



# 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.

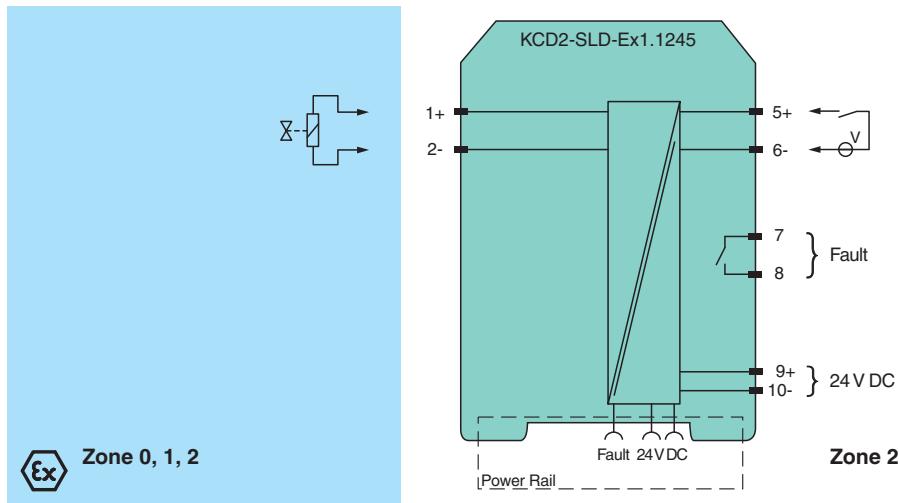
The device is controlled with a loop powered signal or a bus powered logic signal.

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.

### Connection



### Technical Data

Release date: 2024-08-05 Date of issue: 2024-08-05 Filename: 70104930\_eng.pdf

#### General specifications

Signal type	Digital Output
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#### Functional safety related parameters

Safety Integrity Level (SIL)	SIL 3
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Systematic capability (SC)	SC 3
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#### Supply

Connection		terminals 5+, 6- loop powered Power Rail or terminals 9+, 10- bus powered
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Rated voltage	$U_r$	19 ... 30 V DC loop powered
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Input current		75 mA at 24 V, 270 $\Omega$ load
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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 $\Omega$ load
<b>Input</b>		
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: $\geq$ 36 mA (minimum load current DO card)
Inrush current		< 200 mA , 10 ms loop powered
<b>Output</b>		
Connection side		field side
Connection		terminals 1+, 2-
Internal resistor	$R_i$	240 $\Omega$
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 $\Omega$ , 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		$\leq$ 20 ms / $\leq$ 20 ms
Line fault detection		
Test current		max. 350 $\mu$ A , calculated by $I_{LFD} = 4.7 \text{ V} / (15 \text{ k}\Omega + R_{Load})$
<b>Galvanic isolation</b>		
Output/other circuits		basic insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub>
Output II/power supply		basic insulation according to IEC/EN 61010-1, rated insulation voltage 32 V <sub>eff</sub>
<b>Indicators/settings</b>		
Display elements		LEDs
Control elements		DIP switch
Configuration		via DIP switches
Labeling		space for labeling at the front
<b>Directive conformity</b>		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013 (industrial locations)
<b>Conformity</b>		
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
<b>Ambient conditions</b>		
Ambient temperature		-20 ... 60 $^{\circ}\text{C}$ (-4 ... 140 $^{\circ}\text{F}$ ) Observe the temperature range limited by derating, see section derating.
<b>Mechanical specifications</b>		
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

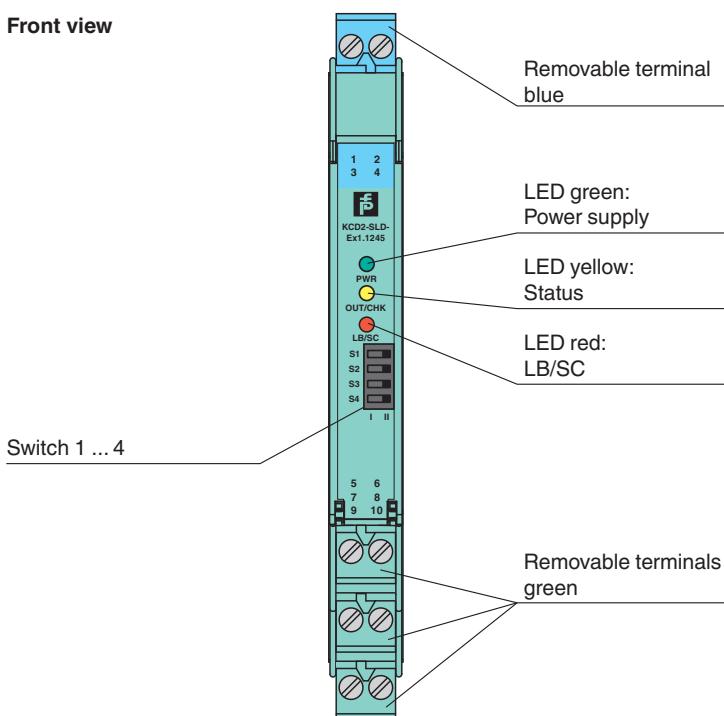
## Technical Data

## Data for application in connection with hazardous areas

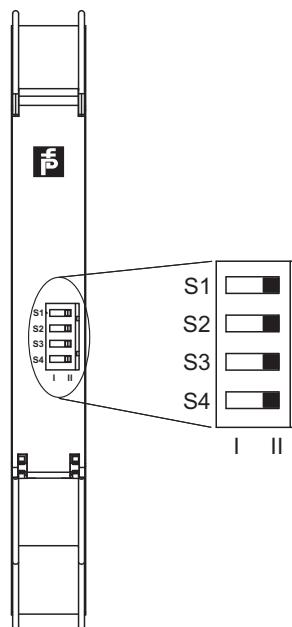
EU-type examination certificate		EXA 17 ATEX 0002 X
Marking		Ex II 3(1)G Ex nC ec [ia Ga] IIC T4 Gc Ex II (1)D [Ex ia Da] IIIC Ex I (M1) [Ex ia Ma] I
Output I		Ex ia
Voltage	$U_o$	26 V
Current	$I_o$	110 mA
Power	$P_o$	715 mW
Supply		
Maximum safe voltage	$U_m$	60 V (Attention! The rated voltage can be 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 <sub>rms</sub>
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 <a href="http://www.pepperl-fuchs.com">www.pepperl-fuchs.com</a> .

## Assembly

## Front view



## Configuration



### Switch settings

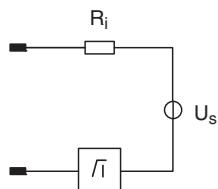
Switch	Function	Position
S1	Line fault detection	enabled
		disabled
S2	Mode of operation	loop powered
		bus powered with logic input
S3	Minimum load	enabled
		disabled
S4	No function	

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

## Characteristic Curve

### Output characteristics

Output circuit diagram



Output characteristic

