IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	IECEx PTB 13.0028X issue No.: 1	Certificate history: Issue No. 1 (2018-11-5) Issue No. 0 (2013-7-22)
Status:	**Current**	
Date of Issue:	**2018-11-05** Page 1 of 4	

Applicant: **KELLER AG für Druckmesstechnik**
St. Gallerstrasse 119
8404 Winterthur
Switzerland

Equipment: **Digital manometer, type LEX 1 Ei and type LEO RECORD Ei**

Optional accessory:

Type of Protection: **Intrinsic Safety**

Marking: Ex ia IIC T6/T4 Gb

Approved for issue on behalf of the IECEx Certification Body: Dr.-Ing. F. Lienesch

Position: Head of department "Explosion Protection in Sensor Technology and Instrumentation"

Signature:
(for printed version)

Date: 19.11.18

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

Physikalisch-Technische Bundesanstalt (PTB)
Bundesallee 100
38116 Braunschweig
Germany

Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin

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Manufacturer: **KELLER AG für Druckmesstechnik**
St. Gallerstrasse 119
8404 Winterthur
Switzerland

Additional Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:
The apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Edition: 6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-11 : 2011 Edition: 6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment *listed has successfully met the examination and test requirements as recorded in*

Test Report:

DE/PTB/ExTR13.0025/01

Quality Assessment Report:

DE/EPS/QAR13.0004/00

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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows

The digital manometer type LEX 1 Ei or type LEO RECORD Ei is a battery-powered pressure gauge and serves for the measurement and storage of pressure values. The digital manometer type LEX 1 Ei or LEO RECORD Ei may be used with a PT1000 temperature sensor. The RS485 interface shall only be connected outside the hazardous area.
For relationship between type of equipment, ambient temperature and temperature class, reference is made to the following table.

Digital manometer type	Ambient temperature	Temperature class
LEX 1 Ei	-20 up to +65 °C	T6
LEO RECORD Ei	-20 up to +60 °C	T4

Electrical data

Internal supply LEX 1 Ei	3.3 V (DC); type of battery approved for power supply: Renata CR2430MFR, size coin cell
Internal supply LEO RECORD Ei	3.6 V (DC); type of battery approved for power supply: Tadiran SL-760, size AA
Temperature sensor LEO RECORD Ei	In type of protection Intrinsic Safety Ex ia IIC; When connecting an external PT-1000 temperature sensore, the maximum permissible thermal contact resistance after installation must not exceed R_{th} = 900 K/W
Interface RS485 LEX 1 Ei and LEO RECORD Ei	Only for connection outside the hazardous area. The connected loads shall not exceed: safety related maximum voltage: U_m = 6.3 V (DC) connected power: P < 0.9 W

SPECIFIC CONDITIONS OF USE: YES as shown below:

1. The maximum permissible ambient temperature range for the digital manometer depends on the type of equipment and shall be taken from the above table.
2. The temperature class of the digital manometer depends on the type of equipment and shall be taken from the above table.
3. The RS485 digital interface of the digital manometer shall be connected to the manometer and operated only outside the hazardous area. A safety-related maximum voltage of Um = 6.3 V and power of 0.9 W shall not be exceeded.
4. The digital manometer type LEO RECORD Ei may be used alternatively with a temperature sensor e.g. PT1000 including the associated cable. The thermal resistance shall be calculated at the installation and shall not exceed the value of R_{th} = 900 K/W. The thermal resistance is related to the Temperature Class T4.
5. The batteries of the digital manometer may be replaced inside the hazardous area.

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

The changes concern the internal structure. From EMC measures, EMC ferrites and line ferrites were used. A PT-1000 temperature sensor can be used on terminal P2. The optional remote pressure sensor on terminal P2 is eliminated. The batteries used were reduced to a single type, depending on the variant of the manometer.