

Solenoid Driver KCD2-SLD-Ex1.1245

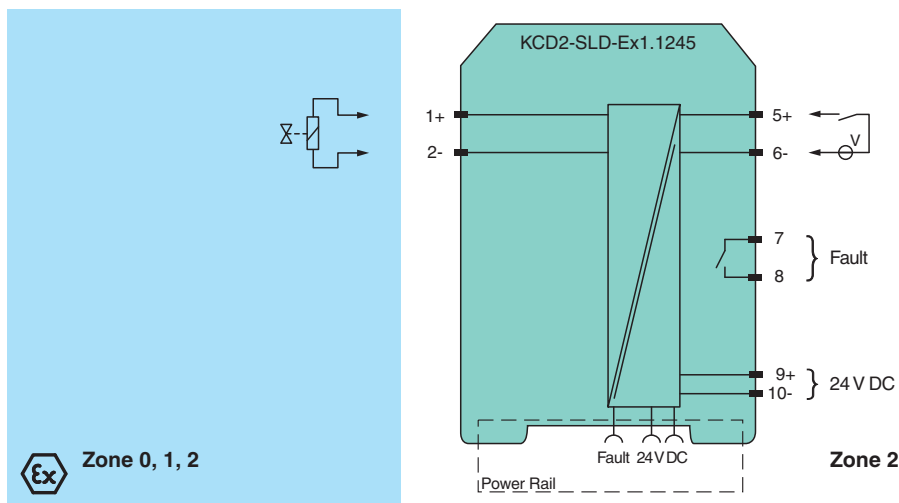
- 1-channel isolated barrier
- 24 V DC supply (bus or loop powered)
- Output 45 mA at 12 V DC
- Line fault transparency (LFT)
- Test pulse immunity
- Housing width 12.5 mm
- Up to SIL 3 acc. to IEC/EN 61508



Function

This isolated barrier is used for intrinsic safety applications. It supplies power to solenoids, LEDs and audible alarms located in a 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 can be activated and de-activated. 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 line fault is indicated by a red LED and output via the fault indication output or a switch contact.

Wiring Diagram



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	terminals 5+, 6- loop powered Power Rail or terminals 9+, 10- bus powered
Rated voltage	U _r 19 ... 30 V DC loop powered
Input current	75 mA at 24 V , 270 Ω load

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

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Technical Data

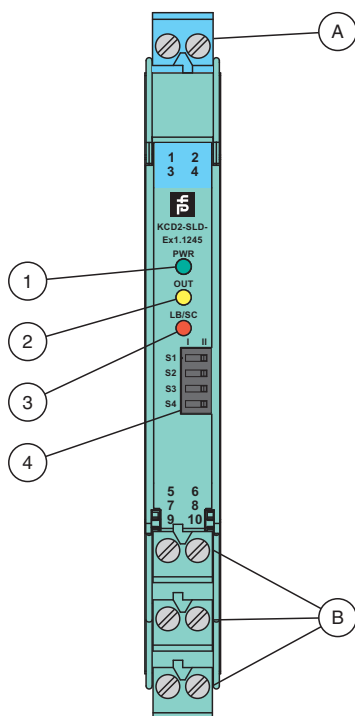
Power dissipation		1.3 W at 24 V , 270 Ω load
Input		
Connection side		control side
Connection		terminals 5+, 6-
Test pulse length		max. 2 ms from DO card
Signal level		loop powered 1-signal: 19 ... 30 V DC 0-signal: 0 ... 5 V DC bus powered 1-signal: 15 ... 30 V DC (current limited to 5 mA) 0-signal: 0 ... 5 V DC
Rated current	I_r	0-signal: typ. 1.6 mA at 1.5 V DC; typ. 8 mA at 3 V DC (maximum leakage current DO card) 1-signal: ≥ 36 mA (minimum load current DO card)
Inrush current		< 200 mA , 10 ms loop powered
Output		
Connection side		field side
Connection		terminals 1+, 2-
Internal resistor	R_i	240 Ω
Current	I_e	typ. 45 mA
Voltage	U_e	typ. 12 V
Current limit	I_{max}	50 mA
Open loop voltage	U_s	typ. 24.6 V
Load		nominal 0.05 ... 18 k Ω , valid range for line fault detection (LFD)
Output II		fault signal
Connection		terminals 7, 8 , non-intrinsically safe
Contact loading		30 V DC/ 0.5 A resistive load
Mechanical life		10 ⁵ switching cycles
Energized/De-energized delay		≤ 20 ms / ≤ 20 ms
Line fault detection		
Test current		max. 350 μ A , calculated by $I_{LFD} = 4.7 \text{ V} / (15 \text{ k}\Omega + R_{Load})$
Galvanic isolation		
Output/other circuits		basic insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff}
Output II/power supply		basic insulation according to IEC/EN 61010-1, rated insulation voltage 32 V _{eff}
Indicators/settings		
Display elements		LEDs
Control elements		DIP switch
Configuration		via DIP switches
Labeling		space for labeling at the front
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013 (industrial locations)
Conformity		
Electromagnetic compatibility		NE 21:2012 , EN 61326-3-2:2008 For further information see system description.
Degree of protection		IEC 60529:2013
Protection against electrical shock		EN 61010-1:2010
Ambient conditions		
Ambient temperature		-20 ... 60 $^{\circ}$ C (-4 ... 140 $^{\circ}$ F) Observe the temperature range limited by derating, see section derating.
Mechanical specifications		
Degree of protection		IP20
Connection		screw terminals
Mass		approx. 150 g
Dimensions		12.5 x 119 x 114 mm (0.5 x 4.7 x 4.5 inch) (W x H x D) , housing type A2
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001

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Technical Data

Data for application in connection with hazardous areas			
EU-type examination certificate		EXA 17 ATEX 0002 X	
Marking		Ⓜ II 3(1)G Ex nC ec [ia Ga] IIC T4 Gc Ⓜ II (1)D [Ex ia Da] IIIC Ⓜ I (M1) [Ex ia Ma] I	
Output I		Ex ia	
Voltage	U _o	26 V	
Current	I _o	110 mA	
Power	P _o	715 mW	
Supply			
Maximum safe voltage	U _m	60 V (Attention! The rated voltage can be lower.)	
Input			
Maximum safe voltage	U _m	60 V (Attention! The rated voltage can be lower.)	
Collective error message			
Maximum safe voltage	U _m	60 V (Attention! The rated voltage can be lower.)	
Galvanic isolation			
Output I/other circuits		safe electrical isolation acc. to IEC/EN 60079-11, rated insulation voltage 300 V _{rms}	
Directive conformity			
Directive 2014/34/EU		EN 60079-0:2012+A11:2013 , EN 60079-7:2015 , EN 60079-11:2012 , EN 60079-15:2010	
International approvals			
UL approval		E106378	
Control drawing		116-0448 (cULus)	
IECEX approval			
IECEX certificate		IECEX EXA 17.0001X	
IECEX marking		Ex nC 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 .	

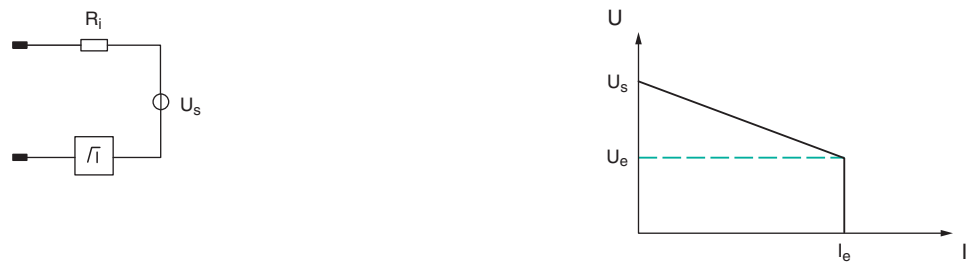
Assembly



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1	LED green: Power supply
2	LED yellow: Status output
3	LED red: LB/SC output
4	Switch S1 to S4
A	Removable terminal, blue
B	Removable terminals, green

Characteristic Curve

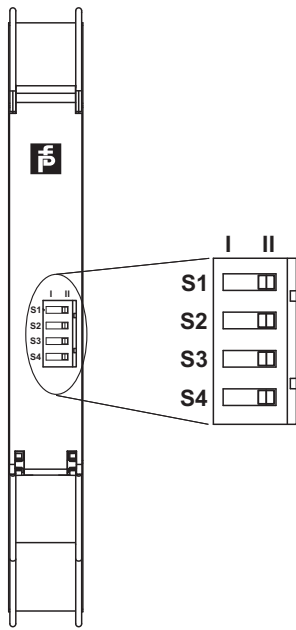


Output Characteristics

Output circuit diagram	Output characteristic
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Refer to technical data for specific values.

Configuration



Switch Settings

Switch	Function	Position
S1	Line fault detection	enabled
		disabled
S2	Mode of operation	loop powered
		bus powered with logic input
S3	Minimum load	enabled
		disabled
S4	No function	

Factory setting: line fault detection enabled, operating mode loop powered, minmum load enabled