Features

- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Input for approved dry contacts or SN/S1N sensors
- Active voltage output
- Relay contact output
- Fault indication output
- Line fault detection (LFD)
- Up to SIL 3 acc. to IEC 61508
- Up to PL d acc. to EN/ISO 13849

Function

This isolated barrier is used for intrinsic safety applications.

The device transfers digital signals (SN/S1N proximity sensors or approved dry contacts) from a hazardous area to a safe area.

The input controls one active voltage output and one relay contact output with a NO contact.

Unlike an SN/S1N series proximity sensor, a mechanical contact requires a 10 kΩ resistor to be placed across the contact in addition to a 1.5 kΩ resistor in series.

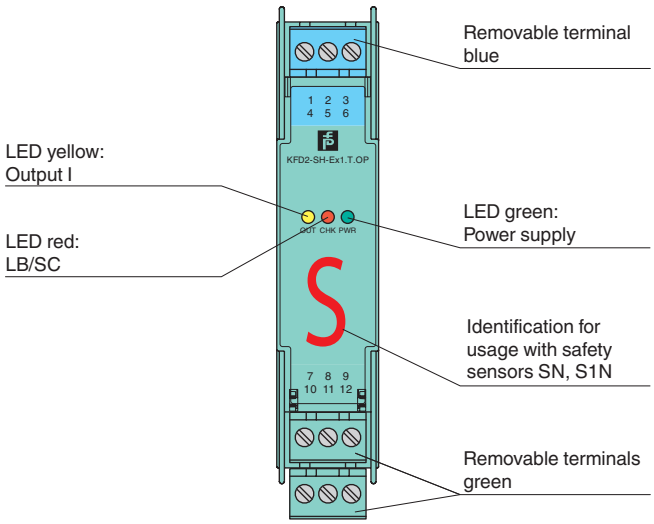
Lead breakage (LB) and short circuit (SC) conditions of the control circuit are continuously monitored.

During an fault condition, the fault indication output and the outputs I and II de-energize.

For safety applications up to SIL3, output I must be used. For safety applications up to SIL2, output I and output II can be used.

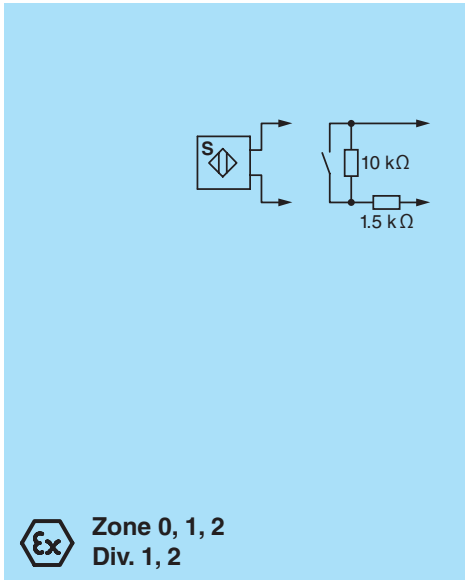
Assembly

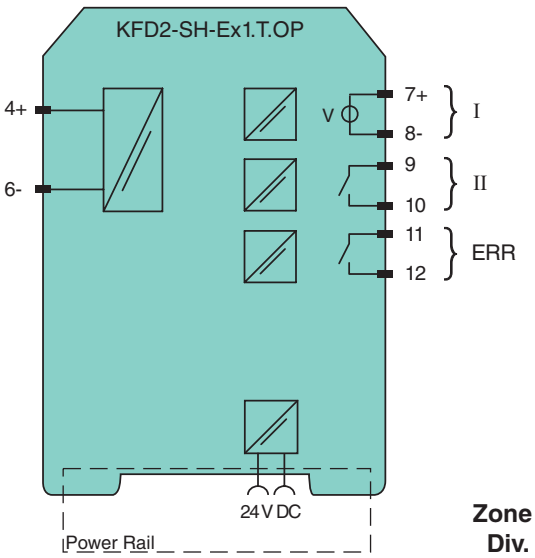
Front view



SIL 3

Connection





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General specifications		
Signal type		Digital Input
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Performance level (PL)		PL d
Supply		
Connection		Power Rail
Rated voltage	U_r	20 ... 30 V DC
Ripple		≤ 10 %
Rated current	I_r	≤ 100 mA
Power dissipation		1.5 W
Power consumption		≤ 1.7 W
Input		
Connection side		field side
Connection		terminals 4+, 6-
Open circuit voltage/short-circuit current		approx. 8.4 V DC / approx. 11.7 mA
Lead resistance		≤ 50 Ω , cable capacitances and inductances must be observed in hazardous areas
Switching point		
Relay de-energized		I < 2.1 mA and I > 5.9 mA , output switched off
Relay energized		2.8 mA < I < 5.3 mA , output switched on
Response delay		≤ 1 ms
Output		
Connection side		control side
Connection		output I: terminals 7+, 8- ; output II: terminals 9, 10 ; output III: terminals 11, 12
Output I		active voltage output, short-circuit proof 0-signal: 0 V 1-signal: 20 ... 31 V DC at max. 15 mA fault: 0 V
Output II		relay
Contact loading		48 V AC/DC 250 mA
Mechanical life		≤ 20 x 10^6 switching cycles
Output III		relay , fault signal
Contact loading		48 V AC/DC 250 mA
Mechanical life		≤ 20 x 10^6 switching cycles
Transfer characteristics		
Switching frequency		
Output I		≤ 50 Hz
Output II		≤ 5 Hz
Output III		≤ 5 Hz
Indicators/settings		
Display elements		LEDs
Labeling		space for labeling at the front
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013 (industrial locations)
Machinery Directive		
Directive 2006/42/EC		EN/ISO 13849-1:2008
Conformity		
Electromagnetic compatibility		NE 21:2011
Degree of protection		IEC 60529:2001
Safety		IEC/EN 61508:2010
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Mechanical specifications		
Degree of protection		IP20
Connection		screw terminals
Mass		approx. 150 g
Dimensions		20 x 107 x 115 mm (0.8 x 4.2 x 4.5 inch) , housing type B1
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 00 ATEX 2041
Marking		Ⓔx II (1)GD [EEx ia] IIC [circuit(s) in zone 0/1/2]

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Input		EEx ia IIC
Voltage	U_o	9.56 V
Current	I_o	16.8 mA
Power	P_o	41 mW (linear characteristic)
Supply		
Maximum safe voltage	U_m	40 V AC/DC (Attention! The rated voltage can be lower.)
Output		
Contact loading		48 V AC/DC 250 mA
Maximum safe voltage	U_m	60 V AC/DC (Attention! The rated voltage can be lower.)
Certificate		TÜV 99 ATEX 1493 X
Marking		⟨Ex⟩ II 3G Ex nA nC IIC T4
Galvanic isolation		
Input/Output		safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V
Input/power supply		safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013 , EN 60079-11:2012 , EN 60079-15:2010
International approvals		
FM approval		
Control drawing		116-0158
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com.
Accessories		
Optional accessories		- power feed module KFD2-EB2(.R4A.B)(.SP) - universal power rail UPR-03(-M)(-S) - profile rail K-DUCT-BU(-UPR-03)

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