

**UK Type Examination Certificate    CML 21UKEX21101    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-VR2-Ex1.50M/500M Transformer Isolated Voltage Repeater**
- 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.

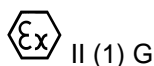
The examination and test results are recorded in the confidential reports listed in Section 12.

- 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

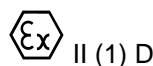
EN 60079-11:2012

- 10 The equipment shall be marked with the following:



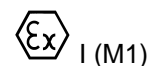
[Ex ia Ga] IIC

(-20°C < Ta < +60°C)



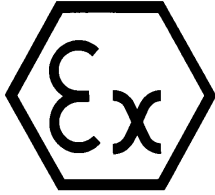
[Ex ia Da] IIIC

(-20°C < Ta < +60°C)



[Ex ia Ma ] I

(-20°C < Ta < +60°C)



CML 21UKEX21101  
Issue 0

## 11 Description

The Type KFD2-VR2-Ex1.50M/500M Transformer Isolated Voltage Repeater is used to restrict the transfer of energy in the form of a low voltage analogue signal from unspecified non-hazardous area apparatus to intrinsically safe circuits located in a hazardous area. It also provides galvanic isolation between the hazardous area and non-hazardous area circuits.

The Type KFD2-VR2-Ex1.50M/500M Transformer Isolated Voltage Repeater comprises a number of electrical components, including two isolating transformers, fuses, resistors and zener diodes all mounted onto a single printed circuit board (PCB) and housed within a plastic enclosure with plug-in terminals.

### Input/Output Parameters

Non-hazardous Area Terminals 1 & 14 wrt 2 & 15 and 7 wrt 8

$U_m = 253V$

The apparatus is designed to operate from a d.c. supply of up to 40V on the above terminals.

Hazardous Area Terminals 4 wrt 5

$U_o = 5.5V$        $C_o = 58 \mu F$   
 $I_o = 2.4mA$        $L_o = 1000 mH$   
 $P_o = 3.3mW$   
 $C_i = 0$   
 $L_i = 0$

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

Hazardous Area Terminals 4 wrt 5

Group	Capacitance ( $\mu F$ )	Inductance (mH) or	L/R Ratio ( $\mu H/\Omega$ )
IIC	58	1000	425
IIB/IIIC	1000	1000	425
IIA	1000	1000	425
I	1000	1000	425

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  $1\mu F$  for Groups I, IIA & IIB/IIIC and  $600nF$  for Group IIC.



CML 21UKEX21101  
Issue 0

## 12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	08 Feb 2023	R14112BJ/00	Prime Certificate issued.

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

## 13 Conditions of Manufacture

Any conditions of manufacture are as per the related ATEX certificate.

## 14 Specific Conditions of Use

None

## Certificate Annex

**Certificate Number** CML 21UKEX21101  
**Equipment** Type KFD2-VR2-Ex1.50M/500M Transformer Isolated Voltage Repeater  
**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 06ATEX0040 Issue 3. In addition to the drawings listed on Baseefa 06ATEX0040 Issue 3, 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