



(1) **EU-TYPE EXAMINATION CERTIFICATE**
(Translation)

(2) Equipment or Protective Systems Intended for Use in
Potentially Explosive Atmospheres - **Directive 2014/34/EU**

(3) EU-Type Examination Certificate Number:

PTB 05 ATEX 2012 X

Issue: 1

(4) Product: Digital manometer, type LEX 1 Ei or LEO RECORD Ei

(5) Manufacturer: KELLER AG für Druckmesstechnik

(6) Address: St. Gallerstrasse 119, 8404 Winterthur, Switzerland

(7) This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in the confidential Test Report PTB Ex 18-28105.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0:2011+A11:2013 EN 60079-11:2012

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

(11) This EU-Type Examination Certificate relates only to the design and construction of the specified product in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

(12) The marking of the product shall include the following:

 **II 2 G Ex ia IIC T6/T4 Gb**

Konformitätsbewertungsstelle, Sektor Explosionsschutz

Braunschweig, November 19, 2018

On behalf of PTB:


Dr.-Ing. F. Lienesch
Direktor und Professor



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EU-Type Examination Certificates without signature and official stamp shall not be valid. The certificates may be circulated only without alteration. Extracts or alterations are subject to approval by the Physikalisch-Technische Bundesanstalt. In case of dispute, the German text shall prevail.

(13)

SCHEDULE

(14) **EU-Type Examination Certificate Number PTB 05 ATEX 2012 X, Issue: 1**

(15) Description of Product

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 may be used with a remote PT1000 temperature sensor. The RS485 interface shall only be connected outside of 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

Interface RS485
on Terminal P1
LEX 1 Ei and
LEO RECORD Ei

Only for connection outside of the hazardous area.
The connected loads shall not exceed:
safety related maximum voltage $U_m=6.3V$
connected power $P < 0.9W$

PT-1000 on Terminal P2
LEO RECORD Ei

In type of protection Intrinsic Safety Ex ia IIC;
when connecting an external PT-1000 temperature sensor,
the maximum permissible thermal contact resistance after
installation must not exceed $R_{th} = 900 K/W$

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SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 05 ATEX 2012 X, Issue: 1

Modification

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.

(16) Test Report PTB Ex 18-28105

(17) Specific conditions of use

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 of the hazardous area. A safety-related maximum voltage of $U_m = 6.3 \text{ V}$ 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 by the installation and shall not exceed the value of $R_{th} = 900 \text{ K/W}$. The thermal resistance is related to the Temperature Class T4.
5. The batteries of the digital manometer may be replaced inside the hazardous area.

(18) Essential health and safety requirements

Met by compliance with the aforementioned standards.

According to Article 41 of Directive 2014/34/EU, EC-type examination certificates which have been issued according to Directive 94/9/EC prior to the date of coming into force of Directive 2014/34/EU (April 20, 2016) may be considered as if they were issued already in compliance with Directive 2014/34/EU. By permission of the European Commission supplements to such EC-type examination certificates and new issues of such certificates may continue to hold the original certificate number issued before April 20, 2016.

Konformitätsbewertungsstelle, Sektor Explosionsschutz

Braunschweig, November 19, 2018

On behalf of PTB:


Dr.-Ing. F. Lienesch
Direktor und Professor

