IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	**IECEx EXA 17.0001X**	Page 1 of 4	Certificate history:
Status:	**Current**	Issue No: 1	Issue 0 (2017-04-03)
Date of Issue:	2021-04-09		
Applicant:	**Pepperl+Fuchs SE** Lilienthalstrasse 200 68307 Mannheim **Germany**		
Equipment:	**Solenoid Drivers type KCD2-SLD-Ex1.* and type KCD0-SD3-Ex1***		
Optional accessory:			
Type of Protection:	**Intrinsic safety “ia”, Sealed device "nC", Increased safety “ec”**		
Marking:	**Ex nC ec [ia Ga] IIC T4 Gc** **[Ex ia Da] IIIC** **[Ex ia Ma] I**		

Approved for issue on behalf of the IECEx Certification Body: **Marino Kelava**

Position: **Certification Signatory**

Signature:
(for printed version)

Date:
(for printed version)

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.

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explosion safety solutions

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Certificate No.: **IECEx EXA 17.0001X**

Date of issue: 2021-04-09 Issue No: 1

Manufacturer: **Pepperl+Fuchs SE**
Lilienthalstrasse 200
68307 Mannheim
Germany

Manufacturing locations: **Pepperl+Fuchs Asia Pte. Ltd.**
18 Ayer Rajah Crescent
Singapore 139942
Singapore

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements.This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :
The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2011 Explosive atmospheres - Part 0: General requirements
Edition:6.0

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

IEC 60079-15:2010 Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
Edition:4

IEC 60079-7:2015 Explosive atmospheres – Part 7: Equipment protection by increased safety "e"
Edition:5.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:

HR/EXA/ExTR17.0002/00

Quality Assessment Report:

DE/PTB/QAR06.0008/14

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EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

The Solenoid Drivers KCD2-SLD-Ex1.* and KCD0-SD3-Ex1* are associated apparatus which are also suitable for installation in areas requiring EPL Gc equipment.

For details see Annex of this certificate.

SPECIFIC CONDITIONS OF USE: YES as shown below:

Requirements for Installation in safe area:

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

Installation in areas requiring EPL Gc equipment:

- The device must be installed and operated only in an environment of overvoltage category II (or better) according to IEC 60664-1.
- The device must be installed and operated only in a controlled environment that ensures a pollution degree 2 (or better) according to IEC 60664-1.
- The device must be installed and operated only in surrounding enclosures that:
  - comply with the requirements for surrounding enclosures according to IEC 60079-0,
  - are rated with the degree of protection IP54 according to IEC 60529.
- Connection or disconnection of energized non-intrinsically safe circuits is only permitted in the absence of a potentially explosive atmosphere.
- Only use operating elements in the absence of a potentially explosive atmosphere.

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
Manufacturer's and applicant's name and address updated.

Annex:

IECEx_EXA_17.0001X_P+F_Annex1_new.pdf

ANNEX

Annex 1 to: IECEx EXA 17.0001X **Issue: 1** **Date: 2021-04-09**

Product description

The Solenoid Drivers KCD2-SLD-Ex1.* and KCD0-SD3-Ex1* are associated apparatuses that can be installed in the non-hazardous area or in areas requiring EPL Gc equipment.
It is designed to supply power to the solenoids, LEDs, and audible alarms located in a hazardous area. The device is controlled with a loop-powered signal or a logic signal.
Apparatus is housed in a plastic enclosure with polarized plug-in terminals or optional spring terminals for hazardous and non-hazardous area connections.

Type designations of the Solenoid Drivers are:

- KCD2-SLD-Ex1.1045*(.SP)*
- KCD2-SLD-Ex1.1245*(.SP)*
- KCD2-SLD-Ex1.1065*(.SP)*
- KCD0-SD3-Ex1.1045*(.SP)*
- KCD0-SD3-Ex1.1245*(.SP)*
- KCD0-SD3-Ex1.1065*(.SP)*

".SP" at the end 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.

Electrical data

Safe Area connections:

KCD2-SLD-Ex1.1045, KCD2-SLD-Ex1.1245*, KCD2-SLD-Ex1.1065*:*

Power Supply:

Connection:	2 pole removable terminals (9+,10-) or Power Rail (PR1[+], PR2[-])
Rated Voltage:	19...30 V DC
Maximum Voltage U_m:	60 V

Input:

Connection:	2 pole removable terminals (5+,6-)
Rated Voltage:	0...30 V DC
Maximum Voltage U_m:	60 V

Fault relay:

Connection:	2 pole removable terminals (7, 8)
Contact load:	30 V DC 0.5A
Maximum Voltage U_m:	60 V

Fault bus:

Connection:	Power Rail (PR4)
Rated Voltage:	19...30 V DC
Maximum Voltage U_m:	60 V

KCD0-SD3-Ex1.1045, KCD0-SD3-Ex1.1245*, KCD0-SD3-Ex1.1065*:*

Input:

Connection: 2 pole removable terminals (5+,6-)
Rated Voltage: 0...30 V DC
Maximum Voltage U_m: 60 V

Hazardous Area connections:

Output:

Connection: 2 pole removable terminals (1+,2-)

KCD2-SLD-Ex1.1045, KCD0-SD3-Ex1.1045*:*

Maximum values: Uo = 26 V
Io = 93 mA
Po = 605 mW
Ci = negligible
Li = negligible

Group	IIC	IIB / IIIC	IIA	I
Co	99 nF	770 nF	2.6 µF	4.5 µF
Lo	4.1 mH	16.4 mH	32.8 mH	53.9 mH
Lo/Ro	59.1 µH/Ohm	236.4 µH/Ohm	472.9 µH/Ohm	775.9 µH/Ohm

KCD2-SLD-Ex1.1245, KCD0-SD3-Ex1.1245*:*

Maximum values: Uo = 26 V
Io = 110 mA
Po = 715 mW
Ci = negligible
Li = negligible

Group	IIC	IIB / IIIC	IIA	I
Co	99 nF	770 nF	2.6 µF	4.5 µF
Lo	2.9 mH	11.7 mH	23.5 mH	38.5 mH
Lo/Ro	49.3 µH/Ohm	197.5 µH/Ohm	395 µH/Ohm	648 µH/Ohm

KCD2-SLD-Ex1.1065, KCD0-SD3-Ex1.1065*:*

Maximum values:

	Uo	= 17.3 V
	Io	= 220 mA
	Po	= 947 mW
	Ci	= negligible
	Li	= negligible

Group	IIC	IIB / IIIC	IIA	I
Co	353 nF	2.06 µF	8.5 µF	11.8 µF
Lo	0.73 mH	2.9 mH	5.8 mH	9.6 mH
Lo/Ro	37.5 µH/Ohm	150.3 µH/Ohm	300.7 µH/Ohm	493.3 µH/Ohm

The above parameters for capacitance and inductance apply when one of the two conditions below is met:

- 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 for capacitance and inductance are reduced to 50% when both of the two conditions below are met:

- 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.

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

Rated data:

T_{amb} = -20 °C to +60 °C for KCD2-SLD-Ex1*
T_{amb} = -20 °C to +70 °C for KCD0-SD3-Ex1*

Ingress protection: IP20