


# CERTIFICATE OF CONFORMITY



- HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**
- Certificate No:** FM19US0207X
- Equipment:** KFD2-SR2-Ex\*, KFA5-SR2-Ex\* and KFA6-SR2-Ex\*  
**(Type Reference and Name)** Series Switch Amplifier
- Name of Listing Company:** Pepperl+Fuchs AG
- Address of Listing Company:** Lilienthalstrasse 200  
Mannheim, 68307  
Germany
- The examination and test results are recorded in confidential report number:  
  
3011578 dated 9<sup>th</sup> August 2001
- FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:  
  
FM Class 3600:2018, FM Class 3610:2018, FM Class 3611:2018, FM Class 3810:2018,  
ANSI/ISA 60079-0:2013, ANSI/ISA 60079-11:2014,  
ANSI/ISA 61010-1:2012, ANSI/UL 12.12.01:2015
- If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.
- This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.
- Equipment Ratings:**  
  
Associated Intrinsically Safe apparatus for connection to Class I, II, III, Division 1, Groups A, B, C, D, E, F and G; Nonincendive for Class I, Division 2, Groups A, B, C and D indoor Hazardous (Classified) locations.

**Certificate issued by:**

  
\_\_\_\_\_  
J.E. Marquedant  
VP, Manager - Electrical Systems

6 March 2020  
\_\_\_\_\_  
Date

To verify the availability of the Approved product, please refer to [www.approvalguide.com](http://www.approvalguide.com)

**THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE**

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA  
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# SCHEDULE



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**11. The marking of the equipment shall include:**

For KFD2-SR2-Ex1.W, KFD2-SR2-Ex1.W.LB and KFD2-SR2-Ex2.W:

Class I, Division 2, Groups A, B, C, D, 116-0035 Entity T4 Ta = -40°C to +70°C;

IS circuits for: Class I, Division 1, Group A, B, C, D; Class II, Division 1, Group E, F, G; Class III

For other devices:

Class I, Division 2, Groups A, B, C, D, 116-0035 Entity; T4 Ta = -20°C to +60°C;

IS circuits for: Class I, Division 1, Group A, B, C, D; Class II, Division 1, Group E, F, G; Class III

**12. Description of Equipment:**

**General** - The switch amplifiers type KF\*\* -SR2-Ex\* are used as associated equipment for the transmission of electrical signals from the explosion hazardous area into the non explosion hazardous area. The outputs are designed as relay outputs. The isolated switch amplifiers are manufactured optional with one or two input channels.

**Construction** - The switch amplifiers type KF\*\* -SR2-Ex\* consists of a single compartment, plastic, DIN rail mountable, electronics housing

**Power input:**

**KFD2-SR2-Ex\* series:**

**Power Rail or Terminals (14+, 15-):** Rated voltage U = 19...30V DC, Rated current I = 50 mA

**KFA5-SR2-Ex\* series:**

**Terminals (14, 15):** Rated voltage U = 115 V AC±10%, Rated current I = 13 mA

**KFA6-SR2-Ex\* series:**

**Terminals (14, 15):** Rated voltage U = 230 V AC ±10%, Rated current I = 7 mA

**IS connections:**

Terminals 1,2,3 or 4,5,6: U<sub>o</sub> = 12.9 V DC, I<sub>o</sub> = 19.8 mA

**Output (relay) Side:**

Contact load: 253 V AC at 2 A, 126.5 V AC at 4 A, 40 V DC at 2 A

**Isolation:** 300 V<sub>eff</sub> between "Power input" and "Output (relay) side"

375 V peak between "Power input" and "IS-side"

375 V peak between "Output (relay) side" and "IS-side"

**Ambient Temperature Range:**

For KFD2-SR2-Ex1.W, KFD2-SR2-Ex1.W.LB and KFD2-SR2-Ex2.W: -40°C < Ta < 70°C

For other devices: -20°C < Ta < 60°C

**Ingress degree of protection:** IP20

**Connection:** Screw terminals

**Installation:** Installs in a secondary enclosure

**Switch Amplifier**

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KFD2-SR2-Ex1.W, KFD2-SR2-Ex1.W.LB and KFD2-SR2-Ex2.W:  
 AIS / I,II,III / 1 / ABCDEFG 116-0035; Entity; NI / I / 2 / ABCD / T4, -40°C < Ta < +70°C  
 Other devices:  
 AIS / I,II,III / 1 / ABCDEFG 116-0035; Entity; NI / I / 2 / ABCD / T4, -20°C < Ta < +60°C

Type	Entity Parameters					
	$V_{oc}$ (V)	$I_{sc}$ (mA)	$V_t$ (V)	$I_t$ (mA)	$C_a$ ( $\mu$ F)	$L_a$ (mH)
<b>KFD2-SR2-Ex2.2Sa</b>						
Terminals 1-3, 2-3, 4-6, 5-6	12.9	19.8	–	–	1.33	84.9
<b>KFD2-SR2-Ex1.W.LBa</b>						
Terminals 1-3, 2-3	12.9	19.8	–	–	1.33	84.9
<b>KFD2-SR2-Ex1.Wa</b>						
Terminals 1-3, 2-3	12.9	19.8	–	–	1.33	84.9
<b>KFD2-SR2-Ex2.Wa</b>						
Terminals 1-3, 2-3, 4-6, 5-6	12.9	19.8	–	–	1.33	84.9
<b>KFD2-SR2-Ex2.W.SMa</b>						
Terminals 1-3, 2-3, 4-6, 5-6	12.9	19.8	–	–	1.33	84.9
<b>KFA6-SR2-Ex2.Wa</b>						
Terminals 1-3, 2-3, 4-6, 5-6	12.9	19.8	–	–	1.33	84.9
<b>KFA6-SR2-Ex2.W.IRa</b>						
Terminals 1-3, 2-3, 4-6, 5-6	12.9	19.8	–	–	1.33	84.9
<b>KFA6-SR2-Ex1.W.LBa</b>						
Terminals 1-3, 2-3	12.9	19.8	–	–	1.33	84.9
<b>KFA6-SR2-Ex1.Wa</b>						
Terminals 1-3, 2-3	12.9	19.8	–	–	1.33	84.9
<b>KFA5-SR2-Ex1.W.LBa</b>						
Terminals 1-3, 2-3	12.9	19.8	–	–	1.33	84.9
<b>KFA5-SR2-Ex1.Wa</b>						
Terminals 1-3, 2-3	12.9	19.8	–	–	1.33	84.9
<b>KFA5-SR2-Ex2.Wa</b>						
Terminals 1-3, 2-3, 4-6, 5-6	12.9	19.8	–	–	1.33	84.9
<b>KFA5-SR2-Ex2.W.IRa</b>						
Terminals 1-3, 2-3, 4-6, 5-6	12.9	19.8	–	–	1.33	84.9

a = Special function, not affecting safety.

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**13. Specific Conditions of Use:**

The apparatus shall be installed in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate application.

**14. Test and Assessment Procedure and Conditions:**

This Certificate has been issued in accordance with FM Approvals US Certification Requirements.

**15. Schedule Drawings**

A copy of the technical documentation has been kept by FM Approvals.

**16. Certificate History**

Details of the supplements to this certificate are described below:

Date	Description
9 <sup>th</sup> August 2001	Original Issue.
6 <sup>th</sup> March 2020	<p><u>Supplement 3:</u> Report Reference: – PR455025 dated 6<sup>th</sup> March 2020. Description of the Change: Converted to new format certificate. Standards were updated as follows: FM Class 3600 updated to 2018, FM Class 3610 updated to 2018, FM Class 3611 updated to 2018, FM Class 3810 updated to 2018, ANSI/ISA 60079-0 updated to 2013, ANSI/ISA 60079-11 updated to 2014, ANSI/ISA 61010-1 updated to 2012, ANSI/UL 12.12.01 updated to 2015</p> <p>KFD2-SR2-Ex1.W, KFD2-SR2-Ex1.W.LB and KFD2-SR2-Ex2.W ambient temperature range of -20°C to 60°C was changed to -40°C to 70°C.</p> <p>An alternative (not replacement) layout for KFD-SR2-Ex*.W* devices has been added.</p> <p>There has been some modifications to the circuitry including a new transformer.</p>

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