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UNITED KINGDOM CONFORMITY ASSESSMENT  
**UK-TYPE EXAMINATION CERTIFICATE**

[2]

**Product or Protective System Intended for use in Potentially Explosive Atmospheres  
UKSI 2016:1107 (as amended by UKSI 2019:696) – Schedule 3A, Part 1**

[3]

UK-Type Examination Certificate No.: **UL22UKEX2497X Rev. 2**

[4]

Product: **KCD2-SCS-Ex2(.SP)\***

[5]

Manufacturer: **Pepperl+Fuchs SE**

[6]

Address: **Lilienthalstrasse 200, 68307 Mannheim, Germany**

[7]

This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

[8]

UL International (UK) Ltd, Approved Body number 0843, in accordance with Regulation 44 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended by UKSI 2019:696), certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Schedule 1 of the Regulations.

The examination and test results are recorded in the confidential report **DK/ULD/ExTR22.0021/02**.

[9]

Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

**EN IEC 60079-0:2018**

**EN 60079-11:2012**

**EN 50303:2000**

Except in respect of those requirements listed at section 19 of the schedule to this certificate.

[10]

If the sign “X” is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the Schedule to this certificate.

[11]


This UK-TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Regulations apply to the manufacturing process and supply of this product. These are not covered by this certificate.

[12]

The marking of the product shall include the following:

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

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

 **I (M1) [Ex ia Ma] I**

**Certification Officer**

Andrew Moffat

This is to certify that the sample(s) of the Product described herein (“Certified Product”) has been investigated and found in compliance with the Standard(s) indicated on this Certificate, in accordance with the UKEx Product Certification Program Requirements. This certificate and test results obtained apply only to the product sample(s) submitted by the Manufacturer. UL did not select the sample(s) or determine whether the sample(s) provided were representative of other manufactured product. UL has not established Follow-Up Service or other surveillance of the product. The Manufacturer is solely and fully responsible for conformity of all product to all applicable Standards, specifications, requirements or Regulations. The test results may not be used, in whole or in part, in any other document without UL’s prior written approval.

**Date of issue:** 2022-10-17

**Re-issued:** 2023-09-11

**Approved Body**

UL International (UK) Ltd Unit 1-3 Horizon Kingsland Business Park Wade Road, Basingstoke RG24 8AH, UK  
Phone : +44 (0)1256 312100

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# Schedule

## UK-TYPE EXAMINATION CERTIFICATE No.

### UL22UKEX2497X Rev. 2

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Description of Product

The Smart Transmitter Power Supply/Current Driver KCD2-SCS-Ex2(.SP)\* is a two channel device designed as associated apparatus for equipment Group II zone 0, Group III zone 20 or for equipment Group I.

It may be installed in the non-hazardous area or in a zone 2 gas area.

The voltages and currents at the hazardous area side terminals are limited to intrinsically safe levels.

The hazardous area circuits are galvanically isolated from the non-hazardous area circuits by transformers designed in accordance with EN 60079-11.

The KCD2-SCS-Ex2(.SP)\* has two basic modes of operation, selected using DIP switches, dependent on the application and connected equipment.

In AI mode each channel of the KCD2-SCS-Ex2(.SP)\* provides power for a current transmitter placed in the hazardous area and repeats the signal to the safe area.

In AO mode each channel of the KCD2-SCS-Ex2(.SP)\* transfers a 4...20mA current from the safe area to the hazardous area to drive smart I/P converters, electrical valves, or positioners.

Digital communication may be superimposed on the analogue values in both modes and may be transferred in both directions.

The device is powered at nominal 24V dc either via screw/spring terminals or through the Power Rail.

- ".SP" at the end of the product name is optional. It indicates spring clamp terminals. Without this option screw terminals are used.

- The asterisks shown in the type code can be replaced by a combination of tokens, indicating different versions that have no influence on the approval.

Performance testing

The optical radiation output of the product with respect to explosion protection, according to Schedule 1 clause 16 of the Regulation 2016 No. 1107 (as amended by UKSI 2019:696) is covered in this certificate based on Exception 1 to the scope of EN 60079-28:2015.

Temperature range

The ambient temperature range is -40 °C to +70 °C.

Any temperature range within these limits may also be printed, e.g. -20°C < Ta < +60°C.

Electrical data

Power Supply: 19-30 VDC 110-70mA, 2.1W max

SMART Transmitter Power supply (AI Mode)

Input: 0/4...20 mA signal (U> 15V at 20mA)

Output: 0/4...20 mA signal (up to 30V max)

SMART Current Driver (AO Mode)

Input: 0/4...20 mA signal (up to 30V max)

Output: 0/4...20 mA signal (650Ω max load)

Intrinsically safe specifications:

U<sub>m</sub> : 250 V

Hazardous Area Connections:

Signal:

Connection	Removable terminals 1(+),2(-) and 3(+),4(-) Blue colour
	Maximum values: U <sub>o</sub> = 25.2V I <sub>o</sub> = 100mA P <sub>o</sub> = 630mW C <sub>i</sub> = 1.05 nF L <sub>i</sub> = negligible

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## Schedule

### UK-TYPE EXAMINATION CERTIFICATE No.

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The maximum permissible external capacitances, inductances, and L/R:

Group	I	IIA	IIB / IIIC	IIC
Maximum external capacity Co	4.14 µF	2.8 µF	0.81 µF	0.1059 µF
Maximum external inductivity Lo	46 mH	28 mH	14 mH	3.5 mH
Maximum external ratio Lo/Ro	735 µH/Ohm	448 µH/Ohm	224 µH/Ohm	56 µH/Ohm

Note:

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

- The total Li of the external circuit (excluding the cable) is < 1% of the Lo value or
- The total Ci of the external circuit (excluding the cable) is < 1% of the Co value.

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

- the total Li of the external circuit (excluding the cable) > 1% of the Lo value and
- the total Ci of the external circuit (excluding the cable) > 1% of the Co value .

The reduced capacitance of the external circuit (including cable) shall not be greater than 1µF for I, IIA, IIB / IIIC and 600nF for IIC.

#### Routine tests

The protective transformers used in the associated apparatus are to be subjected to an alternating current potential as indicated in the following table for at least 60s. Alternatively, the test may be carried out at 1.2 times the test voltage, but with a reduced duration of at least 1s.

The applied voltage shall remain constant during the test. The current flowing during the test shall not increase above that which is expected from the design of the circuit and shall not exceed 5mA r.m.s. at any time.

During these tests, there shall be no breakdown of insulation between windings

Where applied	RMS test voltage
Between input and output windings (T101, T201 = Pins 10,11 to Pins 2,3,4,5)	1500V

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#### Test Report No. (associated with this certificate issue)

The test report no. is provided under item no. [ 8 ] on page 1 of this UK-Type Examination Certificate.

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#### Specific conditions of use:

##### Requirements for Usage as Associated Apparatus:

- The device must be installed and operated only in an environment of overvoltage category II (or better) according to EN 60664-1.
- The device must be installed and operated only in a controlled environment that ensures a pollution degree 2 (or better) according to EN 60664-1.

[18]

#### Conditions of certification:

None

[19]

#### Essential Health and Safety Requirements (Regulations Schedule 1)

In addition to the Essential Health and Safety Requirements covered by the standards listed at item 9, all other requirements are demonstrated in the relevant reports.

#### Additional information

The manufacturer shall inform the approved body concerning all modifications to the technical documentation as described in Annex III to UKSI 2016:1107 (as amended by UKSI 2019:696) – Schedule 3A, Part 1.

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**Schedule**  
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Drawings and Documents

Title:	Drawing No.:	Rev. Level:	Date:
Schematic diagram	16-1531UL-01	-	2022-July-14
I.S. Relevant Components	16-1531UL-02A	-	2023-Jul-31
Relevant Components for Zone 2	16-1531PF-02	-	2022-July-12
Component overlay	16-1531UL-03	-	2022-July-20
Assembly / Housing	16-1531UL-04	-	2022-Aug-24
PCB Layout	16-1531UL-05	-	2022-Aug-24
Transformers	16-1531UL-06	-	2022-Apr-26
Instructions	16-1531UL-09	-	2022-Aug-24
Type label	16-1531PF-10	-	2022-Aug-24