Digital Manometer

with record function

LEO Record
LEO Record Ei

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)

LEO Record

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.

LEO Record Ei
with capacitive sensor

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)H_2O

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

CE

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, 2014/34/EU and IECEx

Classification: Ex 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.

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Edition 04/2018
Subject to alterations
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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 K-103A (RS232) and K-114A (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.

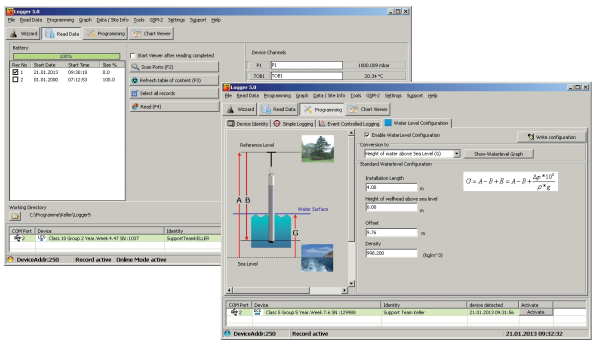
Measurement data can be displayed in graphic form, exported, compensated for air pressure or converted into different units. The online function displays the current device values.

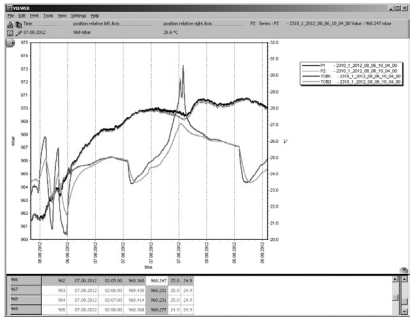
The software is included in the scope of delivery for the interface converter cables, or it can be downloaded free of charge at www.keller-druck.com.

• 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

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