

Certificate of Conformity

Ex EQUIPMENT

Certificate No.:	ANZEx 08.2009X	Current Issue:	2	Date of Issue:	2022-09-15
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Applicant: **Pepperl+Fuchs SE**
Lilienthalstrasse 200
68307 Mannheim
GERMANY

Equipment: Galvanically Isolated Barrier
Types KCD2-STC-Ex1(.SP)-** / KCD2-SCD-Ex1(.SP)-**

Type of Explosion Protection: Intrinsic Safety "i"

Explosion Protection Marking: [Ex ia Ma] I
-40 °C ≤ Ta ≤ +70 °C

*This certificate is granted subject to the requirements as set out in
Joint Accreditation System of Australia and New Zealand Publications
ANZEx System Rules 2020 & ANZEx Certified Equipment Scheme Rules 2021*

Signed for and on behalf of issuing body

Name & Position


Geoff Barnier
Principal Engineer - Certification

This certificate is not transferable and remains the property of the issuing body.

The status of this certificate can be confirmed through the database located at www.anzex.com.au

Certificate issued by:

Safety in Mines, Testing and Research Station
2 Robert Smith Street, REDBANK QLD 4301

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

Additional Manufacturing Location(s): **Pepperl+Fuchs Asia Pte Ltd**
18 Ayer Rajah Crescent
Singapore 139942
SINGAPORE

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 60079-0:2017 Ed 7.0 Explosive atmospheres Part 0: Equipment—General requirements

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

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

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Schedule

Equipment Description:

The Safety Barrier Type KCD2-STC-Ex1(.SP)-** provides power and transfers 4 – 20 mA (or optionally 1 – 5 V) analogue signal inputs from equipment located in a hazardous area to equipment in a non-hazardous area. An alternative use of the barrier is to passively sense a 4 – 20 mA signal from equipment located in a hazardous area and transfer the signal to equipment in a non-hazardous area. A single input must be used at any one time.

The Safety Barrier Type KCD2-SCD-Ex1(.SP)-** is used as a repeater for 4 -20 mA analogue signals from equipment located in a non-hazardous area to equipment in a hazardous area and may be transferred in both directions.

Digital signals can be superimposed on the analogue values in the hazardous or non-hazardous areas. The hazardous area circuit is galvanically separated from the non-hazardous area circuit using a Type 2a transformer.

The equipment comprises a number of electronic components, including isolating transformers, fuses, zener diodes and current limiting resistors all mounted on a single printed circuit board (multi-layer two-sided) and housed in a plastic enclosure with polarised plug-in terminals for hazardous and non-hazardous area connections. Wire connections to the plugs are made via screw terminals. The hazardous area terminals are 1 to 4 for the KCD2-STC-Ex1(.SP)-**, 1 & 2 for the KCD2-SCD-Ex1(.SP)-** and the non-hazardous area terminals are 5 to 10.

Electrical Ratings/Parameters

Nil

Specific Conditions of Use:

Non-hazardous area terminals 5 to 10, Power rails connections PR1 & PR2

$U_m = 253 \text{ V rms}$

Hazardous area output parameters:

Models	Terminals	U_0 (V)	I_0 (mA)	P_0 (mW)	C_0 (μF)	L_0 (mH)	L_0/R_0 ($\mu\text{H}/\Omega$)
KCD2-STC-Ex1(.SP)-** KCD2-SCD-Ex1(.SP)-**	1, 2	25.2	100	630	4.14	46	743
KCD2-STC-Ex1(.SP)-**	3, 4	7.2	100	25	1000	46	356

$U_i = 30 \text{ V}$, $I_i = 128 \text{ mA}$ for terminals 3, 4 only.

$C_i = 5.7\text{nF}$ for all terminals.

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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 1 μ F.

Conditions of Certification:

None

Additional Information:

1. The circuit connected to non-hazardous area terminals (9, 10) or power rail connections (PR1, PR2) is designed to operate from a d.c. supply voltage up to 30 V.
2. The circuit connected to non-hazardous area terminals 5, 6 and 7, 8 are designed to operate from a d.c. supply voltage of up to 26 V.
3. Power rail PR4 (Fault Bus) is not connected.

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Register of Issues and Variations

includes the current issue

Issue 0 dated 2008-12-02

Standards relevant for this issue:

IEC 60079-0:2004 Ed 4.0 Explosive atmospheres Part 0: Equipment—General requirements

IEC 60079-11:1999 Ed 4.0 Explosive atmospheres Part 11: Equipment protection by intrinsic safety "i"

Test & Assessment Reports relevant for this issue:

TR No. & Issuing CBs: IT/CES/EXTR08.0002/00; CESI

QAR No. & Issuing CB: DE/PTB/QAR06.0007/01, DE/PTB/QAR06.0008/01; PTB

File Reference: 08/0156

Manufacturer's Documents/Drawings associated with this issue:

Document Number	Pages / Sheets	Document Title	Revision	Date
366-028-00	15	Description	-	2006-Feb-20
366-028-01	2	KCD2-STC-Ex1 / KCD2-SCD-Ex1 Schematic	-	2006-Feb-20
366-028-03	3	KCD2-STC-Ex1 / KCD2-SCD-Ex1 Assembly drawing wired TOP	-	2006-Feb-20
366-028-04	4	KCD2-STC-Ex1 / KCD2-SCD-Ex1 Housing	-	2006-Feb-20
366-028-05	2	KCD2-STC-Ex1 / KCD2-SCD-Ex1 PCB layout TOP	-	2006-Feb-20
366-028-06	4	KCD2-STC-Ex1 / KCD2-SCD-Ex1 transformer	-	2006-Feb-20
366-028-07	1	KCD2-STC-Ex1 / KCD2-SCD-Ex1 Lacquering TOP	-	2006-Feb-20
366-028SI-09	6	KCD2-STC-Ex1 / KCD2-SCD-Ex1 Instructions	-	2008-Nov-25
366-028SI-10	4	KCD2-STC-Ex1 / KCD2-SCD-Ex1 Type Label	-	2008-Nov-25

Issue 1 dated 2019-01-03

Variations Permitted by this Issue

- Amended referenced QARs

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Standards relevant for this issue:**IEC 60079-0:2004 Ed 4.0** Explosive atmospheres Part 0: Equipment—General requirements**IEC 60079-11:1999 Ed 4.0** Explosive atmospheres Part 11: Equipment protection by intrinsic safety "i"Test & Assessment Reports relevant for this issue:

TR No. & Issuing CBs: IT/CES/ExTR08.0002/00; CESI

QAR No. & Issuing CB: DE/PTB/QAR06.0008/09; PTB

File Reference: 06/0041

Manufacturer's Documents/Drawings associated with this issue:

None

Issue 2 dated 2022-09-15Variations Permitted by this Issue

- Change to the referenced ExTR number.
- Update editions of the standards
- Extend ambient temperature range
- Minor circuit modifications
- Update entity parameters
- Added barrier models KCD2-STC-Ex1.SP and KCD2-SCD-Ex1.SP (spring terminal blocks) to the range
- Modification of Applicant and Manufacturer names to show current legal form

Standards relevant for this issue:**IEC 60079-0:2017 Ed 7.0** Explosive atmospheres Part 0: Equipment—General requirements**IEC 60079-11:2011 Ed 6.0** Explosive atmospheres Part 11: Equipment protection by intrinsic safety "i"Test & Assessment Reports relevant for this issue:TR No. & Issuing CBs: IT/CES/ExTR06.0001/01, IT/CES/ExTR06.0001/02, IT/CES/ExTR06.0001/03,
IT/CES/ExTR21.0005/00; CESI

QAR No. & Issuing CB: DE/PTB/QAR06.0008/16; PTB

File Reference: 060041Audit

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Manufacturer's Documents/Drawings associated with this issue:

Document Number	Pages / Sheets	Document Title	Revision	Date
IT/CES/ExTR06.0001/01				
366-028CE	1	Summary KCD2-STC-Ex1 / KCD2-SCD-Ex1	-	2006-Feb-20
366-028-00	15	Description KCD2-STC-Ex1 / KCD2-SCD-Ex1	-	2006-Feb-20
366-028-01	2	Schematic KCD2-STC-Ex1 / KCD2-SCD-Ex1	-	2006-Feb-20
366-028-02	1	Description KCD2-STC-Ex1 / KCD2-SCD-Ex1	-	2006-Feb-20
366-028-03 (Sheets 1 and 2 of 3)	2	Assembly drawing wired TOP KCD2-STC-Ex1 / KCD2-SCD-Ex1	-	2006-Feb-20
366-028-03 (Sheet 3 of 3)	1	Assembly drawing smd TOP KCD2-STC-Ex1 / KCD2-SCD-Ex1	-	2006-Feb-20
366-028-04	4	Housing KCD2-STC-Ex1 / KCD2-SCD-Ex1	-	2006-Feb-20
366-028-05 (Sheet 1 of 2)	1	PCB layout TOP KCD2-STC-Ex1 / KCD2-SCD-Ex1	-	2006-Feb-20
366-028-05 (Sheet 2 of 2)	1	PCB layout BOTTOM KCD2-STC-Ex1 / KCD2-SCD-Ex1	-	2006-Feb-20
366-028-06	4	transformer KCD2-STC-Ex1 / KCD2-SCD-Ex1	-	2006-Feb-20
366-028-07	1	Lacquering TOP KCD2-STC-Ex1 / KCD2-SCD-Ex1	-	2006-Feb-20
366-028SI-09	6	Instructions KCD2-STC-Ex1 / KCD2-SCD-Ex1	-	2006-Feb-20
366-028-13	2	Test Report KCD2-STC-Ex1 / KCD2-SCD-Ex1	-	2006-Feb-20
IT/CES/ExTR06.0001/02				
366-0028CE-00B	6	Description KCD2-STC-Ex1 / KCD2-SCD-Ex1	-	2011-Oct-03
366-0028CE-02B	7	Component List KCD2-STC-Ex1 & KCD2-SCD-Ex1	-	2011-Oct-03

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Document Number	Pages / Sheets	Document Title	Revision	Date
366-0028CE-03B	4	Assembly drawing KCD2-STC-Ex1 & KCD2-SCD-Ex1	-	2011-Oct-03
366-0028CE-09B	2	Instructions for KCD2-STC-Ex1 & KCD2-SCD-Ex1	-	2011-Oct-03
IT/CES/ExTR06.0001/03				
366-0028CE-00C	32	Description KCD2-STC-Ex1(.SP)-** / KCD2-SCD-Ex1(.SP)-**	-	2018-Nov-20
366-0028CE-01C	2	Schematic KCD2-STC-Ex1(.SP)-** / KCD2-SCD-Ex1(.SP)-**	-	2018-Nov-20
366-0028CE-02C	11	Bill of material KCD2-STC-Ex1(.SP)-** / KCD2-SCD-Ex1(.SP)-**	-	2018-Nov-20
366-0028CE-03C	4	Component setup KCD2-STC-Ex1(.SP)-** / KCD2-SCD-Ex1(.SP)-**	-	2018-Nov-20
366-0028CE-05C (Sheets 1 and 3 of 4)	2	Layout Top KCD2-STC-Ex1(.SP)-** / KCD2-SCD-Ex1(.SP)-**	-	2018-Nov-20
366-0028CE-05C (Sheets 2 and 4 of 4)	2	Layout Bottom KCD2-STC-Ex1(.SP)-** / KCD2-SCD-Ex1(.SP)-**	-	2018-Nov-20
366-0028CE-06C	3	Transformer KCD2-STC-Ex1(.SP)-** / KCD2-SCD-Ex1(.SP)-**	-	2018-Nov-20
366-0028CE-09C	3	Instructions KCD2-STC-Ex1(.SP)-** / KCD2-SCD-Ex1(.SP)-**	-	2018-Nov-20
366-0028SI-10A	1	Type Label KCD2-STC-Ex1(.SP)-** / KCD2-SCD-Ex1(.SP)-**	-	2022-Apr-13