UK Type Examination Certificate CML 23UKEX2204 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 **Segment coupler type KFD2-BR*-EX*.*** and KLD2-PL*-EX*.***

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

10 The equipment shall be marked with the following:

Ex II (1) G
[Ex ia] IIC Ga

Ex II (1) D
[Ex ia] IIIC Da

11 Description

As associated electrical apparatus the segment coupler KFD2-BR*-EX*-*** and KLD2-PL*-E.X.** is used for the supply of intrinsically safe electrical apparatus and for the transmission of electrical signals from the explosion hazardous area to the non-explosion hazardous area and vice versa. The intrinsically safe output circuit corresponds to the FISCO model.

The maximum permissible ambient temperature is 60 °C.

Mains circuit. (terminals 59(+), 60(-) and contacts 1(+), 2(-))	20-35 VDC, approx. 7W maximum voltage Um = 253 VAC resp. Um= 125 V DC
Data circuit. (terminals 40, 41, 42, 55 56, 57 and contacts 3, 5)	types KFD2-BR*-EX*.***, KLD2-PL*-EX*.*** for connection to a serial interface RS 485 maximum voltage Um = 60 V
Data circuit.. (terminals 40, 41, 42, 55 56, 57 and contacts 3, 5)	type KLD2-PR*-Ex*.IEC1 for connection to an I EC 1158 interface maximum voltage Um=60 V
Output circuit (terminals 3, 18(+) and 2, 17(-))	type of protection Intrinsic Safety Ex ia IIC/IIB maximum values: Uo = 15 V Io = 207.2 mA Po = 1.93 W R = 190.4 Ω output characteristic trapezoidal for connection to fieldbus-systems according to the FISCO-model with the following characteristics: All apparatus connected to the output circuit (fieldbus) shall act as passive current sink (non-feeding). The effective internal inductance and capacitance of each apparatus shall keep the following limits: Lj < 10 H Ci < 5 nF The line used for the fieldbus shall keep the following ranges with regard to its reactances per unit length:

R' = 15 ... 150 Ω/km (loop resistance)

L'= 0.4 ...1 mH/km

C'= 45 ... 200 nF/km (incl. a possibly existing shield),

$C' = C'_{strand/strand} + 0.5\ C'_{strand/shield}$

(if the bus circuit is floating),

resp.

$C' = C'_{strand/strand} + C'_{strand/shield}$

(if the shield is connected to one pole of the supply unit).

A terminator, consisting of a capacitor up to 2.2 µF (incl. tolerance)

in series to a resistor of 90 ... 100 Ω, is permissible at the end of the line.

This requires a separate examination certificate as a rule.

If the conditions mentioned are met and if the intrinsically safe

output circuits are applied in group IIC (Ex ia), the maximum line length up to 1000 m (trunk line plus the total number of all spur lines) is not limited with respect to safety technology.

The maximum line length for each spur line is 60 m.

If the conditions mentioned are met and if the intrinsically safe output circuits are applied in group IIB (Ex ia), the maximum line length up to 5000 m (trunk line plus the total number of all spur lines) is not limited with respect to safety technology.

The maximum line length for each spur line is 60 m.

Shield
(terminal 1, 16)

only for connection to the line's shield or the equipotential bonding system respectively

The output circuit is safely electrically isolated from the mains circuit and from the data circuit up to a peak value of the nominal voltage of 375 V.

12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	31 Aug 2023	R14112CV/00	Prime Certificate issued.

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

13 Conditions of Manufacture

None.

14 Specific Conditions of Use

None

Certificate Annex

Certificate Number	**CML 23UKEX2204**
Equipment	**Segment coupler type KFD2-BR*-EX*.*** and KLD2-PL*-EX*.***
Manufacturer	**Pepperl+Fuchs SE**

The following documents describe the equipment defined in this certificate:

Issue 0

For drawings describing the equipment, refer to attached certificate PTB 99 ATEX 2142. In addition to the drawings listed on PTB 99 ATEX 2142, 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	31 Aug 2023	Additional Marking Requirements for UKCA