

DIGITAL MANOMETER

WITH RECORD FUNCTION

LEO Record is an autonomous battery powered instrument with digital display designed to record pressure and temperature over long periods. LEO Record Ei is approved per IECEx for use in hazardous areas. Both the piezoresistive LEO Record as well as the capacitive LEO Record (ideal for low pressure ranges) offer the following advantages:

- High measuring accuracy, resolution and robustness
- High data security due to the use of a non-volatile memory
- Display of the actual pressure and the record status
- Recording of the pressure and temperature
- Software Logger 5 (included in delivery) for instrument configuration and analysis of measured data
- Combination of event-controlled recording and interval recording prevents unnecessary data being recorded (i.e. only measuring the pressure changes...)
- Installation data (and comments) of the measuring station can be stored in the instrument
- Pressure connection with G1/4" thread (other threads on demand)

The pressure is measured and displayed once per second (shortest interval). The top display indicates the actual pressure, the bottom display shows the record status.

All LEO Record versions have two operating keys. The left key is to turn the instrument on, to select the functions and the pressure units. The right key executes the selected function or unit.

The instruments have the following functions:

ZERO The ZERO-function allows to set any value as a new Zero reference.

UNITS All standard instruments are calibrated in bar. The pressure can be indicated in the following units: bar, mbar/hPa, kPa, MPa, PSI, kp/cm², (m)H₂O

RECORD The record can be started or ended with the operating keys.
The configuration of the record takes place via interface/software.

Optional accessories: - Protective rubber covering
- Carrying bag



LEO RECORD LEO RECORD Ei



LEO Record



LEO Record Ei
with capacitive sensor

SPECIFICATIONS LEO Record (Ei)

| Pressure Ranges ¹ , resolution, overpressure: | Ranges | Resolution | Overpressure |
|--|---|------------|--------------|
| | -1...3 bar | 1 mbar | 10 bar |
| | -1...30 bar | 10 mbar | 60 bar |
| | 0...300 bar | 100 mbar | 400 bar |
| | 0...700 bar | 100 mbar | 700 bar |
| | 0...1000 bar | 100 mbar | 1000 bar |
| Total Error Band (0...50 °C) | 0,1 %FS (Accuracy, incl. temperature error) | | |
| Long Term Stability typ. | 0,1 %FS | | |

SPECIFICATIONS LEO Record (Ei) capacitive

| | Standard FS Pressure Ranges ¹ | | | |
|--|--|------|------|------|
| PR (relative) / PD ² (differential) | 30 | 100 | 300 | mbar |
| Overpressure | 300 | 1000 | 1500 | mbar |
| Negative Overpressure | 30 | 100 | 300 | mbar |
| Total Error Band (10...40 °C) | ± 0,2 %FS | | | |
| Long Term Stability typ. | ± 0,1 mbar | | | |

¹ Other pressure ranges as well as instruments with relative pressure measuring cells on request

² For the PD-version, a tube connection Ø 6 mm for the reference is available

LEO Record Ei

Intrinsically Safe Version, 94/9/CE and IECEx

Classification: II 2 G Ex ia IIC T4 Gb

Certifications File:
PTB 05 ATEX 2012 X and IECEx PTB 13.0028X

The intrinsic safe version of LEO Record incorporates an additional protection board.

Functions, ranges and accuracy are identical to the standard LEO Record version.



The factory setting of the zero for the ranges ≤ 61 bar absolute is at vacuum (0 bar absolute). For relative pressure measurements, activate "ZERO SET" at ambient pressure. Instruments > 61 bar absolute or instruments with a relative pressure sensor (label marked with: Range: rel) are calibrated with the zero at atmospheric pressure.



KELLER

Specifications LEO Record (Ei)

| | |
|--|--|
| Storage- / Operating Temperature | -10...60 °C / 0...50 °C |
| Measuring Cycle | Adjustable (shortest interval 1 x per second) |
| Memory | ≈ 57'000 measuring values with time indication @ a measuring cycle of ≤15 s ≈ 28'000 measuring values with time indication @ a measuring cycle of >15 s |
| Supply | 3,6 V Lithium battery, type SL-760 |
| External supply (excl. Ei instruments) | 8...28 VDC |
| Battery Life | up to 2 years @ 1 recording every 10 seconds |
| Pressure Connection | G 1/4" (other threads on demand) |
| Temperature Measurements | Accuracy typ. 0,5 °C |
| Interface | RS485; rear-sided mating plug "Fischer" compatible with PC-converter cable K103-A (RS232) and K104-A(USB) |
| Material in Contact with Media | LEO Record: Stainless steel (AISI 316L), Viton® O-ring LEO Record capacitive: Viton® O-ring, gold-coated ceramic diaphragm |
| Protection | IP 65 |
| Diameter x Height x Depth (approx.) | 76 x 120 x 55 mm (LEO Record) / 76 x 150 x 55 mm (LEO Record capacitive) |

LOGGER 5

The Logger 5 software makes it possible to configure and read autonomous KELLER data loggers. This software assists users during measurements in the field, with processing the data and also with forwarding it to partners or end customers.

Measurement data can be displayed in graphic form, exported, compensated for air pressure or converted into different units. The online function displays the current device values.

The software is included in the scope of delivery for the interface converter cables, or it can be downloaded free of charge at www.keller-druck.com.

- Supports Windows operating systems

Overview of functions: Logger 5

- Pressure and temperature channels, selectable
- Adjustable measurement interval (1s...99 days)
- Averaging with selectable number of measurements
- Recording modes:
 - continuous interval measurement
 - event-controlled recording:
 - recording starts when value is exceeded
 - recording starts when value is undercut
 - recording starts when value changes
- combination of continuous and event-controlled recording is possible
- Adjustment of pressure zero point
- Start measurements immediately or at a set time
- Data storage: linear or ring-type memory
- Battery status display
- Online display of measuring channels
- Management of notifications and images for stations

Processing and forwarding measurement data

- Graphic display of measurement data
- Simple export of measurement data and graphics (supports Microsoft Office and these file formats: CSV-1, CSV-2, XML, Hydras, TNO, Wiski, BNA)
- Generation of measurement reports
- Station information stored in SQ Lite database

