# KELLER LEO2-Ei Intrinsically Safe Manometer Instruction Manual



**LEO2-Ei Intrinsically Safe Manometer**


**Instruction Manual**

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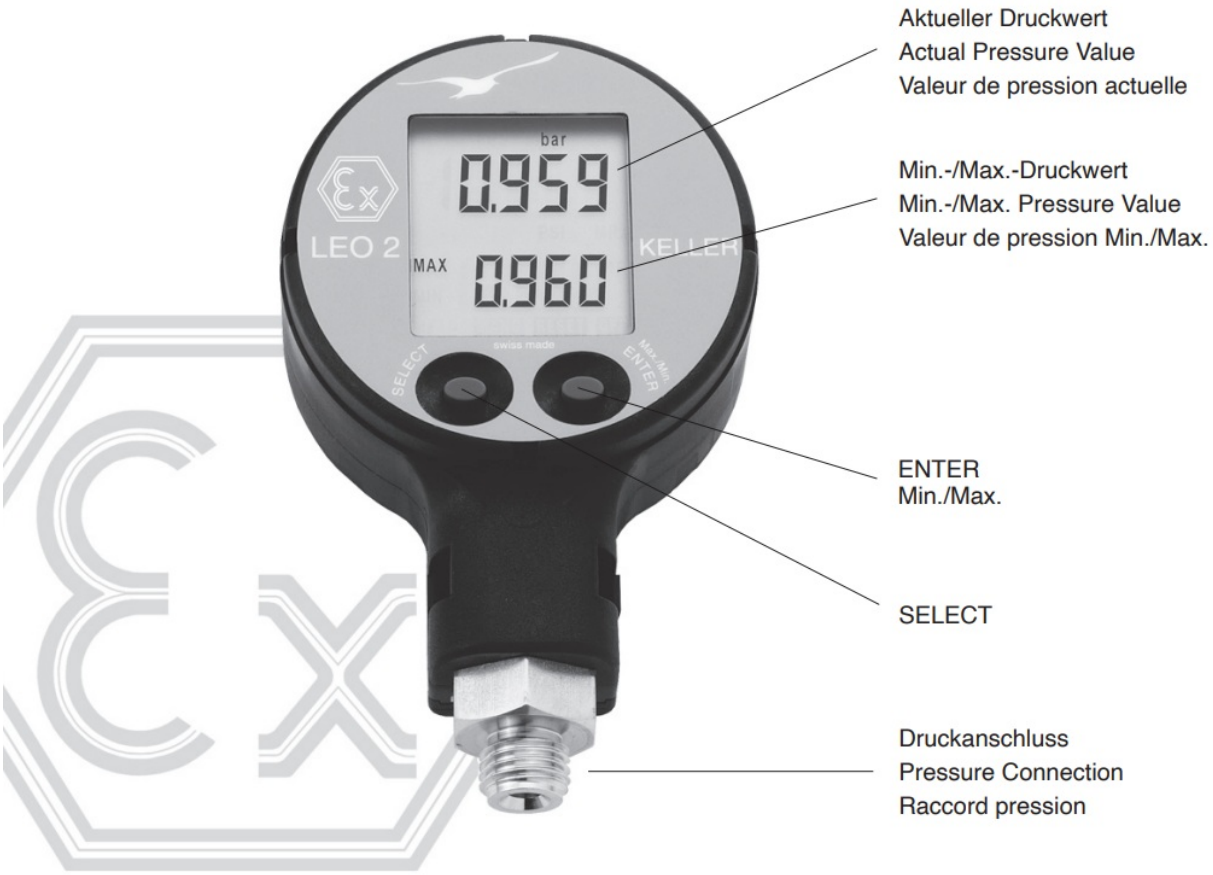
## LEO2-Ei Intrinsically Safe Manometer




**Intrinsically Safe Manometer with Min.-/Max.-Display**. for use in Hazardous Applications

## Description and Application

Intrinsically safe manometer with Min.-/Max.- pressure indication, 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

LEO2-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.-value are set to the actual pressure.
**OFF:**
Turns off the instrument.
**MANO:**

Releases the following functions:
**ZERO SET:**
Sets a new pressure zero reference.
**ZERO RES:**
Sets the pressure zero to factory setting.
**CONT on:**
Deactivates the automatic turn-off function.
**CONT off:**
Activates the automatic turnoff function (the instrument turns off 15 minutes after the last key operation),
…followed by the unit selection: **bar, mbar, haps, kPa, MP, PSI, kip/cm²**

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** rest 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, LEO2-Ei returns to the measuring mode without changing any settings.
3. Turning LEO2-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 on the display (OFF flashes when CONT on is set).
5. If a pressure can not be represented on the display, OFL (overflow) or UFL (underflow) 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 personnel only.
LEO2-Ei has 7/16"-20 UNF male thread and is delivered complete with an O-ring seal swivel fitting which allows LEO2-Ei to be rotated through 360°.
Only minimal tightness is needed to seal up to 700 bar. Process pressure connection is G1/4" male.
The swivel adapter can be tightened with a max. torque of 50 Nm.

"Swivel"

Adapter G1/4"
Adaptateur G1/4"

## Battery Change /Battery Life

When the battery starts weakening, a low battery warning (BAT LOW) will appear in the display.
**Battery change:** Open the battery compartment and change the battery (Type RENATA CR 2430).
Please use a coin for opening the battery box to prevent damage to the battery cover.
When reassembling, make sure that the O-ring remains imbedded in the 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 attend tin to the polarity (positive pole facing up). Close the cover plate by hand, if possible.

The **battery life** is ca 1000 hours at continuous operation.

## 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: reel) are calibrated with the zero at atmospheric pressure.

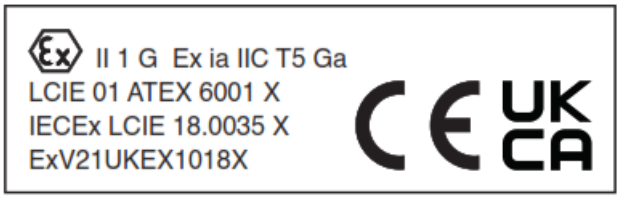
## General Safety Instructions

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

## Special Conditions for Safe Use

The digital manometer LEO2-Ei is an “intrinsically safe apparatus”; it can be operated in explosive atmospheres.
The operating ambient temperature are included between -10 °C and +80°C.
Connect the pressure port of the digital Manometer to neutral earth (to ground).
The following battery type must be used in explosive atmospheres: Renata CR 2430.
The battery may be changed inside the zone with a potentially explosive atmosphere.
Do not conduct such processes in close proximity, which generate charged particles (air ionizer, high-voltage electrodes, etc.).
Increases the maximum media temperature at the transducer 80 °C it is the duty of the final user to make own safety clarifications.

**Marking**




**EU / UK DECLARA TION OF CONFORMITY**

Herewith we declare, that the following products
**Intrinsically Safe Digital Manometer LEO2-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)
UKSI 2016:1091
UKSI 2016:1107

UKSI 2012:3032
The Intrinsically Safe Digital Manometer LEO2-Ei comply with the following standards:
EN IEC 61000-6-1:2019 EN IEC 61000-6-2:2019 EN IEC 61000-6-3:2021 EN IEC 61000-6-4:2019
EN 61326-1:2013 EN 61326-2-3:2013 EN IEC 60079-0:2018 EN 60079-11:2012
The following certify cates are given:
LCIE 01 ATEX 6001 X (Issue 04) – IECEx LCIE 18.0035 X (Issue 0) – ExV21UKEX1018X (Issue 0)
This declaration is given for the manufacturer:
KELLER Druckmesstechnik AG, St. Gallerstrasse 119, CH-8404 Winterthur
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KELLER Gesellschaft fur Druckmesstechnik mph, Schwarzwaldstrasse 17, DE-79798 Josette
Josette, 14.09.2022

Bernhard Petteril
Technical Director

Matthias Schlumped
Quality Manager

with legally effective signature CE UK CA

## Documents / Resources


KELLER LEO2-Ei Intrinsically Safe Manometer [pdf] Instruction Manual
LEO2-Ei Intrinsically Safe Manometer, LEO2-Ei, Intrinsically Safe Manometer, Safe Manometer, Manometer