

Switch Amplifier KFD2-SOT2-Ex2

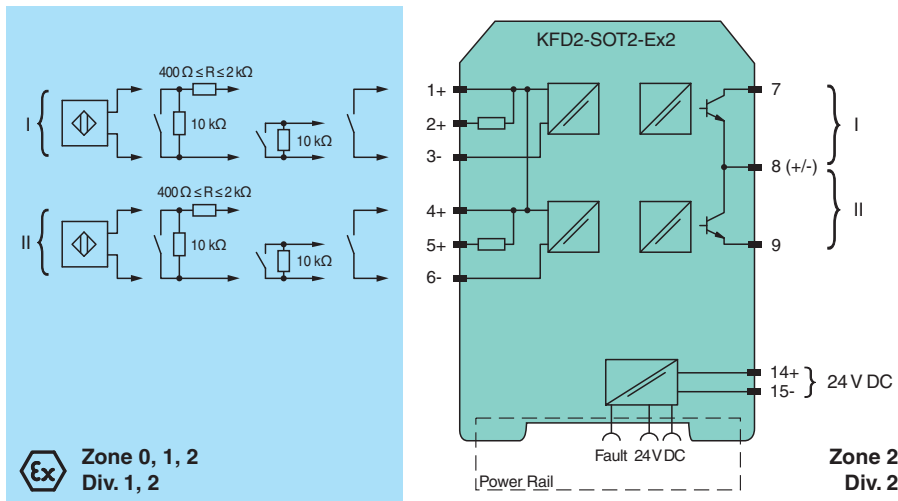
- 2-channel isolated barrier
- 24 V DC supply (Power Rail)
- Dry contact or NAMUR inputs
- Passive transistor output, non-polarized
- Line fault detection (LFD)
- Reversible mode of operation
- Up to SIL 2 acc. to IEC/EN 61508



Function

This isolated barrier is used for intrinsic safety applications. It transfers digital signals (NAMUR sensors/mechanical contacts) from a hazardous area to a safe area. Each proximity sensor or switch controls a passive transistor output for the safe area load. The normal output state can be reversed using switch S1 for channel I and switch S2 for channel II. Switch S3 enables or disables line fault detection of the field circuit. During an error condition, the transistors revert to their de-energized state and LEDs indicate the fault according to NAMUR NE44. A unique collective error messaging feature is available when used with the Power Rail system.

Connection



Ex Zone 0, 1, 2
Div. 1, 2

Zone 2
Div. 2

Technical Data

General specifications

Signal type Digital Input

Functional safety related parameters

Safety Integrity Level (SIL) SIL 2

Supply

Connection Power Rail or terminals 14+, 15-

Rated voltage U_r 20 ... 30 V DC

Ripple $\leq 10\%$

Rated current I_r ≤ 50 mA

Input

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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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PF PEPPERL+FUCHS

Technical Data

Connection side		field side
Connection		terminals 1+, 2+, 3-; 4+, 5+, 6-
Rated values		acc. to EN 60947-5-6 (NAMUR), see manual 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
Line fault detection		breakage $I \leq 0.1$ mA , short-circuit $I > 6$ mA
Output		
Connection side		control side
Connection		output I: terminals 7, 8 ; output II: terminals 8, 9
Switching voltage		max. 30 V
Switching current		max. 100 mA , short-circuit protected
Signal level		1-signal: switching voltage - 2.5 V max. at 10 mA switching current or 3 V max. at 100 mA switching current 0-signal: switched off (off-state current ≤ 10 μ A)
Output I, II		signal ; electronic output, passive
Collective error message		Power Rail
Transfer characteristics		
Switching frequency		≤ 5 kHz
Galvanic isolation		
Input/Output		reinforced insulation acc. to IEC 62103, rated insulation voltage 300 V_{rms}
Input/power supply		reinforced insulation acc. to IEC 62103, rated insulation voltage 300 V_{rms}
Output/power supply		basic insulation according to IEC 62103, rated insulation voltage 50 V_{eff}
Input/input		not available
Output/Output		not available
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		
Galvanic isolation		IEC 62103:2003
Electromagnetic compatibility		NE 21:2004
Degree of protection		IEC 60529:2001
Input		EN 60947-5-6:2000
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 119 x 115 mm (0.8 x 4.7 x 4.5 inch) (W x H x D) , housing type B2
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 2035
Marking		⊕ II (1) G [Ex ia] IIC ⊕ II (1) D [Ex ia] IIIC
Input		Ex ia IIC, Ex ia IIIC
Voltage	U_o	10.5 V
Current	I_o	13 mA
Power	P_o	34 mW (linear characteristic)
Supply		

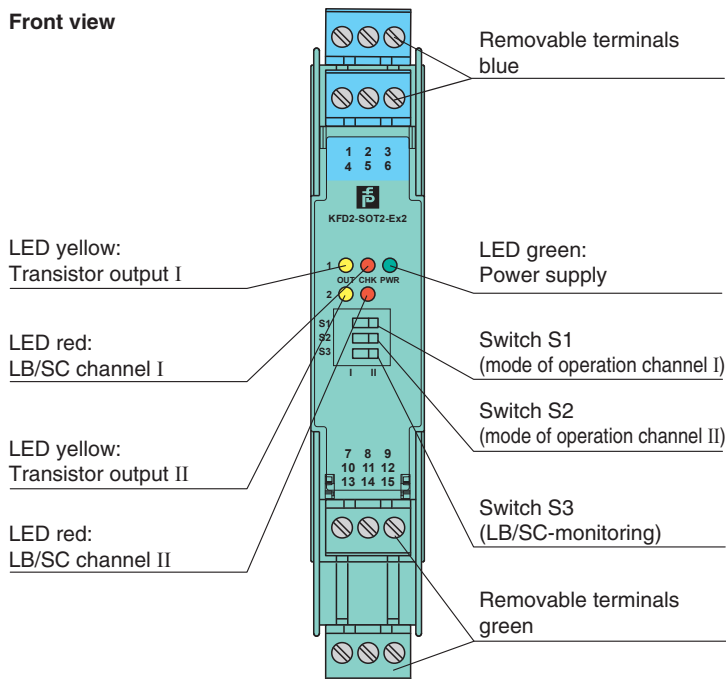
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Technical Data

Maximum safe voltage	U _m	40 V DC (Attention! The rated voltage can be lower.)
Output		
Maximum safe voltage	U _m	40 V DC (Attention! The rated voltage can be lower.)
EU-type examination certificate		DMT 01 ATEX E 133
Marking		Ⓜ I (M1) [Ex ia] I
Certificate		TÜV 99 ATEX 1499 X
Marking		Ⓜ II 3G Ex nA II 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 , EN 50303:2000
International approvals		
FM approval		
Control drawing		116-0035
CSA approval		
Control drawing		116-0047
IECEX approval		
IECEX certificate		IECEX PTB 05.0011
IECEX marking		[Ex ia] IIC , [Ex ia] I , [Ex ia] IIIC
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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Matching System Components





	KFD2-EB2	Power Feed Module
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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

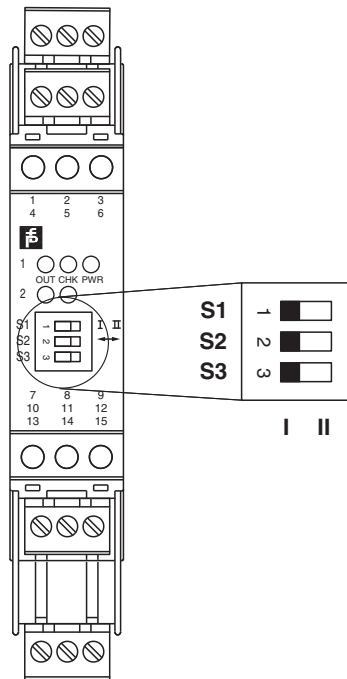
Matching System Components

	UPR-03	Universal Power Rail with end caps and cover, 3 conductors, length: 2 m
	UPR-03-M	Universal Power Rail with end caps and cover, 3 conductors, length: 1,6 m
	UPR-03-S	Universal Power Rail with end caps and cover, 3 conductors, length: 0.8 m
	K-DUCT-BU	Profile rail, wiring comb field side, blue
	K-DUCT-BU-UPR-03	Profile rail with UPR-03- * insert, 3 conductors, wiring comb field side, blue

Accessories

	F-NR3-Ex1	NAMUR Resistor Network
	KF-ST-5GN	Terminal block for KF modules, 3-pin screw terminal, green
	KF-ST-5BU	Terminal block for KF modules, 3-pin screw terminal, blue
	KF-CP	Red coding pins, packaging unit: 20 x 6

Configuration



Switch position

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

Operating states

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 setting: switch 1, 2 and 3 in position I

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