

CERTIFICATE OF CONFORMITY



1. **HAZARDOUS LOCATION ELECTRICAL EQUIPMENT PER CANADIAN REQUIREMENTS**
2. **Certificate No:** FM18CA0106X
3. **Equipment:** KFD0-SD2-Ex Series
(Type Reference and Name) Transformer-Isolated Solenoid Drivers
4. **Name of Listing Company:** Pepperl+Fuchs GmbH
5. **Address of Listing Company:** Lilienthalstrasse 200,
68307 Mannheim,
Germany
6. The examination and test results are recorded in confidential report number:

3028278 dated 17th March 2008
7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

CSA-C22.2 No. 213-M1987: 2004, CSA-E60079-0:2007, CAN/CSA-C22.2 No. 60079-11:2014,
CSA-E60079-15: 2006, CAN/CSA-C22.2 No. 61010-1:2004
8. 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.
9. 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.
10. **Equipment Ratings:**

Model KFD0-SD2-Ex*.1045, KFD0-SD2-Ex*.1245, KFD0-SD2-Ex*.1065 and KFD0-SD2-Ex1.10100 Solenoid Drivers: Intrinsically safe (entity) connections to Class I, II and III, Division 1, applicable Groups A, B, C, D, E, F and G; intrinsically safe (entity) connections to Class I, [Ex ia] IIC per control drawing 266-031FM-12; suitable for Class I, Division 2, Groups A, B, C and D, T4 at Tambient = -20°C to 60°C; non-sparking, Ex nA for Class I, Zone 2, T4 at Tambient = -20°C to +60°C, hazardous indoor locations.

Certificate issued by:



J.E. Marquedant
VP, Manager, Electrical Systems

7 August 2018

Date

To verify the availability of the Approved product, please refer to 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
T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmapprovals.com www.fmapprovals.com

SCHEDULE



Member of the FM Global Group

Canadian Certificate Of Conformity No: FM18CA0106X

Model KFD0-SD2-Ex1.1180 Solenoid Driver: Intrinsically safe (entity) connections to Class I, II and III, Division 1, applicable Groups C, D, E, F and G; intrinsically safe (entity) connections to Class I, [Ex ia] IIB per control drawing 266-031FM-12; suitable for Class I, Division 2, Groups A, B, C and D, T4 at Tambient = -20°C to 60°C; non-sparking, Ex nA for Class I, Zone 2, T4 at Tambient = -20°C to +60°C, hazardous indoor locations.

11. The marking of the equipment shall include:

Model KFD0-SD2-Ex*.1045, KFD0-SD2-Ex*.1245, KFD0-SD2-Ex*.1065 and KFD0-SD2-Ex1.10100 Solenoid Drivers:

	CL I, DIV 2, GP A-D, IS circuits for CL I, II, III, DIV 1, GP A-G; CL I ZN 2 AEx nA II(US), Ex nA II(Canada), IS circuits for CL I ZN 0 [AEx ia] IIC(US), [Ex ia] IIC(Canada) install per 266-031FM-12.	
	Ta = -20°C to +60°C	Temperature Code T4
	WARNING – Substitution of components may impair intrinsic safety. WARNING - Explosion Hazard do not disconnect Equipment when a flammable or combustible atmosphere is present.	

Model KFD0-SD2-Ex1.1180 Solenoid Driver:

	CL I, DIV 2, GP A-D, IS circuits for CL I, II, III, DIV 1, GP C-G; CL I ZN 2 AEx nA II(US), Ex nA II(Canada), IS circuits for CL I ZN 0 [AEx ia] IIB(US), [Ex ia] IIB(Canada) install per 266-031FM-12.	
	Ta = -20°C to +60°C	Temperature Code T4
	WARNING – Substitution of components may impair intrinsic safety. WARNING - Explosion Hazard do not disconnect Equipment when a flammable or combustible atmosphere is present.	

12. **Description of Equipment:**

General - The KFD0-SD2-Ex Series solenoid drivers are associated apparatus providing intrinsically safe, galvanic-isolated connections to Zone 0, Zone 1 and Division 1 hazardous locations. Galvanic isolation between the input and output is achieved by protective transformers. The KFD0-SD2-Ex Series solenoid drives include the following models:

- KFD0-SD2-Ex1.1045
- KFD0-SD2-Ex2.1045
- KFD0-SD2-Ex1.1245
- KFD0-SD2-Ex2.1245
- KFD0-SD2-Ex1.1065
- KFD0-SD2-Ex2.1065
- KFD0-SD2-Ex1.10100
- KFD0-SD2-Ex1.1180

Construction – The KFD0-SD2-Ex Series solenoid drivers modules is housed in a polycarbonate enclosure and is intended for DIN-rail mounting.

Ratings – The KFD0-SD2-Ex Series solenoid drivers transfer current and are rated to operate from a supply voltage of 20 to 35 Vdc and have the following. Entity Parameters:

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

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

T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmapprovals.com www.fmapprovals.com

SCHEDULE



Member of the FM Global Group

Canadian Certificate Of Conformity No: FM18CA0106X

Voc, Uo (V)	Isc, Io (mA)	Po (mW)	Group	Ca, Co (µF)	La, Lo (mH)	Lo/Ro (µH/Ω)
Type KFD0-SD2-Ex*.1045 - Terminals: Channel 1: 1, 2, 3 Channel 2: 4, 5, 6						
25.2	93	586	A, B, IIC	0.107	4.11	60
			C, E, F, G, IIB	0.82	16.44	242
			D, IIA	2.9	32.88	485
Type KFD0-SD2-Ex*.1245 – Terminals: Channel 1: 1, 2, 3 Channel 2: 4, 5, 6						
25.2	110	693	A, B, IIC	0.107	2.93	51
			C, E, F, G, IIB	0.82	11.75	205
			D, IIA	2.9	23.5	410
Type KFD0-SD2-Ex*.1065 – Terminals: Channel 1: 1, 2, 3 Channel 2: 4, 5, 6						
17.22	220	947	A, B, IIC	0.353	0.73	37
			C, E, F, G, IIB	2.06	2.93	150
			D, IIA	8.5	5.87	300
Type KFD0-SD2-Ex1.10100 – Terminals: 1, 2, 3						
17	271	1152	A, B, IIC	0.375	0.48	30
			C, E, F, G, IIB	2.2	1.93	123
			D, IIA	9.0	3.87	246
Type KFD0-SD2-Ex1.1180 – Terminals: 1, 2, 3						
25.2	184	1159	C, E, F, G, IIB	0.82	4.2	122
			D, IIA	2.9	8.4	245

13. Specific Conditions of Use:

- 1) In Class I, Division 2 installations, the subject equipment shall be mounted within a tool-secured enclosure which is capable of accepting one or more of the Class I, Division 2 wiring methods specified in the Canadian Electrical Code (C22.1).
- 2) In Class I, Zone 2 installations, the subject equipment shall be mounted within a tool-secured enclosure which is capable of accepting one or more of the Class I, Zone 2 wiring methods specified in the Canadian Electrical Code (C22.1). The equipment shall be installed in an enclosure with a minimum ingress protection rating of IP54 unless the apparatus is intended to be afforded an equivalent degree of protection by location.
- 3) In Class I, Zone 2 installations, the installer shall ensure protection of supply terminals against transient voltages exceeding the rated supply voltage by greater than 40%.
- 4) It is the responsibility of the manufacturer to provide warning markings in French where required by local jurisdictions.

14. Test and Assessment Procedure and Conditions:

This Certificate has been issued in accordance with FM Approvals Canadian Certification Scheme.

15. Schedule Drawings

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

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

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA
 T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmapprovals.com www.fmapprovals.com

SCHEDULE



Canadian Certificate Of Conformity No: FM18CA0106X

16. Certificate History

Details of the supplements to this certificate are described below:

Date	Description
6 th February 2008	Original Issue.
7 th August 2018	<u>Supplement 1:</u> Report Reference: – RR215125 dated 7 th August 2018 Description of the Change: <ul style="list-style-type: none">• Update to new format certificate.• Update CSA C22.2 No. 60079-11 from 2006 edition to 2014 edition.• Remove CSA C22.2 No. 157, as Class/Division covered in CSA C22.2 No. 60079-11: 2014.• Minor changes to circuitry and documents

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

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA
T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmapprovals.com www.fmapprovals.com