

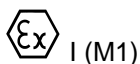
UK Type Examination Certificate CML 22UKEX2503X Issue 0**United Kingdom Conformity Assessment**

- 1 Product or Protective System Intended for use in Potentially Explosive Atmospheres UKSI 2016:1107 (as amended) – Schedule 3A, Part 1
- 2 Equipment **Transmitter Supply Isolator type KF**-CRG2-Ex1.****
- 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.

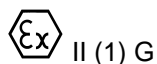
The examination and test results are recorded in the confidential reports listed in Section 12.
- 7 If an 'X' suffix appears after the certificate number, it indicates that the equipment is subject to specific conditions of use (affecting correct installation or safe use). These are specified in Section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

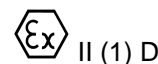
- 10 The equipment shall be marked with the following:



[Ex ia Ma]



[Ex ia Ga] IIC



[Ex ia Da] IIIC





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11 Description

The transmitter supply isolator type KF**-CRG2-Ex1.** is an associated apparatus for the evaluation of connected transmitters. The input circuits are intrinsically safe. Available are relay outputs, transistor outputs, RS232 interface and an impressed current output. For variant KF**CRG2-Ex1.D an operating module is provided for the display of measured values and for the adjustment.

Type Code

KF-CRG2-Ex1.* ***

Housing: **KF**: K-Housing with removable terminals

Supply voltage ** = D2 (20 ... 30 V d.c) or U8 (20 ... 90 V d.c or 48 ... 253 V a.c)

Device type: **CRG** = Transmitter supply isolator

2 (CRG of 2. Generation)

Number of channels: **Ex1.** = 1 intrinsically safe channel

Display: * = - (without Display) or .D (with Display)

Electrical Data:

Supply circuit

(Terminals 23,24)

For connection to non-intrinsically safe circuits with the following maximum values:

KFU8-CRG2-Ex1.**:

U= 20V ... 90V d.c resp. U= 48V ... 253V a.c

U_m = 125 V d.c resp. U_m = 253 V a.c

KFD2-CRG2-Ex1.**:

U= 20V ... 30V d.c resp. U_m = 40 V

or

Via Power Rail

(Terminals PR: 1, 2)

For connection to non-intrinsically safe circuits with the following maximum values:

Only KFD2-CRG2-Ex1.**:

U= 20V ... 30V d.c resp. U_m = 40 V

Current Output

(Terminals 7, 8)

For connection to non-intrinsically safe circuits with the following maximum values:

I= 0/4 ... 20 mA and U_m = 40 V

R_{max}= 650 W



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Relays outputs
(Terminals 10, 11, 12 and 16, 17,
18)

For connection to non-intrinsically safe circuits with the following maximum values:

Alternating voltage:	Direct voltage:
$U = 253 \text{ V}$	$U = 40 \text{ V}$
$I = 2 \text{ A}$	$I = 2 \text{ A}$
$S = 500 \text{ VA}$	$P = 80 \text{ W}$
$\cos \varphi = 0.7$	$U_m = 253 \text{ V}$
$U_m = 253 \text{ V}$	

Transistor output
(Terminals 19, 20)

For connection to non-intrinsically safe circuits with the following maximum values:

$U_m = 40 \text{ V}$

RS232 interface
(3,5mm plug)

For connection to non-intrinsically safe circuits with maximum rated voltage:

$U_m = 40 \text{ V}$

Sensor input
(Terminals 1, 2, 3)

In type of protection intrinsic safety Ex ia I/IIC/IIB(IIIC)/IIA

For connection to passive 3-wire sensor.

With the following maximum values:

$U_o = 25.8 \text{ V}$
 $I_o = 112 \text{ mA}$
 $P_o = 720 \text{ mW}$
Characteristic line: Linear

Effective internal capacitance C_i Negligibly small

Effective internal inductance L_i Negligibly small

The maximum permissible values for the external inductance L_o and the external capacitance C_o can be taken from the following table:

Ex ia I	Ex ia IIC	Ex ia IIB (IIIC)	Ex ia IIA
2.67 μF	0.101 μF	0.78 μF	2.67 μF
20 mH	2.5 mH	10 mH	20 mH



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The above L_o and C_o 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 L_o and C_o 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) is $> 1\%$ of the L_o value and
- The total C_i of the external circuit (excluding the cable) is $> 1\%$ of the C_o value.

The reduced capacitance of the external circuit (including cable) shall not exceed $1 \mu\text{F}$ for the groups I, IIA, IIB and IIC and 600 nF for the group IIC.

Sensor input (Terminals 1, 3)	In type of protection intrinsic safety Ex ia I/IIC/IIB(IIC)/IIA. For connection to passive 2-wire sensor. With the following maximum values: $U_o = 25.8 \text{ V}$ $I_o = 93 \text{ mA}$ $P_o = 603 \text{ mW}$ Characteristic line: Linear
Effective internal capacitance C_i	Negligibly small
Effective internal inductance L_i	Negligibly small

The maximum permissible values for the external inductance L_o and the external capacitance C_o can be taken from the following table:

Ex ia I	Ex ia IIC	Ex ia IIB (IIC)	Ex ia IIA
2.67 μF	0.101 μF	0.78 μF	2.67 μF
30 mH	4 mH	15 mH	30 mH

The above L_o and C_o 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 L_o and C_o 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) is $> 1\%$ of the L_o value and
- The total C_i of the external circuit (excluding the cable) is $> 1\%$ of the C_o value.

The reduced capacitance of the external circuit (including cable) shall not exceed $1 \mu\text{F}$ for the groups I, IIA, IIB and IIC and 600 nF for the group IIC.

Or



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Sensor input
(Terminals 2, 3)

In type of protection intrinsic safety Ex ia I/IC/IIB(IIIC)/IIA.
Only for connection to active certified intrinsically safe circuits.

Maximum values:

$U_i = 30 \text{ V}$
 $I_i = 115 \text{ mA}$

$U_o = 5 \text{ V}$
 $I_o = 0.3 \text{ mA}$
 $P_o = 0.3 \text{ mW}$

Characteristic line: Linear

Effective internal capacitance C_i Negligibly small
Effective internal inductance L_i Negligibly small

The input circuits are safely galvanically separated from all other circuits up to a peak value of the nominal voltage of 375 V.

12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	09 Aug 2022	R14112CL/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 22UKEX2503X
Equipment Transmitter Supply Isolator type KF**-CRG2-Ex1.**
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 TUV 01ATEX1701. In addition to the drawings listed on TUV 01ATEX1701, 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	09 Aug 2022	Additional Marking Requirements for UKCA