




**UK Type Examination Certificate CML 21UKEX2661X Issue 0**
**United Kingdom Conformity Assessment**

- 1 Product or Protective System Intended for use in Potentially Explosive Atmospheres UKSI 2016:1107 (as amended) – Schedule 3A, Part 1
- 2 Equipment **Input Module 'LB1109' for Remote I/O-System 'LB'**
- 3 Manufacturer **Pepperl + Fuchs SE**
- 4 Address **Lilienthalstrasse 200,  
68307 Mannheim,  
Germany**
- 5 The equipment is specified in the description of this certificate and the documents to which it refers.
- 6 Eurofins E&E CML Limited, Newport Business Park, New Port Road, Ellesmere Port, CH65 4LZ, United Kingdom, Approved Body Number 2503, in accordance with Regulation 43 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Schedule 1 of the Regulations.  
  
The examination and test results are recorded in the confidential reports listed in Section 12.
- 7 If an 'X' suffix appears after the certificate number, it indicates that the equipment is subject to specific conditions of use (affecting correct installation or safe use). These are specified in Section 14.
- 8 This UK Type Examination certificate relates only to the design and construction of the specified equipment. Further requirements of the Regulations apply to the manufacturing process and supply of the product. These are not covered by this certificate.
- 9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the confidential report, has been demonstrated through compliance with the following documents:  
  
EN IEC 60079-0:2018      EN 60079-11:2012      EN 60079-15:2010
- 10 The equipment shall be marked with the following:

	II 3 (1) G		II (1) D		I (M1)
	Ex nA [ja Ga] IIC T4 Gc		[Ex ia Da] IIIC		[Ex ia Ma] I
Alternative:	Ex nAc [ja] IIC T4		[Ex [ja] IIIC		[Ex ia] I



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## 11 Description

The Input Module "LB1109 \*\*" for Remote I/O-System "LB" is an 8-channel digital input device designed for use in the safe area or areas requiring category 3G equipment and has 8 intrinsically safe digital inputs in type of protection Ex ia for gas explosion group IIC, dust explosion group IIIC and mining. The galvanic Isolation between the intrinsically safe circuits and the non-intrinsically safe circuits is achieved by two transformers. The modules are only permitted to operate in Connection with backplanes, power supplies and gateways which are an integral part of the LB Remote I/O System. A SELV/PELV power supply is required to supply the LB System.

Non-intrinsically safe circuits:

Value	X01:B/O — < X01:C/N
Nominal voltage (Un)	12 V DC (-2/+4%), SELV/PELV
Rated voltage (Ur)	12.48 V DC
Maximum common mode voltage (Um)	60 V DC

Value	X01:E >X01:L
Nominal voltage (Un)	± 2.5 V Signal with reference level 2.5 V DC (Manchester - Signal)
Rated voltage (Ur)	12.48 V DC (SELV/PELV, same GND reference as power supply)
Maximum common mode voltage (Um)	60 V DC

The non-intrinsically safe circuits are galvanically isolated from the intrinsically safe circuits up to a peak value of 375 V of the nominal voltage.

**Intrinsically safe circuits:**

**Between Pin 1-2, 3-4, 5-6, 7-8, 9-10, 11-12, 13-14, 15-16**

Maximum Output voltage	$U_o = 10 \text{ V}$
Maximum Output current	$I_o = 13 \text{ mA}$
Maximum Output power	$P_o = 33 \text{ mW}$
Maximum internal capacitance	$C_i$ negligible
Maximum internal inductance	$L_i$ negligible

The capacitance and either the inductance of the load connected to each intrinsically safe Circuit must not exceed the following values:

Group	I	HA	HB / IIIC	IIC
maximum external capacity $C_o$	180 pF	100 pF	20 pF	3 pF
maximum external inductivity $L_o$	100 mH	100 mH	100 mH	100 mH
$L_q/R_o$	14.35 mH/Q	8.752 mH/Q	4.376 mH/Q	1.094 mH/Q

The table is only applicable when the internal inductance  $L_i$  or the internal capacitance  $C_i$  of the connected equipment is <1% of the above specified tabular values.

If  $L_i$  as well as  $C_i$  of the connected equipment are >1% of the tabular values, all values specified in the table shall be reduced to 50%. At this, the capacitance of the external Circuit (capacitance of the cable + internal capacitance  $C_i$  of the connected equipment) shall not exceed 1 pF for groups I, IIA, 1 1 B and 600 nF for IIC.

Additional Parameters: **Ambient temperature range  $T_a = -40 \text{ °C}$  to  $+60 \text{ °C}$ .**



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## 12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	10 Aug 2021	R14112X/00	Issue of the prime certificate. EXA 13ATEX0036X, Issue 2 is attached and shall be referred to in conjunction with this certificate.

Note: Drawings that describe the equipment are listed or referred to in the Annex.

## 13 Conditions of Manufacture

The following conditions are required of the manufacturing process for compliance with the certification.

- i. dielectric strength test between input and Output windings of the transformers T01 and T02 with voltage at least 1500 V for a period of 60 s or with 1800 V with duration of at least 1 s.

## 14 Specific Conditions of Use

The following relate to the installation and/or safe use of the equipment:

- i. All circuits connected to the device must comply with overvoltage category II (or better) according to EN 60664-1
- ii. SELV/PELV power supply is required to supply the LB-system
- iii. The device must only be used together with the respective backplanes
- iv. The device must be installed and operated only in an environment that ensures a pollution degree 2 (or better) according to EN 60664-1
- v. **Installation in safe area:**  
The device must be installed:
  - in an enclosure with a degree of protection at least IP54 according to EN 60529 and fulfilling requirements of EN 60079-0 for enclosures or
  - in a controlled environment providing pollution degree 2, or better
- vi. **Installation in areas requiring category equipment 3G:**
  - The equipment shall be installed in an enclosure that fulfill the requirements of EN 60079-15 / EN 60079-0 for the zone of Installation and provide a degree of protection not less than IP54 in accordance to EN 60529

## Certificate Annex

**Certificate Number** CML 21UKEX2661X  
**Equipment** Input Module 'LB1109' for Remote I/O-System 'LB'  
**Manufacturer** Pepperl + Fuchs SE



The following documents describe the equipment defined in this certificate:

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For drawings describing the equipment, refer to attached certificate EXA 13ATEX0036X Issue 1. In addition to the drawings listed on EXA 13ATEX0036X Issue 1, the following drawings include the additional marking required for this UK Type Examination certification:

Drawing No	Sheets	Rev	Approved date	Title
16-1555CM-10	1 to 2	0	10 Aug 2021	Additional Marking Requirements for UKCA