

Switch Amplifier KFD2-SOT2-Ex2.IO

SIL 2

- 2-channel isolated barrier
- 24 V DC supply (Power Rail)
- Dry contact or NAMUR inputs
- Isolated passive transistor output, non-polarized
- Line fault detection (LFD)
- Reversible mode of operation
- Up to SIL 2 acc. to IEC 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. Both transistor outputs are isolated from each other and isolated from the power supply. 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.

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		≤ 10 %
Rated current	I _r	≤ 50 mA
Input		
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 ≤ 0.1 mA , short-circuit I > 6 mA
Output		
Connection side		control side
Connection		output I: terminals 7, 8 ; output II: terminals 10, 11
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 µA)
Output I, II		signal ; electronic output, passive
Collective error message		Power Rail

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

Pepperl+Fuchs Group
www.pepperl-fuchs.com

USA: +1 330 486 0002
pa-info@us.pepperl-fuchs.com

Germany: +49 621 776 2222
pa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091
pa-info@sg.pepperl-fuchs.com

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Technical Data

Transfer characteristics

Switching frequency	≤ 5 kHz
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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	basic insulation according to IEC 62103, rated insulation voltage 50 V _{eff}

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)
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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) , 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		
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

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USA: +1 330 486 0002
pa-info@us.pepperl-fuchs.com

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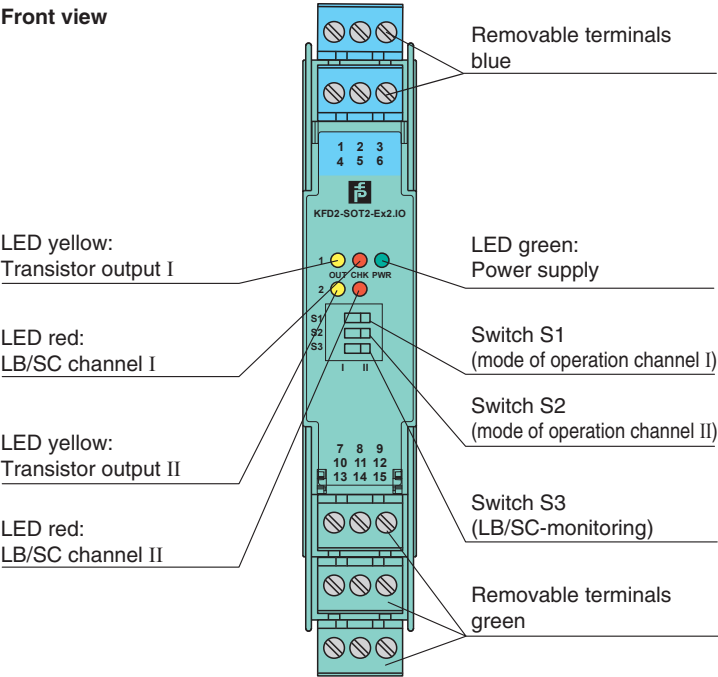
Singapore: +65 6779 9091
pa-info@sg.pepperl-fuchs.com

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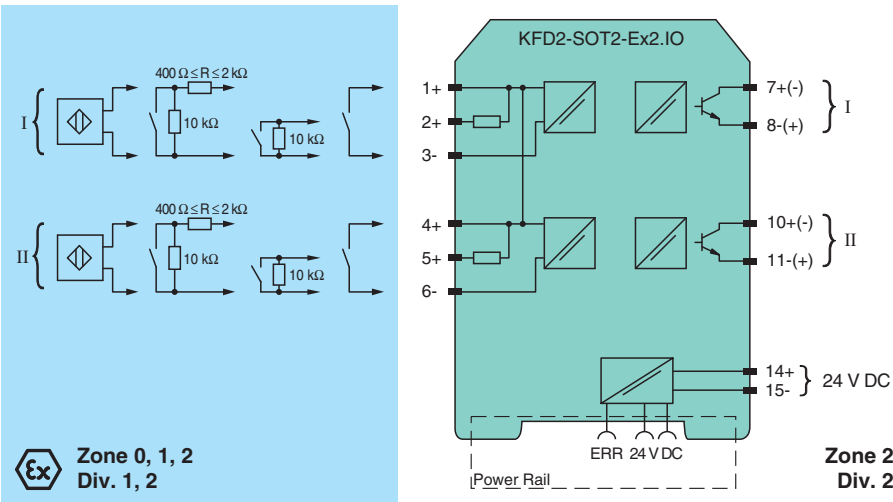
Technical Data

CSA approval	
Control drawing	116-0047
IECEX approval	IECEX PTB 05.0011
Approved for	[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



Connection



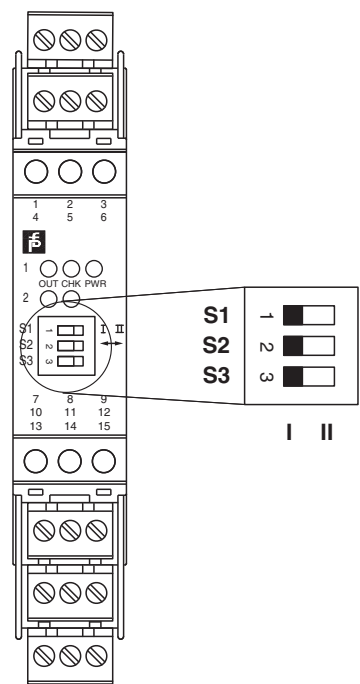
Accessories

	KFD2-EB2	Power Feed Module
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Accessories

	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	
	K-DUCT-BU-UPR-03	Profile rail with UPR-03- * insert, 3 conductors, wiring comb field side blue

Configuration



Switch position

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

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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