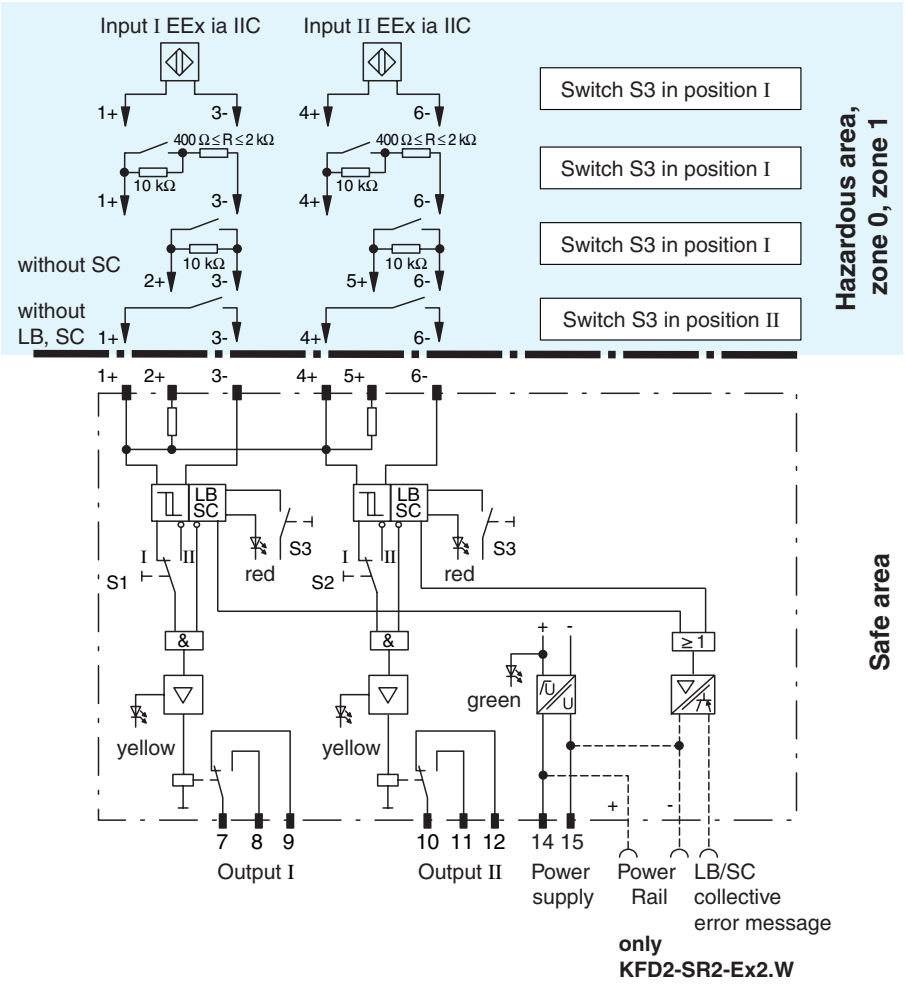
24 V DC

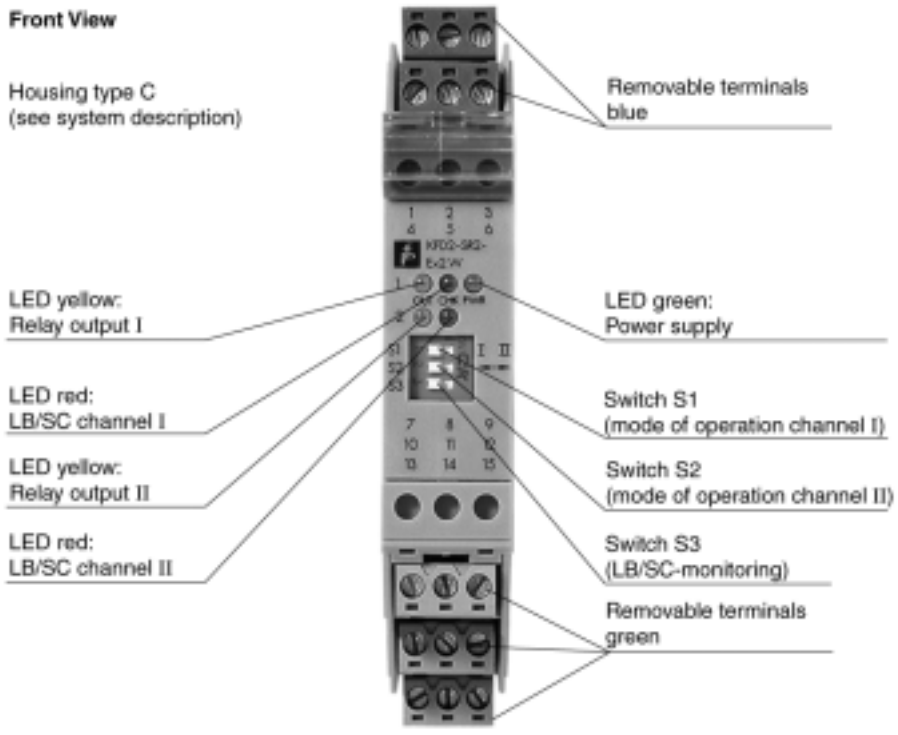
- 2-channel
- Control circuit EEx ia IIC
- Reversible mode of operation
- 1 signal output with 1 changeover contact per channel
- EMC acc. to NAMUR NE 21
- LB/SC monitoring
- LB/SC collective error message via Power Rail
- Usable up to SIL 2 acc. to IEC 61508

Function

The transformer isolated barrier transfers digital signals from the hazardous area. Sensors per DIN 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. For type KFD2-SR2-Ex2.W, an LB/SC collective error message is in addition transferred through the Power Rail to the power feed module. The intrinsically safe inputs per DIN EN 50020 are safely isolated from the output and the power supply. Relay outputs are galvanically separated from the mains power in accordance with IEC 61140. Relay outputs are galvanically separated from each other in accordance with IEC 61140.



Composition



103368_ENG.xml 2003-06-03

Supply		
Connection		Power Rail or terminals 14+, 15-
Rated voltage		20 ... 30 V DC
Ripple		≤ 10 %
Rated current		≤ 50 mA
Power loss		0,7 W
Power consumption		< 1,3 W
Input		
Connection		terminals 1+, 2+, 3-; 4+, 5+, 6-
Rated values		acc. to IEC 60947-5-6 (NAMUR, DIN 19234), 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
Output I and II		signal ; relay
Contact loading		253 V AC / 2 A / cos φ > 0.7; 126.5 V AC / 4 A / cos φ > 0.7; 40 V DC / 2 A resistive load
Energised/De-energised delay		approx. 20 ms / approx. 20 ms
Mechanical life		10^7 switching cycles
Transfer characteristics		
Switching frequency		≤ 10 Hz
Electrical isolation		
Output/Power supply		reinforced insulation according to IEC 61140, rated insulation voltage 300 V_{eff}
Output/Output		from january 2002 reinforced insulation according to IEC 61140, rated insulation voltage 300 Veff
Standard conformity		
Climatic conditions		acc. to DIN IEC 721
Directive conformity		
Electromagnetic compatibility		standards
Directive 89/336/EG		EN 61326, EN 50081-2, NE 21
Ambient conditions		
Ambient temperature		-20 ... 60 °C (253 ... 333 K)
Mechanical specifications		
Protection degree		IP20
Mass		approx. 150 g
Data for application in conjunction with hazardous areas		
EC-Type Examination Certificate		PTB 00 ATEX 2080 , 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 2,41 µF
External inductance		1000 mH 840 mH 210 mH
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]
Output		
Contact loading		253 V AC / 2 A / cos φ > 0.7; 126.5 V AC / 4 A / cos φ > 0.7; 40 V DC / 2 A resistive load (PTB 00 ATEX 2080) 50 V AC / 4 A / cos φ > 0.7; 40 V DC / 2 A resistive load (TÜV 99 ATEX 1493 X)
Safety maximum voltage	U_m	253 V AC (Attention! The rated voltage can be lower)
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		standards
Directive 94/9 EU		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

103368_ENG.xml 2003-06-03

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 Ohm			
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. This information can be found under www.pepperl-fuchs.com

Accessories

PR-03 Power Rail
UPR-03 Power Rail
KFD2-EB2 power feed module
The KFD2-EB2 power feed module and the PR-03 or the UPR-03 Power Rail are used to supply the devices with 24 VDC and at the same time to evaluate combined fault indications.
Each power feed module monitors and provides protection for groups of as many as 100 individual devices. The PR-03 Power Rail is an insert component for the DIN rail. The UPR-03 Power Rail is a complete unit consisting of an electrical insert and an aluminium DIN rail measuring 35 mm x 15 mm x 2000 mm. The devices are simply snapped in place to make electrical contact.
If a Power Rail is not being used, power can be supplied to the devices directly through the device terminals.

103368_ENG.xml 2003-06-03