



LEO1

Digital gauge and peak value detection

Features

- High accuracy
- Insulated and encapsulated piezoresistive pressure sensor
- Energy-efficient: up to 1000 hours of battery life
- Perfect for recording rapid pressure spikes
- Optional: Intrinsically safe version LEO1-Ei available for use in hazardous environments

Functions

- Wide range of pressure units to choose from
- Zero point calibration via buttons
- Automatic shutdown
- Min./max. display
- Switchable between standard measurement mode (2 Hz) and rapid measurement mode (5 kHz)

Typical applications

- HVAC service device
- Fluid technology
- Pump applications
- Detecting pressure spikes or surges in systems
- Actual value display for calibration pump



Accuracy

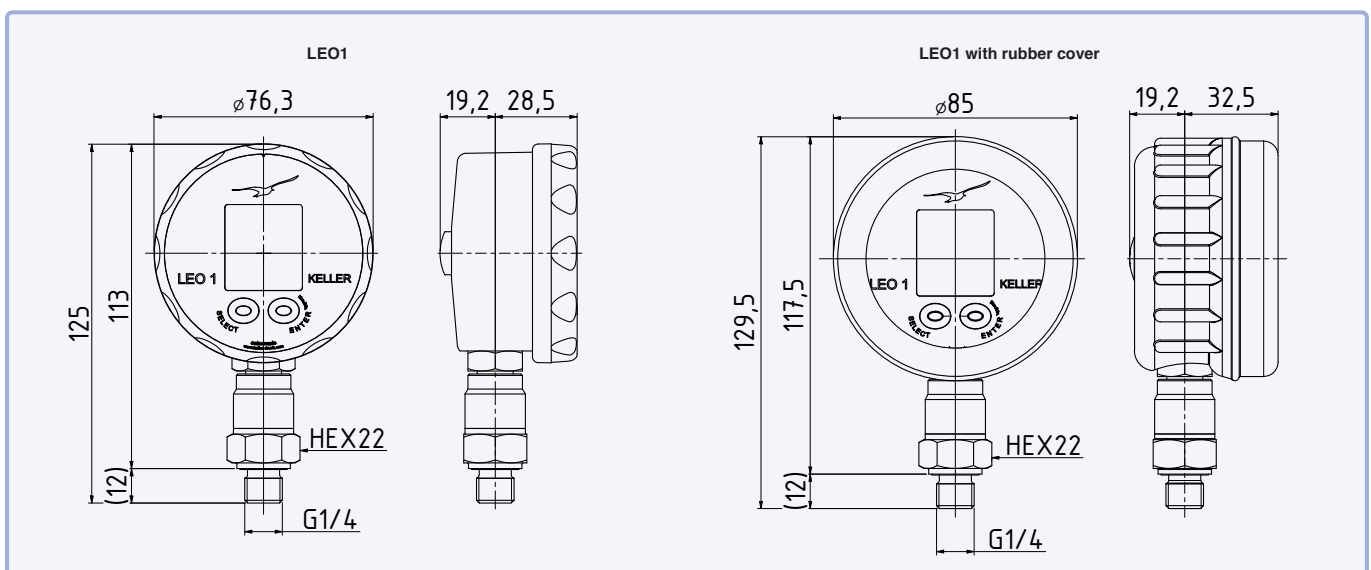
± 0,1 %FS

Total error band

± 0,2 %FS

Pressure ranges

-1...3 bar to 0...1000 bar





LEO1 – Specifications

Standard pressure ranges

| Relative pressure PR | Absolute pressure PAA | Absolute pressure PA | Proof pressure | Display resolution (LC) |
|--|---|----------------------------------|--------------------------------|----------------------------|
| -1...3 | 0...4 | | 12 | 0,001 |
| -1...10 | 0...11 | | 30 | 0,002 |
| -1...30 | 0...31 | | 90 | 0,01 |
| | 0...61 | | 180 | |
| | 0...101 | | 300 | 0,2 |
| | | 0...300 | 600 | 0,1 |
| | | 0...700 | 1200 | 0,2 |
| | | 0...1000 | 1200 | 0,2 |
| bar rel. | bar abs. | bar abs. | bar | bar |
| Reference pressure at atmospheric pressure | Reference pressure at 0 bar abs. (vacuum) | Reference pressure at 1 bar abs. | Relating to reference pressure | |

Performance

Pressure

| | | |
|-------------------------------|---------------------|--|
| Accuracy @ RT (20...25 °C) | $\leq \pm 0,1$ %FS | Non-linearity (best fit straight line, BFSL), pressure hysteresis, non-repeatability, zero point deviation and amplification deviation |
| Total error band (0...50 °C) | $\leq \pm 0,2$ %FS | Maximum deviation within the specified pressure and temperature range Experience shows that, outside the compensated temperature range, the total error band in the ambient temperature range is expanded by 0,1 %FS. |
| Compensated temperature range | 0...50 °C | |
| Long term stability | $\pm 0,2$ %FS | Per year under reference conditions, yearly recalibration recommended |
| Position dependency | $\leq \pm 1,5$ mbar | Calibrated in vertical installation position with pressure connection facing downwards |
| Pressure range reserve | $\geq \pm 10$ % | Valid measured values outside the pressure range, no overflow/underflow |

Electrical data

| | | |
|--------------|------------------|---|
| Battery | 3V, type CR2430 | Only CR2430 from Renata permitted for hazardous application areas |
| Battery life | Up to 1000 hours | Continuous use, mano mode |
| | Up to 150 hours | Continuous use, peak mode |

Electromagnetic compatibility

| | |
|---------------------------------------|---|
| CE conformity as per 2014/30/EU (EMC) | EN 61326-1 / EN 61326-2-3 / EN 61000-6-1 / EN 61000-6-2 / EN 61000-6-3 / EN 61000-6-4 |
|---------------------------------------|---|



LEO1 – Specifications

LC display

| | |
|--------------------------------|--|
| Dimensions/appearance | Width x height: 27,8 mm x 30 mm (see Dimensions and options) |
| Number of digits on LC display | 2 rows with 4 1/2 digits each |
| Display mode | Pressure + min./max. |
| Measuring rate (mano mode) | 2 samples per second (SPS) |
| Measuring rate (peak mode) | 5000 SPS (display rate 0,5 Hz) |
| Configurable pressure units | bar, mbar, hPa, kPa, MPa, PSI, kp/cm ² |

Mechanical data

Materials in contact with media

| | | |
|-------------------------------------|------------------------------|-------------------|
| Pressure connection | Stainless steel AISI 316L | Others on request |
| Pressure transducer diaphragm | Stainless steel AISI 316L | |
| Pressure transducer seal (internal) | None | |
| Pressure connection seal (external) | FKM (75 Shore, -20...200 °C) | Others on request |

Other materials

| | | |
|---------------------------------|-----------------|-------------------|
| Display housing | Faradex AS-1003 | |
| Front glass | LEXAN® 163R | |
| Pressure transducer oil filling | Silicone oil | Others on request |

Further details

| | | |
|---------------------------|------------------------|----------------------------|
| Pressure connection | G1/4 male | See Dimensions and options |
| | 1/4 NPT male | |
| Diameter x height x depth | 76 mm x 113 mm x 48 mm | Without rubber cover |
| | 85 mm x 118 mm x 52 mm | With rubber cover |
| Weight | approx. 220 g | Without rubber cover |

Environmental conditions

| | | | |
|-------------------------------|---|---------------------|------------------------------------|
| Medium temperature range | -40...85 °C | Icing not permitted | |
| Ambient temperature range | -10...60 °C | | |
| Storage temperature range | -20...70 °C | | |
| Protection | IP65 | | |
| Load cycles @ RT (20...25 °C) | > 10 million pressure cycles | 0...100 %FS | For pressures > 600 bar on request |
| Note | Readability of the LC display is guaranteed between 10 °C and 50 °C Outside this range it may be limited | | |

Explosion protection LEO1-Ei

| | | |
|---|---|--|
| Intrinsically safe version LEO1-Ei in accordance with 2014/34/EU (ATEX) and IECEx | LCIE 01 ATEX 6001 X IECEx LCIE 18.0035 X Zone 0: Ex II 1G Ex ia IIC T5 Ga | The intrinsically safe version may only be operated using the CR2430 battery from RENATA Max. permitted ambient temperature range -10...80 °C |
| Note | The conditions for safe use can be found in the operating instructions | |



LEO1 – Dimensions and options

LC display

| Front cover | Content | Dimensions |
|-------------|---------|--|
| | | Width x height: 27,8 mm x 30,0 mm Digit size: top: 8 mm x 3 mm bottom: 7 mm x 3 mm |

Available pressure connections

For pressure range ≤ 200 bar

| G1/4 | 1/4-18NPT |
|-------------------|-------------------|
| | |
| DIN EN ISO 1179-2 | ASME/ANSI B 120.1 |

For pressure range > 200 bar

| G1/4 | 1/4-18NPT |
|-------------------|-------------------|
| | |
| DIN EN ISO 1179-2 | ASME/ANSI B 120.1 |

Other pressure connections available on request.

Other customer-specific options

- Other compensated pressure ranges
- Other compensated temperature ranges
- Parts that come into contact with media made from Hastelloy C-276, Inconel 718 or titanium
- Customer-specific front covers
- Customer-specific firmware (e.g. application-specific calculations or leak measurement)
- Other pressure units can be configured ex works



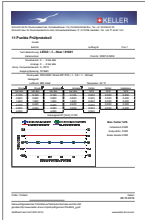



LEO1 – Scope of delivery and accessories

Scope of delivery

| Plastic case | CR2430 battery | Operating instructions D/E/F |
|---|---|---|
|  |  |  |

Accessories

| Rubber cover | KELLER 5-point report | KELLER 11-point report | Calibration certificate |
|--|--|--|--|
|  |  |  |  |
| For additional protection in harsh environments | Deviation at room temperature | Deviation at room temperature with hysteresis | Issued by the external calibration laboratory of the German accreditation body DAkkS or the Swiss accreditation body SAS |