KELLER

DIGITAL MANOMETER

WITH RECORD FUNCTION

LEO RECORD (Ei)

LEO Record is an autonomous battery powered instrument with digital display designed to record pressure and temperature over long periods. 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
- Simple and well structured configuration- and read-out software (Logger 4.x) for PC or PDA
- 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/cm^2, (m)H$_2$O

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
with capacitive sensor*

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

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

Stability   FS ≥ 100 mbar: ± 0,1 %FS   FS ≤ 100 mbar: ± 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

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LEO Record Ei

Intrinsically Safe Version, 94/9/CE

Classification: ⟨Ex⟩ II 2 G Ex ia IIC T4
Certification File: PTB 05 ATEX 2012 X

The Ex ia version of LEO Record incorporates an additional protection switch.

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

⟨Ex⟩

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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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
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 4.X

The Logger 4.X-software, if needed, is delivered along with the interface cable or may be downloaded from our web site. The software is compatible with Windows 2000/NT/XP/ME and 9X and allows to configure and read out our data loggers (DCX, LEO Record).

The measuring values may be graphically displayed, exported, air pressure compensated or converted into other units. The Online-function shows the actual values of the instrument.

The Logger includes the Reader and Writer.

WRITER

The Writer enables the start and configuration of LEO Record.

General functions:
- Online-display of measuring channels
- Status-indication
- Editing of installation data
- Ring buffer record storage or normal
- Readjustment of the zero

Recording parameter:
- Pressure- and temperature channels selectable

Start methods:
- Time start
- When exceeding or dropping below a certain pressure
- Measuring interval for starting conditions selectable

Recording methods:
- Interval (1s…99 days) and event-controlled recording
- Recording at pressure change
- Averaging over selectable number of measurements
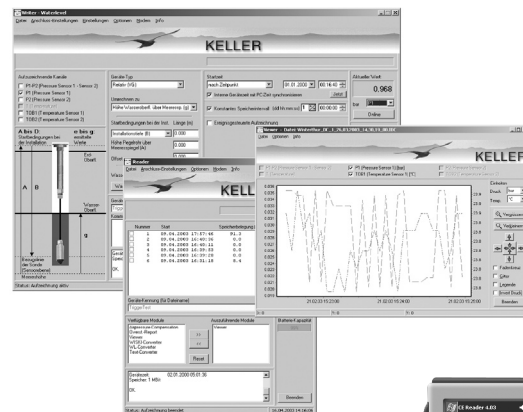- Combination of fixed interval and event recording possible

READER

The Reader allows the data to be read out into a file and to be saved onto a PDA or PC.

The data file, which can be imported by programs such as Excel, contains the following data recorder information: Serial number, measuring range, sensor name, installation data, read-out data, units, measuring values with date and clock time,…

General functions:
- Status-indication
- Reading of the recordings' directory with starting time and storage size in %
- Read-out of the individual recordings
- Graphical display of the data
- Conversion of the data into a text file for Excel import
- Miscellaneous calculations possible

Special calculations or an export of the data into customer specific databases are possible (only on request).

Logger 4.x also includes the WindowsCE-software for PDA's.