- 2-channel
- Control circuit EEx ia IIC
- Device installation permissible in zone 2
- Reversible mode of operation
- 1 relay output per channel with 2 NO each
- EMC acc. to NAMUR NE 21
- LB/SC monitoring
- LB/SC collective error message via Power Rail
- Up to SIL2 acc. to IEC 61508

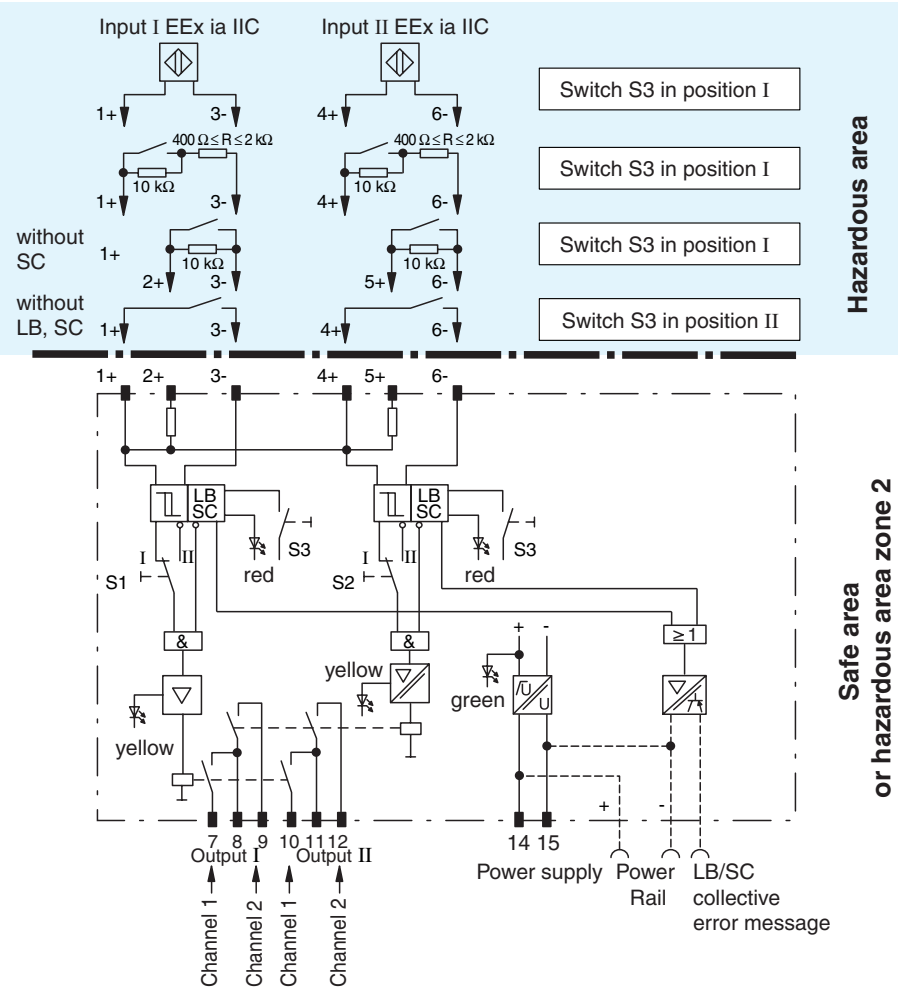
24 V DC

KFD2-SR2-Ex2.2S

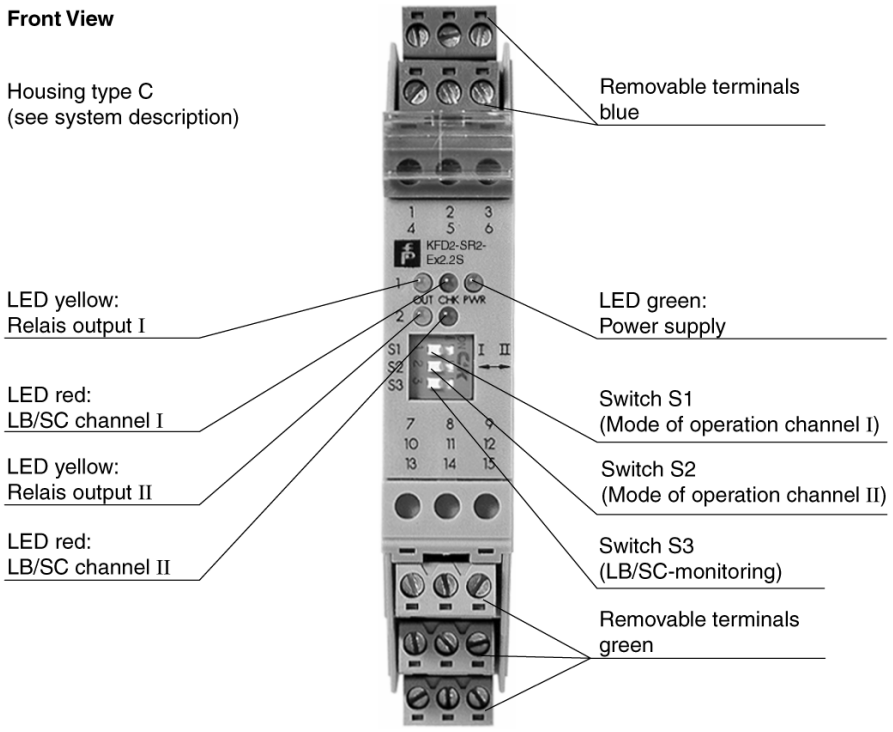
Function

The transformer isolated barrier transfers digital signals from the hazardous area. Sensors per EN 60947-5-6 (NAMUR) and mechanical contacts may be used as alarms. Control circuits are monitored for lead breakage (LB) and short circuit (SC). The external faults are indicated according to NAMUR NE44 by a red flashing LED. Additionally a LB/SC collective error message will be transferred via Power Rail to the power feed module. The intrinsically safe input is securely separated from the output and mains power in accordance with EN 50020. Relay outputs are galvanically separated from the mains power in accordance with IEC 61140. Relay outputs are separated from each other galvanically in accordance with IEC 61140.

Connection



Composition



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Supply			
Connection			Power Rail or terminals 14+, 15-
Rated voltage			20 ... 30 V DC
Ripple			≤ 10 %
Rated current			≤ 50 mA
Power loss			1 W
Power consumption			< 1.3 W
Input			
Connection			terminals 1+, 2+, 3-; 4+, 5+, 6-
Rated values			acc. to EN 60947-5-6 (NAMUR), see system description for electrical data
Open-circuit voltage/short-circuit current			approx. 8 V DC / approx. 8 mA
Switching point/Switching hysteresis			1.2 ... 2.1 mA / approx. 0.2 mA
Pulse/Pause ratio			≥ 20 ms / ≥ 20 ms
Lead monitoring			breakage I ≤ 0.1 mA , short-circuit I > 6 mA
Output			
Connection			output I: terminals 7, 8, 9 ; output II: terminals 10, 11, 12
Collective error message			Power Rail
Output I and II			channel 1, 2 ; relay
Contact loading			50 V AC / 1 A / cos φ > 0.7; 40 V DC / 1 A resistive load
Minimum switch current			1 mA / 24 V DC
Energized/de-energized delay			approx. 20 ms / approx. 20 ms
Mechanical life			10^8 switching cycles
Transfer characteristics			
Switching frequency			≤ 10 Hz
Electrical isolation			
Output/power supply			basic insulation according to IEC 61140, rated insulation voltage 50 V_{eff}
Output/output			basic insulation according to IEC 61140, rated insulation voltage 50 V_{eff}
Directive conformity			
Electromagnetic compatibility			
Directive 89/336/EC			EN 61326, EN 50081-2
Conformity			
Electromagnetic compatibility			NE 21
Protection degree			IEC 60529
Protection against electric shock			IEC 61140
Ambient conditions			
Ambient temperature			-20 ... 60 °C (253 ... 333 K)
Mechanical specifications			
Protection degree			IP20
Mass			approx. 150 g
Dimensions			20 x 118 x 115 mm (0.8 x 4.6 x 4.5 in)
Data for application in conjunction with hazardous areas			
EC-Type Examination Certificate			PTB 00 ATEX 2083 , for additional certificates see www.pepperl-fuchs.com
Group, category, type of protection			⟨Ex⟩ II (1) G D [EEx ia] IIC [circuit(s) in zone 0/1/2]
Input			EEx ia IIC
Voltage	U_0		10.5 V
Current	I_0		13 mA
Power	P_0		34 mW (linear characteristic)
Supply			
Safety maximum voltage U_m			253 V AC / 125 V DC (Attention! U_m is no rated voltage.)
Type of protection [EEx ia and EEx ib]			
Explosion group		IIA	IIB IIC
External capacitance		75 µF	16.8 µF 2.4 µF
External inductance		1 H	740 mH 200 mH
Output			
Contact loading			50 V AC / 1 A / cos φ > 0.7; 40 V DC / 1 A resistive load
Safety maximum voltage U_m			253 V AC (Attention! The rated voltage can be lower.)
Statement of conformity			TÜV 99 ATEX 1493 X , observe statement of conformity
Group, category, type of protection, temperature classification			⟨Ex⟩ II 3 G EEx nAC IIC T4 [device in zone 2]
Electrical isolation			
Input/input			not available
Input/output			safe electrical isolation acc. to EN 50020, voltage peak value 375 V
Input/power supply			safe electrical isolation acc. to EN 50020, voltage peak value 375 V
Directive conformity			

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Directive 94/9 EC		EN 50014, EN 50020, EN 50021		
Entity parameter				
Certification number		J.I.3002773		
FM control drawing		No. 116-0035		
Suitable for installation in division 2		yes		
Connection		terminals 1, 3; 2, 3; 4, 6; 5, 6		
Input I				
Voltage	V_{OC}	12.9 V		
Current	I_t	19.8 mA		
Explosion group		A&B	C&E	D, F&G
Max. external capacitance C_a		1.273 µF	3.82 µF	10.18 µF
Max. external inductance L_a		84.8 mH	254.4 mH	678.4 mH
Safety parameter				
UL control drawing		E 106378		
CSA control drawing		LR 36087-19		
Control drawing		No. 116-0047		
Connection		terminals 1, 3; 2, 3; 4, 6; 5, 6		
Input I				
Safety parameter		12.6 V / 650 Ω		
Voltage	V_{OC}	12.9 V		
Current	I_{SC}	19.8 mA		
Explosion group		A&B	C&E	D, F&G
Max. external capacitance C_a		1.273 µF	3.82 µF	10.18 µF
Max. external inductance L_a		84.88 mH	298.7 mH	744.4 mH

Supplementary information

EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity and instructions have to be observed. For information see www.pepperl-fuchs.com.

Accessories

Power Rail PR-03
Power Rail UPR-03
Power feed module KFD2-EB2...

Using Power Rail PR-03 or UPR-03 the devices are supplied with 24 V DC by means of the power feed modules. If no Power Rails are used, power supply of the individual devices is possible directly via their device terminals.

Each power feed module is used for fusing and monitoring groups with up to 100 individual devices. The Power Rail PR-03 is an inset component for the DIN rail. The Power Rail UPR-03 is a complete unit consisting of the electrical inset and an aluminium profile rail 35 mm x 15 mm x 2000 mm. To make electrical contact, the devices are simply engaged.

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

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