



KELLER LEX1-Ei Highly Precise Intrinsically Safe Digital Manometer User Manual

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KELLER LEX1-Ei Highly Precise Intrinsically Safe Digital Manometer



LEX1-Ei



Highly Precise, Intrinsically Safe Digital Manometer for use in Hazardous Applications.

Description and Application

Highly precise, intrinsically safe pressure manometer for use in hazardous environments. The technical data of the digital manometer can be taken from the corresponding data sheet or from the agreed specifications.

Turn-On and Functions

LEX1-Ei has two operating keys. The left key (SELECT) serves to select the functions and the pressure units. The right key (ENTER) activates the selected function or pressure unit. The right key is also used to switch between the Min.- and Max.- pressure value.

Turn-on:

Pressing the SELECT key turns the instrument on. The instrument first displays the full-scale pressure range (top display) and the software version (year/week). The instrument is then ready for use and indicates the actual pressure (top display) and the last measured Max. pressure value (bottom display).

The instrument has the following functions:

RESET:

Min./Max. pressure are set to the actual pressure.

OFF:

Turns off the instrument.

MANO:

Releases the following functions:

ZERO SET:

Sets a new pressure zero references.

ZERO RES:

Sets the pressure zero to the factory setting.

CONT on:

Deactivates the automatic turn-off function.

CONT off:

Activates the automatic turn-off function (the instrument turns off 15 minutes after the last key function), ... followed by the unit selection: bar, mbar, hPa, kPa, MPa, PSI, kp/cm², cm-H₂O, mH₂O, inH₂O, ftH₂O, mmHg, inHg

Example: Setting a new pressure unit (mbar):

- Turn on the instrument by shortly pressing SELECT.
- Wait for the instrument's measuring mode (≈ 3 s).
- Press the SELECT-key 3 times: MANO appears.
- Press ENTER: ZERO SET appears.
- Press SELECT: ZERO RES appears.
- Press SELECT: CONT on or CONT off appears.
- Press SELECT: bar appears.
- Press SELECT: mbar appears.
- Press ENTER: The new pressure unit (mbar) is set. The instrument returns to the measuring mode.

Display of the Minimum Value

When in the measuring mode (Display: Actual Pressure and Max. pressure value), you may display the Min. pressure value for 5 seconds by shortly pressing the ENTER-key.

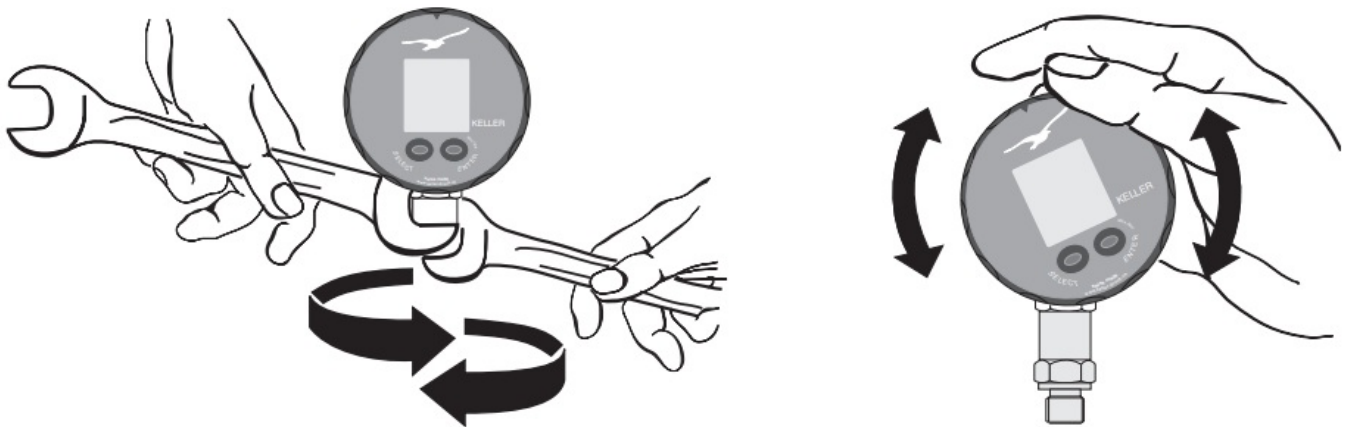
Notes

1. The functions and units can also be called up by keeping the SELECT-key depressed. Releasing the key enables the displayed function or unit to be activated with the ENTER-key.
2. If the selected function or unit is not activated within 5 seconds with the ENTER-key, LEX1-Ei returns to the measuring mode without changing any settings.
3. Turning LEX1-Ei on and off does not influence any of the previous settings.
4. If the CONT on function is activated, it is indicated with a flashing sign (cont) on the display.
5. If a pressure can not be represented on the display, OFL (overflow) or UFL (un-derflow) appears on the display.
6. If the actual pressure goes beyond the measuring range, the last valid pressure value starts flashing on the display (overload warning).
7. Temperatures outside of 0...60 °C could impair the readability of the display.

Installation

The installation must be carried out by authorized qualified per-sonnel only. Screw the LEX1-Ei into the female pressure port and tighten using the hexagon of the transducer (pressure connection) (max. torque 50 Nm). The transducer is secured to the housing by a lock nut. Aligning the face: Slacken the lock nut at the housing using two open-ended spanners. The display of the LEX1-Ei can now be rotated in relation to the transducer. Move the face to the desired position and tighten the lock nut. The LEX1-Ei's display can be turned almost 180° to the left and right. The lid of the lower housing can then be opened.

ATTENTION: Turning the display



more than 180° may damage the wires.

Battery Change / Battery Life

When the battery starts weak-ening, a low battery warning (BAT LOW) will appear in the display.

Battery change: Please turn off the instrument before changing the battery. Open the instrument by turning the display ring be-yond the limit stop. Disconnect the battery. Remove weak bat-tery and insert new one. When reassembling, make sure that the O-ring remains imbed-ded in the cover. The battery life is approx. 2000 hours in normal measuring mode.

Please note: This manometer is equipped with a battery (Type CR2430) installed. Please use a coin for opening the battery box to prevent da-mage to the battery cover. Dispose of discharged batteries properly, where they are to be picked up by a qualified waste management company. Place replacement battery between the contact

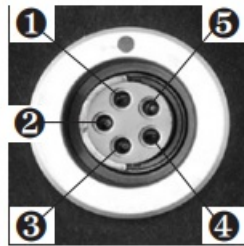
springs, paying attention to the polarity (positive pole facing up).
Close the cover plate by hand, if possible.

Ranges / Calibration

The ZERO-function allows to set any pressure value as a zero reference. The factory setting of the pressure 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.

Interface (RS485)

The interface converter K-103A (RS232) or K-114A (USB) can be connected at the back of the manometer (Fischer plug Series 103), allowing the data transfer to the PC. The corresponding PC software can be found on our web site. Note: The RS485 interface may only be used outside the zone with a potentially explosive atmosphere!



Fischer Series 103

❶	n.c.	❷	n.c.
❸	n.c.	❹	RS485 A
		❺	RS485 B

General Safety Instructions

When installing and operating the digital manometer, attention should be paid to the corresponding national safety regulations and to the relative country regulations concerning the Ex-application.

Only mount the digital manometer onto unpressurized systems. On pressure ranges ≥ 61 bar, the pressure connections could show residual hydraulic oil, determined by production flow. Please also note the corresponding data sheet.

Special Conditions for Safe Use

The digital manometer LEX1-Ei is an "intrinsically safe apparatus"; it can be operated in explosive atmospheres. Operating ambient temperature: $-20\text{ }^{\circ}\text{C}$ and $+65\text{ }^{\circ}\text{C}$. Connect the pressure port of the digital Manometer to neutral earth (to ground). The connection at the rear for the RS485 interface may only be used outside the zone with a potentially explosive atmosphere. Due to the internal capacitances only a safe maximum voltage of $U_m = 6,3\text{ V}$ may be applied and the power of $0,9\text{ W}$ may not be exceeded. This guarantees that the capacitance limit for the basic voltage level is not exceeded on reintroducing the equipment to the hazardous zone. The battery may be changed inside the zone with a potentially explosive atmosphere. The following battery type must be used in explosive atmospheres: Renata CR2430 or CR2430MFR. Do not conduct such processes in close proximity, which generate charged particles (air ioniser, high-voltage electrodes, etc).

Accessories, Spare Parts

- Battery Renata CR2430, Lithium 3,0 V Order Number 557005.0001
- Interface Cable K-114A (USB – RS485) Order Number 309010.0075
- Interface Cable K-103A (RS232 – RS485) Order Number 309010.0002
- Tragetasche / Carrying bag / Sacoche de transport Order Number 309030.0003
- Tragekoffer / Carrying Case / Mallette de transport Order Number 309025.0050

EU / UK DECLARATION OF CONFORMITY

Herewith we declare, that the following products

Intrinsically Safe Digital Manometer LEX1-Ei

comply with the requirements of the following EU/UK Directives

- Directive EMC 2014/30/EU
- Directive ATEX 2014/34/EU
- Directive RoHS 2011/65/EU and Commission
- Delegated Directive (EU) 2015/863
- UKSI 2016:1091
- UKSI 2016:1107
- UKSI 2012:3032

The Intrinsically Safe Digital Manometer LEX1-Ei comply with the following standards:

- The following certificates are given:

IECEX PTB 13.0028 X (Issue 1)


- This declaration is given for the manufacturer:

issued by: KELLER Gesellschaft für Druckmesstechnik mbH, Schwarzwaldstrasse 17, DE-79798 Jestetten

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Documents / Resources

	<p>KELLER LEX1-Ei Highly Precise Intrinsically Safe Digital Manometer [pdf] User Manual LEX1-Ei Highly Precise Intrinsically Safe Digital Manometer, LEX1-Ei, Highly Precise Intrinsically Safe Digital Manometer, Precise Intrinsically Safe Digital Manometer, Intrinsically Safe Digital Manometer, Safe Digital Manometer, Digital Manometer, Manometer</p>
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References

-  [Druck a Baker Hughes business | Providing Peace of Mind in the Toughest Environments](#)
-  [KELLER Pressure](#)