

**UK Type Examination Certificate CML 21UKEX2903X 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 **Type KFD2-SCD2-Ex\*.LK Transformer Isolated Driver**
- 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:

 II (1) G [Ex ia Ga] IIC (-40°C ≤ Ta ≤ +60°C/+70°C)

 II (1) D [Ex ia Da] IIIC (-40°C ≤ Ta ≤ +60°C/+70°C)

 I (M1) [Ex ia Ma] I (-40°C ≤ Ta ≤ +60°C/+70°C)

The segregation of the hazardous area circuits meets the requirements for 250V





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## 11 Description

The Type KFD2-SCD2-Ex\*.LK Transformer Isolated Driver is a two-channel safety device designed to provide a galvanically isolated interface to enable the connection of equipment located in a hazardous area with equipment located in a non-hazardous area by providing galvanic isolation and limiting the voltage and current into the hazardous area to intrinsically safe levels.

The equipment comprises a number of electronics components, including transformers, fuses, resistors and zener diodes, all mounted on a single printed circuit board and housed within a plastic enclosure fitted with terminals for external connections.

The following variants are covered by this certificate:

KFD2-SCD2-Ex1.LK(-Y\*)

KFD2-SCD2-Ex2.LK(-Y\*)

The safety devices are marked:

**See Section 10**

### Input / Output Parameters

Terminal 7 to 12, 14 & 15 and Power Rail terminals 1, 2 & 4:

KFD2-SCD2-Ex1.LK only: Terminal 7 to 9, 14 & 15 and Power Rail terminals 1, 2 & 4:

$U_m = 250V$

The equipment is designed to operate from a d.c. supply of up to 40V.

KFD2-SCD2-Ex2.LK: Terminals 1, 2 & 3 (Ch 1) and 4, 5 & 6 (Ch 2):

KFD2-SCD2-Ex1.LK: Terminals 1, 2 & 3:

$U_o = 25.2V$     $I_o = 93mA$     $P_o = 585.3mW$     $C_i = 1.05nF$     $L_i = 0$

The capacitance and either the inductance or the inductance to resistance ratio (L/R) of the hazardous area load must not exceed the following values:

GROUP	CAPACITANCE ( $\mu F$ )	INDUCTANCE OR (mH)	L/R RATIO ( $\mu H/OHM$ )
IIC	0.1059	4.11	60.7
IIB / IIIC	0.818	16.47	242.9
IIA	2.890	32.95	485.9
<b>I</b>	<b>4.790</b>	<b>54.06</b>	<b>797.3</b>



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The above parameters apply when one of the two conditions below is given:

- the total  $L_i$  of the external circuit (excluding the cable) is  $< 1\%$  of the  $L_o$  value or
- the total  $C_i$  of the external circuit (excluding the cable) is  $< 1\%$  of the  $C_o$  value.

The above parameters are reduced to 50% when both of the two conditions below are given:

- the total  $L_i$  of the external circuit (excluding the cable)  $\geq 1\%$  of the  $L_o$  value and
- the total  $C_i$  of the external circuit (excluding the cable)  $\geq 1\%$  of the  $C_o$  value.

Note: the reduced capacitance of the external circuit (including cable) shall not be greater than  $1\mu\text{F}$  for Groups I, IIA & IIB / IIIC and  $600\text{nF}$  for Group IIC.



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## 12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	29 Sept 2021	R14112AS/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

1. The safety device must be installed in a controlled environment with a pollution level limited to pollution degree 2 (or better) and be installed within an enclosure providing a degree of protection of at least IP54 according to EN 60529 & EN 60079-0; provision shall be made to ensure that the non-hazardous area connections is limited to overvoltage category I / II as defined in IEC 60664-1.

## Certificate Annex

**Certificate Number** CML 21UKEX2903X  
**Equipment** Type KFD2-SCD2-Ex\*.LK Transformer Isolated Driver  
**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 BAS 00ATEX7240X. In addition to the drawings listed on BAS 00ATEX7240X, 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	29 Sept 2021	Additional Marking Requirements for UKCA