

Solenoid Driver

KFD2-SLD-Ex2.1245

- 2-channel isolated barrier
- 24 V DC supply (bus or loop powered)
- Output 45 mA at 12 V DC
- Line fault transparency (LFT)
- Test pulse immunity
- Up to SIL 3 acc. to IEC/EN 61508













Function

This isolated barrier is used for intrinsic safety applications.

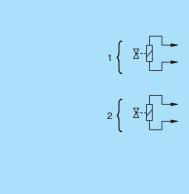
The device supplies power to solenoids, LEDs and audible alarms located in the explosion-hazardous area.

The device is controlled with a loop powered signal or a bus powered logic signal.

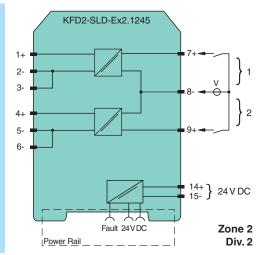
The device is immune to the test pulses of various control systems.

The device simulates a minimum load at the input. The minimum load is set via the mode of operation. In the loop-powered mode of operation, a minimum load of 35 mA is simulated. In the bus-powered mode of operation, a minimum load of 5 mA is simulated. The line fault transparency function can display a line fault in the field by a change in impedance at the switching input of the solenoid driver. A fault is indicated by LEDs and output via a fault indication output.

Connection







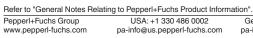
Technical Data

General specifications			
Signal type		Digital Output	
Functional safety related parameters			
Safety Integrity Level (SIL)		SIL 3	
Systematic capability (SC)		SC 3	
Supply			
Connection		Power Rail or terminals 14+, 15-	
Rated voltage	U_{r}	18 30 V DC	
Power consumption		max. 3.5 W at 45 mA output current	
Innut			

Release date: 2023-03-28 Date of issue: 2023-03-28 Filename: 70153576_eng.pdf

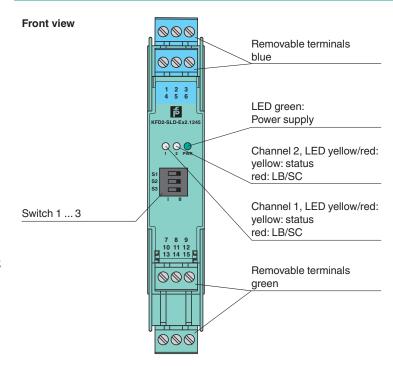
Refer to "General Notes Relating to Pepperl+Fuchs Product Information"

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Test pulse length			
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card) 1-signat: 35 mA (minimum load current DO card) -1-signat: 25 mA (minimum load current load side channels of the minimum load current load side channels load (minimum load current load (minimum load load (minimum load load (minimum load (minim	Signal level		1-signal: 18 30 V DC 0-signal: 0 5 V DC bus powered 1-signal: 15 30 V DC (current limited at 5 mA)
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Connection side Connection Connection channel 1: terminals 1+, 2-, 3- channel 2: terminals 4+, 5-, 6- Internal resistor R ₁ 236 Ω Current I ₁ 45 mA Voltage U ₂ ≥ 12 V Open loop voltage Load nominal 0.5 20 kΩ Energized/De-energized delay Line fault detection Salvanic isolation Input/Output Power supply/Output reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{ett} Indicators/settings Display elements Control elements DIP switch Configuration Labeling space for labeling at the front Directive conformity Electromagnetic compatibility Directive 2014/30/EU EN 61326-1:2013 (industrial locations) Ambient conditions Ambient conditions Ambient conditions Mechanical specifications Degree of protection P20			≤ 200 mA after 100 μs
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Display elements	Input/Output		reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V_{eff}
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Connection screw terminals Mass approx. 150 g Dimensions 20 x 119 x 115 mm (0.8 x 4.7 x 4.5 inch) (W x H x D), housing type B2 Mounting on 35 mm DIN mounting rail acc. to EN 60715:2001 Data for application in connection with hazardous areas EU-type examination certificate FIDI 21 ATEX 0091 X Marking B II 3(1)G Ex ec [ia Ga] IIC T4 Gc B II (1)D [Ex ia Da] IIIC B I (M1) [Ex ia Ma] I	Mechanical specifications		
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Dimensions 20 x 119 x 115 mm (0.8 x 4.7 x 4.5 inch) (W x H x D) , housing type B2 Mounting on 35 mm DIN mounting rail acc. to EN 60715:2001 Data for application in connection with hazardous areas EU-type examination certificate FIDI 21 ATEX 0091 X Marking © II 3(1)G Ex ec [ia Ga] IIC T4 Gc © II (1)D [Ex ia Da] IIIC © I (M1) [Ex ia Ma] I	Connection		screw terminals
Mounting on 35 mm DIN mounting rail acc. to EN 60715:2001 Data for application in connection with hazardous areas EU-type examination certificate FIDI 21 ATEX 0091 X Marking	Mass		approx. 150 g
Data for application in connection with hazardous areas EU-type examination certificate Marking BI I 3(1)G Ex ec [ia Ga] IIC T4 Gc BI I (1)D [Ex ia Da] IIIC BI (M1) [Ex ia Ma] I	Dimensions		20x119x115 mm (0.8 x 4.7 x 4.5 inch) (W x H x D) , housing type B2
EU-type examination certificate FIDI 21 ATEX 0091 X Marking B II 3(1)G Ex ec [ia Ga] IIC T4 Gc B II (1)D [Ex ia Da] IIIC B I (M1) [Ex ia Ma] I	Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Marking	Data for application in connection with haza	rdous a	reas
 ⊕ II (1)D [Ex ia Da] IIIC ⊕ I (M1) [Ex ia Ma] I 	EU-type examination certificate		FIDI 21 ATEX 0091 X
	Marking		
Output Ex ia	Output		Exia
Voltage U _o 25.2 V		Uo	
Current I _o 110 mA	•		110 mA
Power P _o 693 mW (linear characteristic)			693 mW (linear characteristic)
Supply	Supply		



Maximum safe voltage	U_{m}	250 V (Attention! The rated voltage can be lower.)
Input		
Maximum safe voltage	U_{m}	250 V (Attention! The rated voltage can be lower.)
Collective error message		
Maximum safe voltage	U_{m}	250 V (Attention! The rated voltage can be lower.)
Galvanic isolation		
Input/Output		safe electrical isolation acc. to IEC/EN 60079-11, rated insulation voltage 300 $\ensuremath{V_{rms}}$
Output/power supply		safe electrical isolation acc. to IEC/EN 60079-11, rated insulation voltage 300 $\rm V_{\rm rms}$
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 , EN 60079-7:2015+A1:2018 , EN 60079-11:2012
International approvals		
UL approval		E106378
Control drawing		116-0488
IECEx approval		
IECEx certificate		IECEx FIDI 21.0009X
IECEx marking		Ex ec [ia Ga] IIC T4 Gc [Ex ia Da] IIIC [Ex ia Ma] I
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com.

Assembly



Matching System Components

KFD2-EB2	Power Feed Module
UPR-03	Universal Power Rail with end caps and cover, 3 conductors, length: 2 m

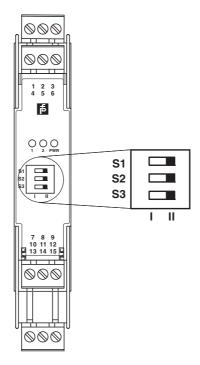
Matching System Components

UPR-03-M	Universal Power Rail with end caps and cover, 3 conductors, length: 1,6 m
UPR-03-S	Universal Power Rail with end caps and cover, 3 conductors, length: 0.8 m
K-DUCT-BU	Profile rail, wiring comb field side, blue
K-DUCT-BU-UPR-03	Profile rail with UPR-03- * insert, 3 conductors, wiring comb field side, blue

Accessories

	KF-ST-5GN	Terminal block for KF modules, 3-pin screw terminal, green
	KF-ST-5BU	Terminal block for KF modules, 3-pin screw terminal, blue
*	KF-CP	Red coding pins, packaging unit: 20 x 6

Configuration



Switch settings

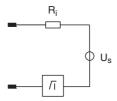
Switch	Function		Position
S1	Line fault detection	enabled	I
		disabled	II
S2	Mode of operation channel 1	loop powered	I
		bus powered	II
S3	Mode of operation channel 2	loop powered	I
		bus powered	II

Factory setting: line fault detection enabled, mode of operation loop powered

Characteristic Curve

Output characteristics

Output circuit diagram



Output characteristic

