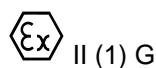


UK Type Examination Certificate CML 21UKEX21102 Issue 0**United Kingdom Conformity Assessment**

- 1 Product or Protective System Intended for use in Potentially Explosive Atmospheres UKSI 2016:1107 (as amended) – Schedule 3A, Part 1
- 2 Equipment **Type KFD0-SD2- Ex Series Transformer Isolated Solenoid Drivers**
- 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.

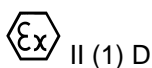
The examination and test results are recorded in the confidential reports listed in Section 12.
- 7 If an 'X' suffix appears after the certificate number, it indicates that the equipment is subject to specific conditions of use (affecting correct installation or safe use). These are specified in Section 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:



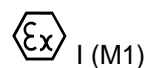
[Ex ia Ga] IIC / IIB

(-20°C ≤ Ta ≤ +60°C)



[Ex ia Da] IIIC

(-20°C ≤ Ta ≤ +60°C)



[Ex ia Ma] I

(-20°C ≤ Ta ≤ +60°C)



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11 Description

The Type KFD0-SD2-Ex Series Transformer Isolated Solenoid Drivers are designed to transfer current from unspecified apparatus located in the non-hazardous area to the hazardous area. The voltage and current passed to the hazardous area are limited to intrinsically safe levels and have linear characteristics. The hazardous area circuit is galvanically isolated from the non-hazardous area circuit using transformers.

The Type KFD0-SD2-Ex Series Transformer Isolated Solenoid Drivers comprise a number of electronic components, including isolating transformers, fuses, zener diodes and resistors all mounted on printed circuit boards and housed in a plastic enclosure with polarised plug-in terminals for hazardous and non-hazardous area connections. LED indication is provided for channel status.

There are single and dual channel models of the apparatus. The dual channel versions have two printed circuit boards fitted and are denoted by '2' after 'Ex' in the model number. The digits at the end of the model number denote the voltage and current limit of the apparatus. The following models are in the range:

KFD0-SD2-Ex1.1045
KFD0-SD2-Ex2.1045
KFD0-SD2-Ex1.1245
KFD0-SD2-Ex2.1245
KFD0-SD2-Ex1.1065
KFD0-SD2-Ex2.1065
KFD0-SD2-Ex1.10100
KFD0-SD2-Ex1.1180 ([Ex ia Ga] IIB only)

Type KFD0-SD2-Ex Series Transformer Isolated Solenoid Drivers

Non-Hazardous Area Terminals 7 to 9

$$U_m = 253V \text{ r.m.s.}$$

The circuit connected to non-hazardous area terminals 7 to 9 are designed to operate from a d.c. supply up to 35V.

Hazardous Area Terminals 1 w.r.t. 2 & 3 (Channel 1)

or

Hazardous Area Terminals 4 w.r.t. 5 & 6 (Channel 2)

Model No.	U ₀ (V)	I ₀ (mA)	P ₀ (W)	C _i (μF)	L _i (mH)
KFD0-SD2-Ex*.1045	25.2	93	0.586	0	0
KFD0-SD2-Ex*.1245	25.2	110	0.693	0	0
KFD0-SD2-Ex*.1065	17.22	220	0.947	0	0
KFD0-SD2-Ex1.1180	25.2	184	1.159	0	0
KFD0-SD2-Ex1.10100	17	271	1.152	0	0

NOTE: * in model number denotes the number of channels. '1' denotes a single channel version and '2' a dual channel version. Hazardous Area Terminals 4 to 6 are only fitted on dual channel models.



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The capacitance and either the inductance or the inductance to resistance ratio (L/R) of the load connected to the output terminals of each channel must not exceed the following values for each model:

GROUP	CAPACITANCE in μF	INDUCTANCE in mH	or L/R RATIO in $\mu\text{H}/\Omega$
Type KFD0-SD2-Ex*.1045			
IIC	0.107	4.11	60
IIB	0.82	16.44	242
IIA	2.90	32.88	485
I	4.15	53.95	796
Type KFD0-SD2-Ex*.1245			
IIC	0.107	2.93	51
IIB	0.82	11.75	205
IIA	2.90	23.50	410
I	4.15	38.56	673
Type KFD0-SD2-Ex*.1065			
IIC	0.353	0.73	37
IIB	2.06	2.93	150
IIA	8.50	5.87	300
I	10.60	9.64	492
Type KFD0-SD2-Ex1.10100			
IIC	0.375	0.48	30
IIB	2.20	1.93	123
IIA	9.00	3.87	246
I	11.00	6.35	405
Type KFD0-SD2-Ex1.1180 ([Ex ia] IIB only)			
IIB	0.82	4.20	122
IIA	2.90	8.40	245
I	4.15	13.78	402

NOTE:

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) 1% of the L_o value and
- the total C_i of the external circuit (excluding the cable) 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 and 600nF for Group IIC.

12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	08 Feb 2023	R14112BL/00	Prime Certificate issued.

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



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13 Conditions of Manufacture

None.

14 Specific Conditions of Use

None.

Certificate Annex

Certificate Number CML 21UKEX21102
Equipment Type KFD0-SD2- Ex Series Transformer Isolated Solenoid Drivers
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 Baseefa 06ATEX0252. In addition to the drawings listed on Baseefa 06ATEX0252, 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	08 Feb 2023	Additional Marking Requirements for UKCA