Features

- 2-channel isolated barrier
- 24 V DC supply (Power Rail)
- Dry contact or NAMUR inputs
- 2 passive transistor outputs (resistive acc. to EN 60947-5-6)
- Line fault transparency (LFT)
- Housing width 12.5 mm
- Up to SIL2 acc. to IEC 61508

Function

This isolated barrier is used for intrinsic safety applications.

The device transfers digital signals (NAMUR sensors or dry contacts) from a hazardous area to a safe area.

Each input controls a passive transistor output with a resistive output characteristic (acc. to EN60947-5-6).

The outputs have three defined states: 1-Signal = 1.8 kΩ, 0-Signal = 14 kΩ and fault > 100 kΩ.

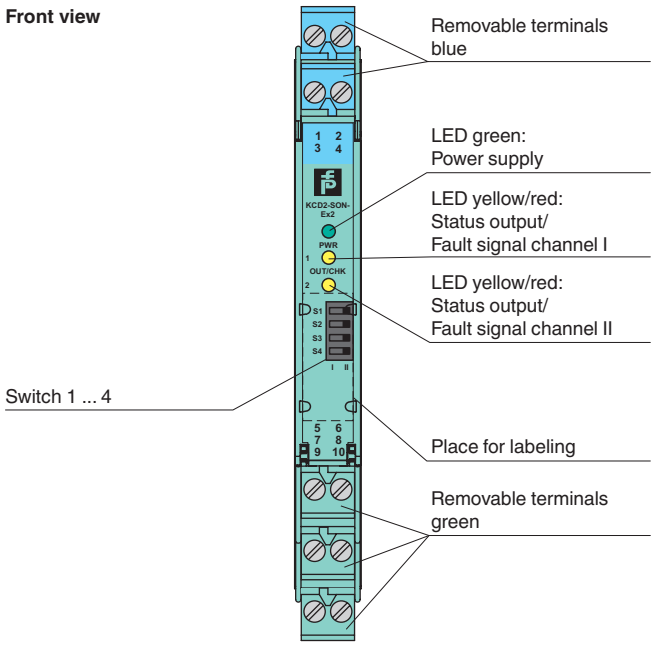
This output characteristic offers line fault transparency on the signal lines.

Via switches the mode of operation can be reversed and the line fault detection can be switched off.

A fault is signalized by LEDs acc. to NAMUR NE44 and a separate collective error message output.

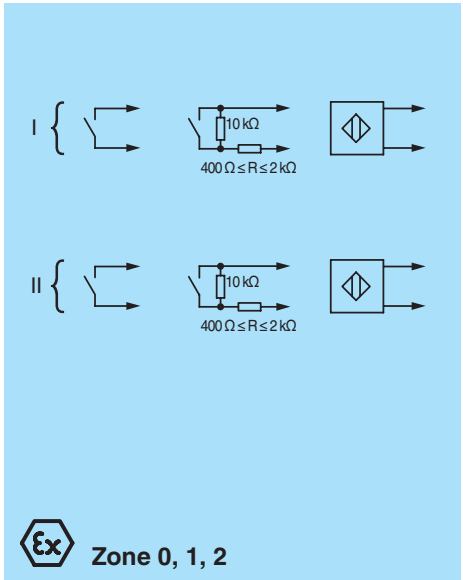
Assembly

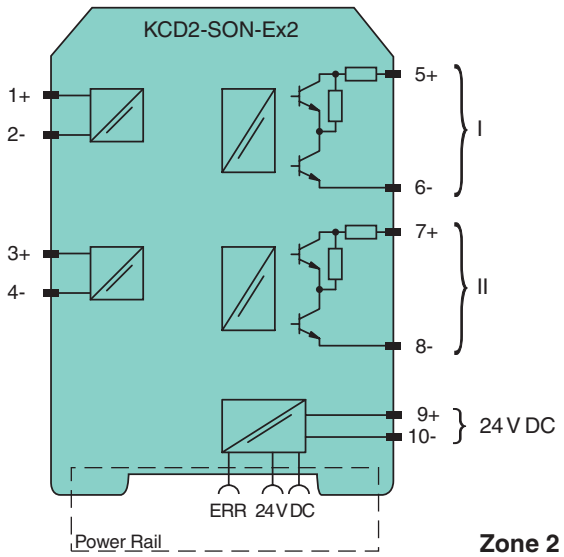
Front view



SIL2

Connection





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General specifications		
Signal type		Digital Input
Supply		
Connection		Power Rail or terminals 9+, 10-
Rated voltage	U_n	19 ... 30 V DC
Ripple		≤ 10 %
Rated current	I_n	35 ... 25 mA
Power loss		≤ 750 mW
Input		
Connection		terminals 1+, 2-; 3+, 4-
Rated values		acc. to EN 60947-5-6 (NAMUR)
Open circuit voltage/short-circuit current		approx. 10 V DC / approx. 8 mA
Switching point/switching hysteresis		1.2 ... 2.1 mA / approx. 0.2 mA
Line fault detection		breakage I ≤ 0.1 mA , short-circuit I ≥ 6.5 mA
Pulse/Pause ratio		≥ 100 µs / ≥ 100 µs
Output		
Connection		output I: terminals 5, 6 ; output II: terminals 7, 8
Rated voltage	U_n	8 V DC
Response time		≤ 200 µs
Output I, II		signal or error message, passive transistor output (resistive) 0-signal: 14 kΩ ± 10 % 1-signal: 1.8 kΩ ± 10 % fault: > 100 kΩ
Collective error message		Power Rail
Transfer characteristics		
Switching frequency		≤ 5 kHz
Electrical isolation		
Input/Output		reinforced insulation acc. to EN 50178, rated insulation voltage 300 V_{eff}
Input/power supply		reinforced insulation acc. to EN 50178, rated insulation voltage 300 V_{eff}
Output/power supply		basic insulation according to EN 50178, rated insulation voltage 50 V_{eff}
Output/Output		basic insulation according to EN 50178, rated insulation voltage 50 V_{eff}
Directive conformity		
Electromagnetic compatibility		
Directive 2004/108/EC		EN 61326-1:2006
Conformity		
Electromagnetic compatibility		NE 21:2011
Degree of protection		IEC 60529:2001
Protection against electrical shock		IEC 61010-1:2010
Input		EN 60947-5-6:2000
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Mechanical specifications		
Degree of protection		IP20
Mass		approx. 100 g
Dimensions		12.5 x 114 x 119 mm (0.5 x 4.5 x 4.7 in) , housing type A2
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with Ex-areas		
EC-Type Examination Certificate		BASEEFA 13 ATEX 0080
Group, category, type of protection		⟨Ex⟩ II (1)G [Ex ia Ga] IIC ⟨Ex⟩ II (1)D [Ex ia Da] IIIC ⟨Ex⟩ I (M1) [Ex ia Ma] I
Input		Ex ia
Voltage	U_o	10.5 V
Current	I_o	17.1 mA
Power	P_o	45 mW (linear characteristic)
Supply		
Maximum safe voltage	U_m	253 V AC (Attention! U_m is no rated voltage.)
Output		
Maximum safe voltage	U_m	253 V AC (Attention! The rated voltage can be lower.)
Statement of conformity		PF 13 CERT 2760 X
Group, category, type of protection, temperature class		⟨Ex⟩ II 3G Ex nA IIC T4 Gc
Electrical 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

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Directive conformity	
Directive 94/9/EC	EN 60079-0:2012 , EN 60079-11:2012 , EN 60079-15:2010
International approvals	
UL approval	
Control drawing	116-0374 (cULus)
IECEx approval	IECEx BAS 13.0046
Approved for	[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I
General information	
Supplementary information	EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable. For information see www.pepperl-fuchs.com.

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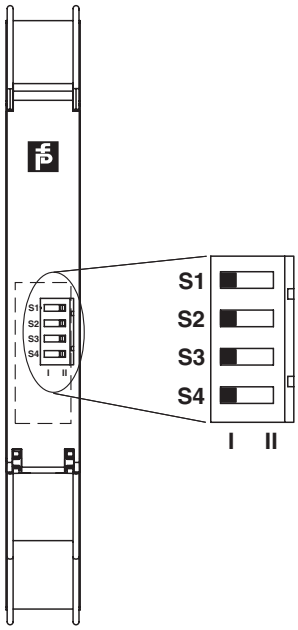
Configuration



Switch settings

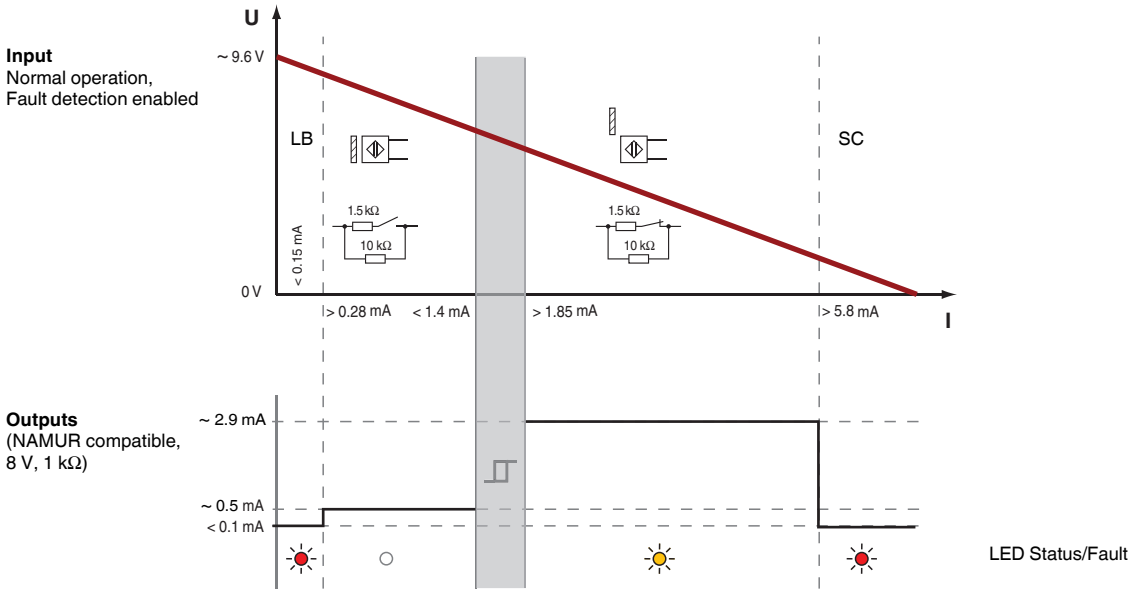
S	Function		Position
1	Mode of operation output I (active)	with high input curent	I
		with low input current	II
2	Mode of operation output II (active)	with high input curent	I
		with low input current	II
3	Line fault detection of the input I	ON	I
		OFF	II
4	Line fault detection of the input II	ON	I
		OFF	II

Operating status

Control circuit	Input signal
Initiator high impedance/contact opened	low input current
Initiator low impedance/contact closed	high input current
Lead breakage, lead short-circuit	Line fault

Factory settings: switch 1, 2, 3 and 4 in position I

Trip points



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Accessories

Power feed module KFD2-EB2

The power feed module is used to supply the devices with 24 V DC via the Power Rail. The fuse-protected power feed module can supply up to 150 individual devices depending on the power consumption of the devices. Collective error messages received from the Power Rail activate a galvanically-isolated mechanical contact.

Power Rail UPR-03

The Power Rail UPR-03 is a complete unit consisting of the electrical insert and an aluminium profile rail 35 mm x 15 mm. To make electrical contact, the devices are simply engaged.

Profile Rail K-DUCT with Power Rail

The profile rail K-DUCT is an aluminum profile rail with Power Rail insert and two integral cable ducts for system and field cables. Due to this assembly no additional cable guides are necessary.

Power Rail and Profile Rail must not be fed via the device terminals of the individual devices!

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