

Certificate of Conformity

Ex EQUIPMENT

Certificate No.: ANZEx 12.2011	Current Issue: 2	Date of Issue: 2022-09-15
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Applicant: **Pepperl+Fuchs SE**
Lilienthalstrasse 200
68307 Mannheim
GERMANY

Equipment: Isolation Switching Amplifier
Type KFD2-ST2-Ex*** and KFD2-SOT2-Ex***


Type of Explosion Protection: Intrinsic Safety "i"

Explosion Protection Marking: [Ex ia Ma] I
-20 °C ≤ Ta ≤ +60 °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 60079-0:2007 Ed 5.0 Explosive atmospheres Part 0: Equipment—General requirements

IEC 60079-11:2006 Ed 5.0 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 isolation switching amplifier type KFD2-ST2-Ex*** and type KFD2-SOT2-Ex*** are used as associated apparatus for the transmission of electrical signals from the explosion hazardous area into the safe area.

With the isolation switching amplifier type KFD2-SOT2-Ex*** the output circuits are designed as passive transistor output terminals.

The output circuits of the isolation switching amplifier type KFD2-ST2-Ex*** are active transistor output terminals.

Electrical Ratings/Parameters

Nil

Specific Conditions of Use:

None

Conditions of Certification:

None

Additional Information:

The following entity parameters shall be observed:

Safe area connections:

Power Supply (terminals 14 and 15 or PR1 and PR2):

Rated voltage: DC 20-30 V

Maximum voltage: $U_m = 40$ V

Fault signal output (contacts PR2 and PR4):

$U < 30$ V, $I < 10$ mA

maximum voltage: $U_m = 40$ V

Outputs (terminals 7, 8, 9, 10, 11):

$U < 30$ V, $I < 100$ mA

maximum voltage: $U_m = 40$ V

Hazardous area connections:

Input Circuit (terminals 1, 2, 3 or 4, 5, 6):

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1. Maximum values for each circuit (linear characteristic):

U_o (V)	I_o (mA)	P_o (mW)	C_i (nF)	L_i (mH)
10.5	13	34	negligible	negligible

The capacitance and the inductance of the load connected to the output terminals of the equipment must not exceed the following values.

C_o (μ F)	L_o (mH)
187	1000

The above parameters apply if one of the two conditions below is met:

- The total L_i of the external circuit (excluding the cable) is \leq 1% of the L_o value or
- The total C_i of the external circuit (excluding the cable) is \leq 1% of the C_o value.

The above parameters must be reduced to 50% if both of the two conditions below are met:

- 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.

Note: The reduced capacitance of the external circuit (including the cable) shall not be greater than 1 μ F.

2. Maximum values when both intrinsically safe circuits are connected (linear characteristic):

U_o (V)	I_o (mA)	P_o (mW)	C_i (nF)	L_i (mH)
10.5	26	64	negligible	negligible

The capacitance and the inductance of the load connected to the output terminals of the equipment must not exceed the following values.

C_o (μ F)	L_o (mH)
187	500

The above parameters apply if one of the two conditions below is met:

- The total L_i of the external circuit (excluding the cable) is \leq 1% of the L_o value or
- The total C_i of the external circuit (excluding the cable) is \leq 1% of the C_o value.

The above parameters must be reduced to 50% if both of the two conditions below are met:

- 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.

Note: The reduced capacitance of the external circuit (including the cable) shall not be greater than 1 μ F.

Routine testing of the transformer shall be carried out in accordance with clause 11.2 of IEC 60079-11: 2006.

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Register of Issues and Variations

includes the current issue

Issue 0 dated 2012-12-21

Standards relevant for this issue:

IEC 60079-0:2007 Ed 5.0 Explosive atmospheres Part 0: Equipment—General requirements

IEC 60079-11:2006 Ed 5.0 Explosive atmospheres Part 11: Equipment protection by intrinsic safety "i"

Test & Assessment Reports relevant for this issue:

TR No. & Issuing CBs: DE/PTB/05-014, DE/PTB/ExTR12.0076/00; PTB

QAR No. & Issuing CB: DE/PTB/QAR06.0007/03, DE/PTB/QAR06.0008/04; PTB

File Reference: 12/0128

Manufacturer's Documents/Drawings associated with this issue:

Document Number	Pages / Sheets	Document Title	Revision	Date
16-500PT-00	3	Description KFD2-ST2-Ex*** and KFD2-SOT2-Ex***	C	2005-Mar-22
16-500PT-00	1	Description 4th Supplement to PTB 00 ATEX 2035	D	2011-Aug-12
16-500PT-01	3	Schematic Drawing KFD2-ST2-Ex*** and KFD2-SOT2-Ex***	C	18.Oct.2004
16-500PT-01	1	Schematic Output circuit of KFD2-SOT2-Ex1.N and KFD2-SOT2-Ex1.R1	D	2011-Aug-12
16-500PT-02	1	Relevant components KFD2-ST2-Ex*** and KFD2-SOT2-Ex***	C	2005-Mar-22
16-500PT-03 (Sheet 1 of 2)	1	Assembly drawing wired + SMD (top side) KFD2-ST2-Ex*** and KFD2-SOT2-Ex***	C	07.Dec.2004
16-500PT-03 (Sheet 2 of 2)	1	Assembly drawing SMD (bottom side) KFD2-ST2-Ex*** and KFD2-SOT2-Ex***	C	07.Dec.2004
16-500PT-04	8	Mechanical Parts 4th Supplement to PTB 00 ATEX 2035	D	2011-Aug-12
16-500PT-05 (Sheet 1 of 4)	1	PCB Layout Top KFD2-ST2-Ex*** and KFD2-SOT2-Ex***	C	07.Dec.2004

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Document Number	Pages / Sheets	Document Title	Revision	Date
16-500PT-05 (Sheet 2 of 4)	1	PCB Layout Bottom KFD2-ST2-Ex*** and KFD2-SOT2-Ex***	C	07.Dec.2004
16-500PT-05 (Sheet 3 of 4)	1	PCB Layout Top (no solder resist lacquer) KFD2-ST2-Ex*** and KFD2-SOT2-Ex***	C	07.Dec.2004
16-500PT-05 (Sheet 4 of 4)	1	PCB Layout Bottom (no solder resist lacquer) KFD2-ST2-Ex*** and KFD2-SOT2-Ex***	C	07.Dec.2004
16-334PT-09	2	PTB-ATEX Umschreibung KFD2-ST2-Ex*** u. KFD2-SOT2-Ex***	-	28.07.99
16-0500SI-09	2	Instructions KFD2-SOT2/ST2-Ex*	-	2011-Aug-11
16-0500SI-10	2	Type Label KFD2-SOT2/ST2-Ex*	-	2012-Dec-17

Issue 1 dated 2019-01-03

Variations Permitted by this Issue

- Amended referenced QARs

Standards relevant for this issue:

IEC 60079-0:2007 Ed 5.0 Explosive atmospheres Part 0: Equipment—General requirements

IEC 60079-11:2006 Ed 5.0 Explosive atmospheres Part 11: Equipment protection by intrinsic safety "i"

Test & Assessment Reports relevant for this issue:

TR No. & Issuing CBs: N/A
 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 2022-09-15

Variations Permitted by this Issue

- Modification of Applicant and Manufacturer names to show current legal form
- Changes are of an administrative and not technical nature

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TR No. & Issuing CBs: DE/PTB/ExTR12.0076/01; PTB

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

File Reference: 060041Audit

Manufacturer's Documents/Drawings associated with this issue:

None