Solenoid Driver

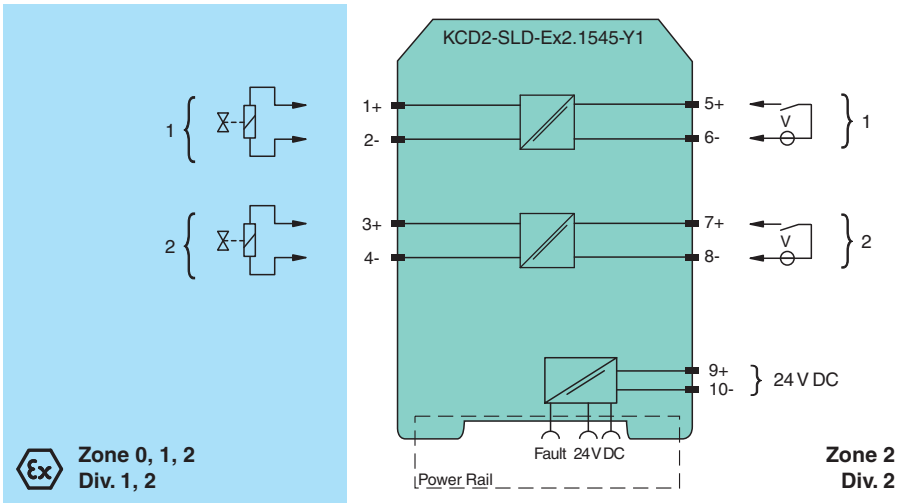
KCD2-SLD-Ex2.1545-Y1

- 2-channel isolated barrier
- 24 V DC supply (bus or loop powered)
- Output 45 mA at 15 V DC
- Line fault transparency (LFT)
- Test pulse immunity
- Housing width 12.5 mm

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 20 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
Supply		
Connection		Power Rail or terminals 9+, 10- bus powered
Rated voltage	U_r	18 ... 30 V DC
Power dissipation		< 2 W
Power consumption		max. 3.5 W at 45 mA output current
Input		
Connection side		control side

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Technical Data

Connection		terminals 5+, 6-; 7+, 8- limited electrical values : max. 30 V , max. 5 A
Test pulse length		max. 2 ms from DO card
Signal level		loop powered 1-signal: 18 ... 30 V DC (current limited to ≥ 20 mA) 0-signal: 0 ... 5 V DC bus powered 1-signal: 15 ... 24 V DC (current limited at 5 mA) 0-signal: 0 ... 5 V DC
Rated current	I_r	loop powered 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: ≥ 20 mA (minimum load current DO card) bus powered 1-signal: 5 mA
Inrush current		≤ 200 mA after 100 µs
Output		
Connection side		field side
Connection		terminals 1+, 2-; 3+, 4-
Internal resistor	R_i	approx. 167 Ω
Current	I_e	≤ 45 mA
Voltage	U_e	≥ 15 V
Current limit	I_{max}	45 mA
Open loop voltage	U_s	min. 23.6 V
Load		nominal 0.05 ... 20 kΩ , valid range for line fault detection (LFD)
Energized/De-energized delay		≤ 20 ms / ≤ 20 ms
Line fault detection		
Test current		max. 350 µA , calculated by $I_{LFD} = 3.3\ V / (10\ k\Omega + R_{Load})$
Galvanic isolation		
Input/Output		reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V_{eff}
Power supply/Output		reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 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 21:2017 , EN IEC 61326-1:2021 (industrial locations) , EN IEC 61326-3-2:2018 For further information see system description.
Degree of protection		IEC 60529:2013
Protection against electrical shock		UL 61010-1:2019
Ambient conditions		
Ambient temperature		-40 ... 70 °C (-40 ... 158 °F)
Mechanical specifications		
Degree of protection		IP20
Connection		screw terminals
Mass		approx. 105 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
Data for application in connection with hazardous areas		
EU-type examination certificate		UL 23 ATEX 3027 X
Marking		⟨Ex⟩ II (1)G [Ex ia Ga] IIC ⟨Ex⟩ II (1)D [Ex ia Da] IIIC ⟨Ex⟩ I (M1) [Ex ia Ma] I
Output		Ex ia Refer to certificate for alternative parameters.

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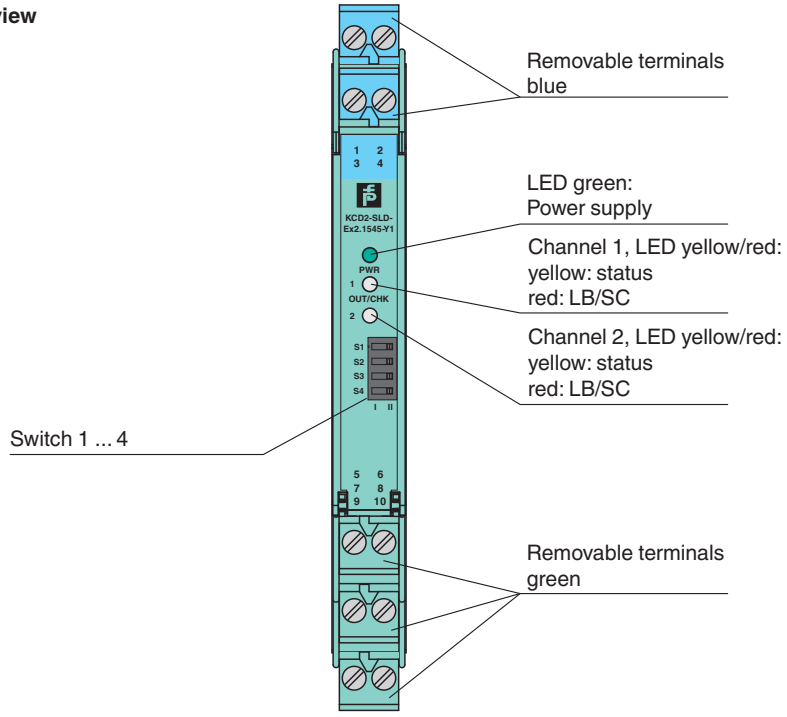
Technical Data

Voltage	U_o	25.3 V
Current	I_o	52 mA
Power	P_o	850 mW (angular characteristic curve)
Internal resistance	R_i	167 Ω
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.)
Certificate		UL 23 ATEX 3065 X
Marking		Ⓔx II 3G Ex ec IIC T4 Gc
Galvanic isolation		
Input/Output		safe electrical isolation acc. to IEC/EN 60079-11, rated insulation voltage 300 V_{rms}
Output/power supply		safe electrical isolation acc. to IEC/EN 60079-11, rated insulation voltage 300 V_{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		116-0496 (cULus)
IECEx approval		
IECEx certificate		IECEx ULD 23.0016X
IECEx marking		[Ex ia Ga] IIC , [Ex ia Da] IIIC , [Ex ia Ma] I Ex ec IIC T4 Gc
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com.

Assembly

Front view



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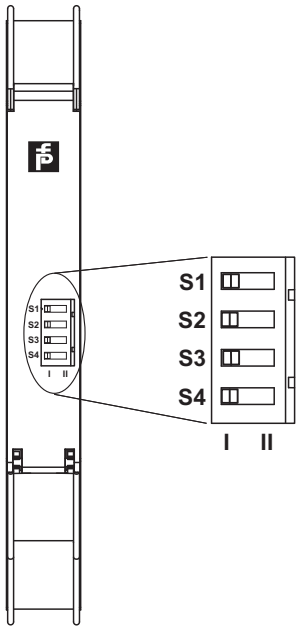
Configuration



Switch settings

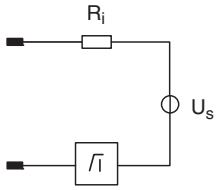
Switch	Function		Position
S1	Line fault detection	enabled	II
		disabled	I
S2	Mode of operation channel 1	loop powered	II
		bus powered	I
S3	Mode of operation channel 2	loop powered	II
		bus powered	I
S4	No function		

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

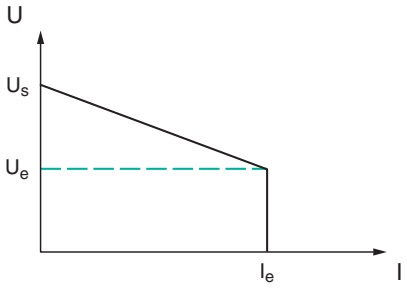
Characteristic Curve

Output characteristics

Output circuit diagram



Output characteristic



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