

**Features**

- 2-channel isolated barrier
- 24 V DC supply (Power Rail)
- Dry contact or NAMUR inputs
- Relay contact output
- Line fault detection (LFD)
- Housing width 12.5 mm
- 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.

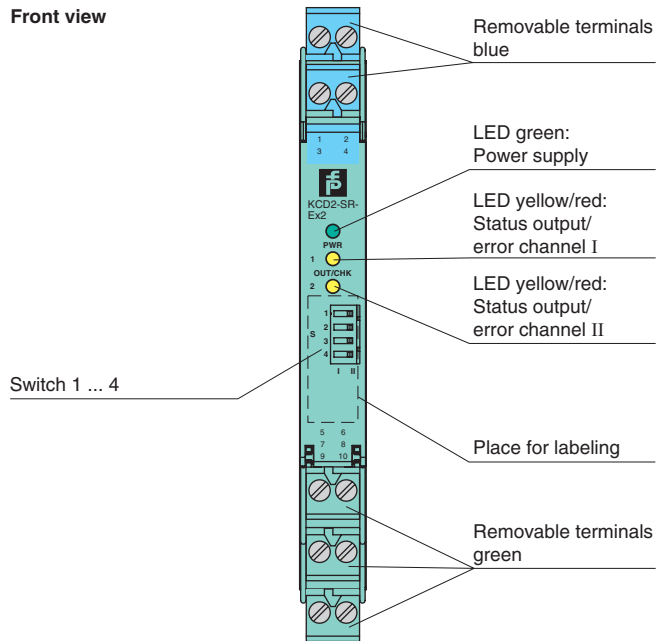
The proximity sensor or switch controls a form A normally open relay contact for the safe area load. The normal output state can be reversed using switches S1 and S2. Switch S3 is used to enable or disable line fault detection of the field circuit.

During an error condition, relays 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.

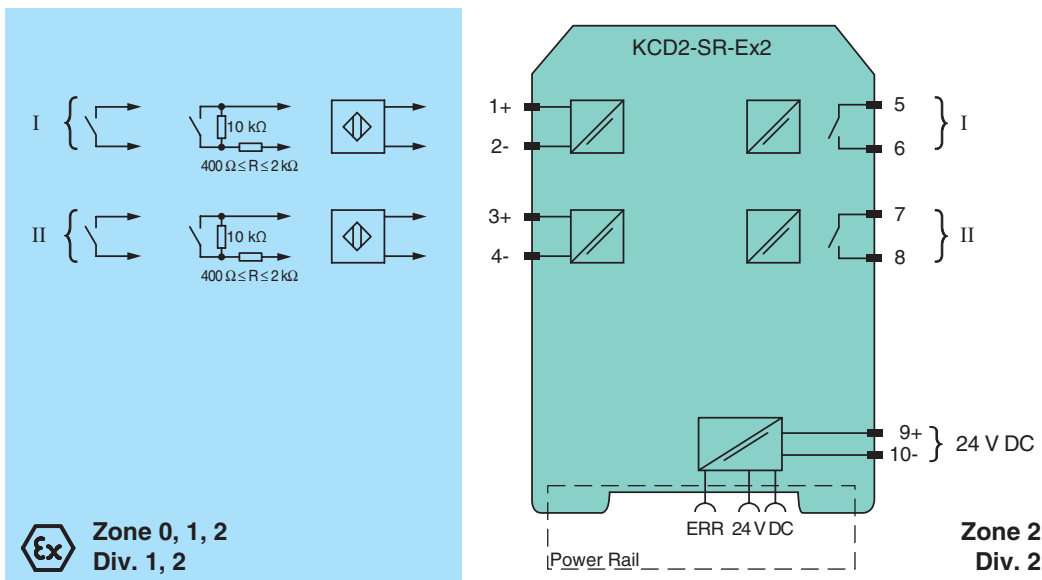
Due to its compact housing design and low heat dissipation, this device is useful for detecting positions, end stops, and switching states in space-critical applications.

**Assembly**



**SIL 2**

**Connection**



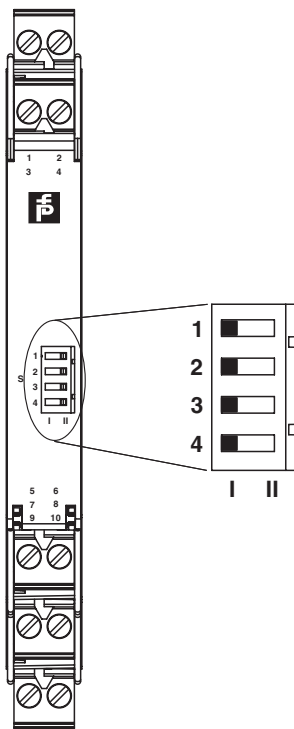
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<b>General specifications</b>		
Signal type		Digital Input
<b>Functional safety related parameters</b>		
Safety Integrity Level (SIL)		SIL 2
<b>Supply</b>		
Connection		Power Rail or terminals 9+, 10-
Rated voltage	$U_r$	19 ... 30 V DC
Ripple		≤ 10 %
Rated current	$I_r$	≤ 30 mA
Power dissipation		≤ 600 mW
Power consumption		≤ 600 mW
<b>Input</b>		
Connection side		field side
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 $I \leq 0.1$ mA , short-circuit $I \geq 6.5$ mA
Pulse/Pause ratio		≥ 20 ms / ≥ 20 ms
<b>Output</b>		
Connection side		control side
Connection		terminals 5, 6; 7, 8
Output I		signal ; relay
Output II		signal ; relay
Contact loading		253 V AC/2 A/cos $\phi > 0.7$ ; 126.5 V AC/4 A/cos $\phi > 0.7$ ; 30 V DC/2 A resistive load
Minimum switch current		2 mA / 24 V DC
Energized/De-energized delay		≤ 20 ms / ≤ 20 ms
Mechanical life		10 <sup>7</sup> switching cycles
<b>Transfer characteristics</b>		
Switching frequency		≤ 10 Hz
<b>Galvanic isolation</b>		
Input/Output		reinforced insulation acc. to EN 50178, rated insulation voltage 300 V <sub>eff</sub>
Input/power supply		reinforced insulation acc. to EN 50178, rated insulation voltage 300 V <sub>eff</sub>
Output/power supply		reinforced insulation acc. to EN 50178, rated insulation voltage 300 V <sub>eff</sub>
Input/input		Basic insulation according to EN 50178, rated insulation voltage 300 V <sub>eff</sub>
Output/Output		reinforced insulation acc. to EN 50178, rated insulation voltage 300 V <sub>eff</sub>
<b>Indicators/settings</b>		
Display elements		LEDs
Control elements		DIP-switch
Configuration		via DIP switches
Labeling		space for labeling at the front
<b>Directive conformity</b>		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013 (industrial locations)
Low voltage		
Directive 2014/35/EU		EN 61010-1:2010
<b>Conformity</b>		
Electromagnetic compatibility		NE 21
Degree of protection		IEC 60529:2001
<b>Ambient conditions</b>		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
<b>Mechanical specifications</b>		
Degree of protection		IP20
Connection		screw terminals
Mass		approx. 100 g
Dimensions		12.5 x 114 x 119 mm (0.5 x 4.5 x 4.7 inch) , housing type A2
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
<b>Data for application in connection with hazardous areas</b>		
EU-Type Examination Certificate		BASEEFA 06 ATEX 0092
Marking		⊕ II (1)G [Ex ia Ga] IIC , ⊕ II (1)D [Ex ia Da] IIIC , ⊕ I (M1) [Ex ia Ma] I
Input		[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I
Voltage	$U_o$	10.5 V
Current	$I_o$	17.1 mA
Power	$P_o$	45 mW (linear characteristic)

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<b>Supply</b>		
Maximum safe voltage	U <sub>m</sub>	253 V AC (Attention! U <sub>m</sub> is no rated voltage.)
<b>Output</b>		
Contact loading		253 V AC/2 A/cos φ > 0.7; 126.5 V AC/4 A/cos φ > 0.7; 30 V DC/2 A resistive load
Maximum safe voltage	U <sub>m</sub>	253 V AC (Attention! The rated voltage can be lower.)
Certificate		PF 06 CERT 0972 X
Marking		Ⓔ II 3G Ex nA nC IIC T4 Gc
<b>Output I, II</b>		
Contact loading		50 V AC/2 A/cos φ > 0.7; 30 V DC/2 A resistive load
<b>Galvanic isolation</b>		
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
<b>Directive conformity</b>		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013 , EN 60079-11:2012 , EN 60079-15:2010
<b>International approvals</b>		
FM approval		
Control drawing		116-0419 (cFMus)
UL approval		
Control drawing		116-0420 (cULus)
IECEX approval		
Approved for		[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I
<b>General information</b>		
Supplementary information	Observe the cer information see	conformity, instruction manuals, and manuals where applicable. For

Configuration



Switch position

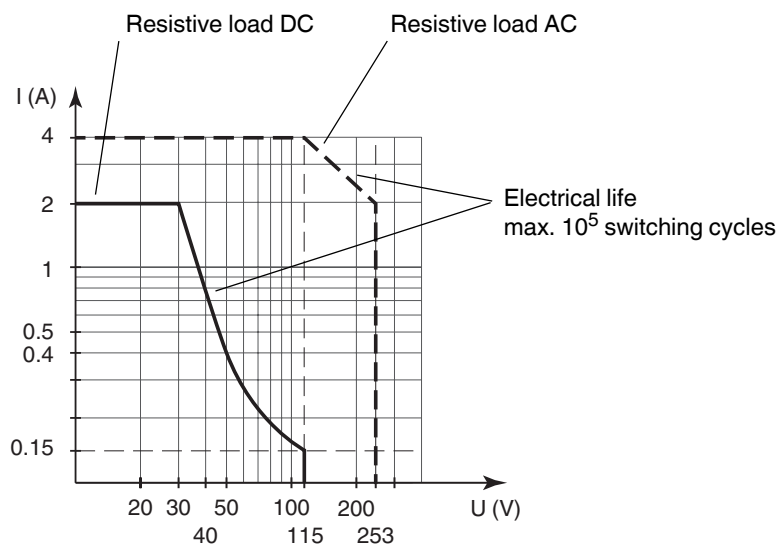
S	Function		Position
1	Mode of operation Output I (relay) energized	with high input current	I
		with low input current	II
2	Mode of operation Output II (relay) energized	with high input current	I
		with low input current	II
3	Line fault detection Input I	ON	I
		OFF	II
4	Line fault detection Input II	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

Maximum switching power of output contacts



The maximum number of switching cycles is depending on the electrical load and may be higher when reduced currents and voltages are applied.

## 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!*