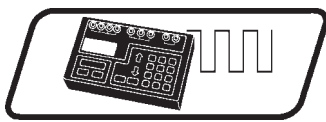
Working temperature: -10°C ...+50°C  
 Protection rating: IP54  
 Supply: 6 x LR14 type-tested  
 Weight: 3kg  
 Dimensions: 300 x 170 x 140 mm



(basic setup)



The recording of such automated calibrations is completed in a fraction of the time required for conventional "paper-supported" procedures.



# Ex-CPX 1000 Specifications



**Pneumatic Calibrator**  
**Ex-CPX 1000**

**Hand-pump**  
for generating pressures of -800 mbar to +20 bar  
**Regulating pistons**  
for finely adjusting the test pressure  
**Valve**  
for controlled pressure reduction and venting  
**Pressure connection**  
G 1/8" internal thread  
**Media**  
Dry, non-corrosive gases



**Hydraulic Calibrator**  
**Ex-CPX 1000**

**Hand-pump**  
for filling the hydraulic circuit with M5 internal thread connection  
**Block valve**  
between high pressure circuit and reservoir  
**Spindle**  
for generating pressures of up to 400 bar  
**Pressure connection**  
G 1/8" internal thread  
**Media**  
Mineral oil, distilled water



**Calibrator without pressure generation**  
**Ex-CPX 1000**

**Valve**  
for controlled pressure reduction and venting  
**Pressure connection**  
G 1/8" internal thread  
**Media**  
Non-corrosive gases and liquids

**Pressure measuring ranges**

| Pressure stage | Pneumatic | Hydraulic | Measuring instrument | External sensors Option (B1) | Accuracy v.f.v.E. |
|----------------|-----------|-----------|----------------------|------------------------------|-------------------|
| ± 70 mbar      | Ü         |           | Ü                    | Ü or D                       | 0,05% f.v. E.     |
| ± 200 mbar     | Ü         |           | Ü                    | Ü or D                       | 0,025% f.v. E.    |
| ± 350 mbar     | Ü or A    |           | Ü                    | Ü, A or D                    | 0,025% f.v. E.    |
| ± 700 mbar     | Ü or A    |           | Ü                    | Ü, A or D                    | 0,025% f.v. E.    |
| 1 bar (-)      | Ü or A    |           | Ü or A               | Ü, A or D                    | 0,025% f.v. E.    |
| 2 bar (-)      | Ü or A    |           | Ü or A               | Ü, A or D                    | 0,025% f.v. E.    |
| 3,5 bar (-)    | Ü or A    |           | Ü or A               | Ü, A or D                    | 0,025% f.v. E.    |
| 7 bar (-)      | Ü or A    |           | Ü or A               | Ü, A or D                    | 0,025% f.v. E.    |
| 10 bar (-)     | Ü or A    |           | Ü or A               | Ü, A or D                    | 0,025% f.v. E.    |
| 20 bar (-)     | Ü or A ①  |           | Ü or A               | Ü, A or D                    | 0,025% f.v. E.    |
| 35 bar (-)     |           |           | Ü or A               | Ü, A or D                    | 0,025% f.v. E.    |
| 70 bar (-)     |           | Ü or A    | Ü or A               | Ü or A                       | 0,025% f.v. E.    |
| 135 bar        |           | Ü or A    | Ü or A               | Ü or A                       | 0,025% f.v. E.    |
| 160 bar        |           | Ü or A    | Ü or A               | Ü or A                       | 0,025% f.v. E.    |
| 200 bar        |           |           | Ü or A               | Ü or A                       | 0,025% f.v. E.    |
| 350 bar        |           |           | Ü or A               | Ü or A                       | 0,025% f.v. E.    |
| 400 bar        |           | Ü or A ②  | Ü or A               | Ü or A                       | 0,025% f.v. E.    |
| 700 bar        |           |           | Ü or A ③             | Ü or A                       | 0,025% f.v. E.    |

Values in () apply for negative calibration with overpressure and differential pressure, A = Absolute, D = Differential, O = Overpressure.

The accuracy includes non-linearity, hysteresis and repeatability.

f.FV = from final value, f.M. = from margin

**Temperature influence**

± 0,004% from measured value/°C, relating to value at 20 °C

**Max. system pressure**

D = 35 bar

**Influence of system pressure**

0,5%/35 bar system pressure

**Electrical measured quantities output**

| Input    | Measuring range | Accuracy                    | Resolution | Other        |
|----------|-----------------|-----------------------------|------------|--------------|
| Voltage* | 10V DC          | ± 0,1 %                     |            | Load < 10 mA |
| Current* | 0-24 mA         | ± 0,05% f.R. ± 0,1% f.v. E. | 1 µA       |              |

\*Temperature influence ± 0,0075% from measured value/°C

U<sub>i</sub> = 30 V<sub>max</sub>, I<sub>i</sub> = 100 mA<sub>max</sub>, P<sub>i</sub> = 1 W<sub>max</sub>, U<sub>o</sub> = 7,9 V<sub>max</sub>

**Display**

60 x 60 mm graphic LCD display, resolution: 5-digit, reading rate: 2 measured values per second

**Overload capacity**

twice, otherwise ① 35 bar, ② 600 bar, ③ 350 bar maximum

**Pressure media for external reference sensors**

A, O, D: Gases and liquids compatible with 1.4401 stainless steel and Hastelloy C276.

**Electrical measured quantities input**

| Input       | Measuring range | Accuracy                      | Resolution | Other  |
|-------------|-----------------|-------------------------------|------------|--|
| Voltage*    | ± 30 V          | ± 0,05% f.R. ± 0,004% f.v. E. | 0,100 µV   | Impedance > 10 mΩ                                  |
| Current*    | ± 55 mA         | ± 0,05% f.R. ± 0,004% f.v. E. | 1 µA       | Impedance 10Ω < 30V<br>Ambient Temperature<br>1 mA |
| Temperature | -10°C bis 40°C  | ± 0,1°C                       | 0,1°C      |  |
| Switch      | open/closed     |                               |            |  |

**Special functions**

**Pressure units**

3 pressure units are selected from 25 units in SETUP mode

**mA increment function**

With continuous output a value is present for 10 seconds.

| Function          | Measuring range |      |     |       |    |    |    |
|-------------------|-----------------|------|-----|-------|----|----|----|
| 4 to 20 mA linear | 4               | 8    | 12  | 16    | 20 |    |    |
| 0 to 20 mA linear | 0               | 5    | 10  | 15    | 20 |    |    |
| 4 to 20 mA Flow   | 4               | 5    | 8   | 13    | 20 |    |    |
| 0 to 20 mA Flow   | 0               | 1,25 | 5   | 11,25 | 20 |    |    |
| 4 to 20 mA Ventil | 3,8             | 4    | 4,2 | 12    | 19 | 20 | 21 |

**mA ramp function**

Start and final values adjustable, 60 seconds ramp runup time.

**Measured value memory**

Max. 10000 measured values, continuous recording: Continuously selectable.

**Communication with PC outside of Ex-area**

Single value memory: Display contents are stored.

**Communication with PC outside of Ex-area**

RS-232 interface with adjustable parameters.

**Process functions**

Tare, max./min., filter, flow, % display.

**Multi-lingual user guidance**

German, English, French, Italian, Spanish, Portuguese.

