

# Relay Module

## KFD0-RSH-1.4S.PS2

- 1-channel signal conditioner
- 24 V DC supply (loop powered)
- Logic input 20 V DC ... 26.5 V DC, non-polarized
- Fail-safe relay contact output for de-energized and energized to safe function
- Test pulse immunity
- Up to SIL 3 acc. to IEC/EN 61508



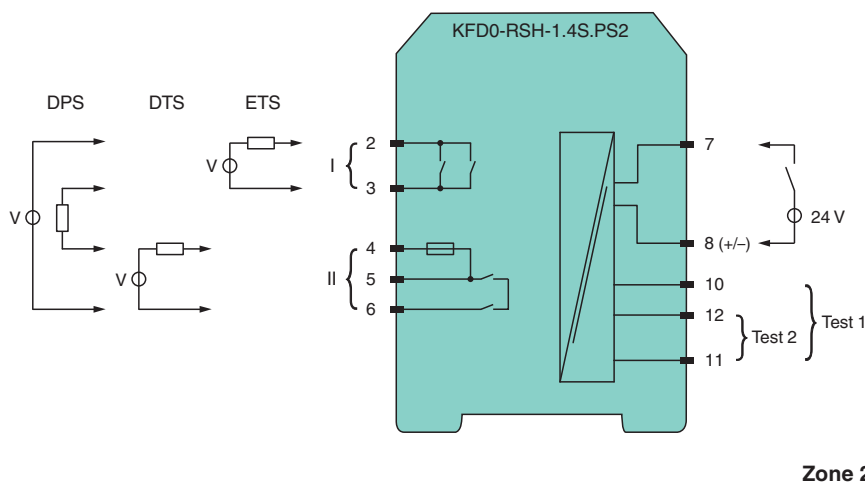
### Function

This signal conditioner is a relay module that is suitable for safely switching applications of a load circuit. The device isolates load circuits up to 230 V and the 24 V control interface. The energized to safe (ETS) function is permitted for SIL3 applications with output I. The de-energized to safe (DTS) function is permitted for SIL3 applications with output II. Additionally a dual pole switching (DPS) is possible by combination of output I and II. The relays are of diverse design, but have a common effect on the individual switch output. For checking of these relays, terminals 10, 11 and 12 can be used. The test mode will be indicated by LEDs according to NAMUR NE44. The outputs are galvanically isolated from the input. Output II is protected against contact welding by a fuse depending on the used terminal.

### Application

- This device is compatible to the controls:
- Yokogawa ProSafe DO cards SDV531, SDV541
  - Honeywell DO card SDO-0824
- Compatibility check to other ESD/DCS systems on request.

### Connection



Zone 2

### Technical Data

General specifications	
Signal type	Digital Output
Functional safety related parameters	
Safety Integrity Level (SIL)	SIL 3
Supply	

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## Technical Data

Rated voltage	$U_r$	0-signal: -3 ... 3 V DC , loop powered 1-signal: 20 ... 26.5 V DC , loop powered
Power dissipation		< 1.5 W
Power consumption		< 1.5 W
<b>Input</b>		
Connection side		control side
Connection		Input terminals 7, 8 ; test input terminals 10, 11, 12
Pulse/Pause ratio		min. 20 ms / min. 20 ms
Test input		see functional safety manual
Signal level		0-signal: -3 ... 3 V DC 1-signal: 20 ... 26.5 V
Rated current	$I_r$	45 ... 50 mA
<b>Output</b>		
Connection side		field side
Connection		output I (ETS): terminals 2, 3 output II (DTS): terminals 4, 5, 6 output I and II (DPS): terminals 2, 3, 4, 5, 6
Contact loading		253 V AC/5 A/cos $\phi$ 0.7; 30 V DC/5 A resistive load
Minimum switch current		2 mA / 24 V DC
Energized/De-energized delay		approx. 10 ms / approx. 5 ms
Mechanical life		5 x 10 <sup>6</sup> switching cycles
Fuse rating		2.5 A (max. 5 A) recommended maximum utilization of the fuse: 80 %
<b>Transfer characteristics</b>		
Switching frequency		< 10 Hz
<b>Galvanic isolation</b>		
Input/Output		reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub>
Output/Output		reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub>
<b>Indicators/settings</b>		
Display elements		LEDs
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 21:2012
Degree of protection		IEC 60529:2013
<b>Ambient conditions</b>		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F) Observe the temperature range limited by derating, see section derating.
<b>Mechanical specifications</b>		
Degree of protection		IP20
Connection		screw terminals
Mass		approx. 100 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
<b>Data for application in connection with hazardous areas</b>		
Certificate		PF 15 CERT 3844 X
Marking		Ⓜ II 3G Ex nA nC IIC T4 Gc [device in zone 2]
Output		
Contact loading		50 V AC/4 A; 30 V DC/4 A , see derating curves for Zone 2
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 , EN 60079-15:2010

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

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**PEPPERL+FUCHS**

**Technical Data**

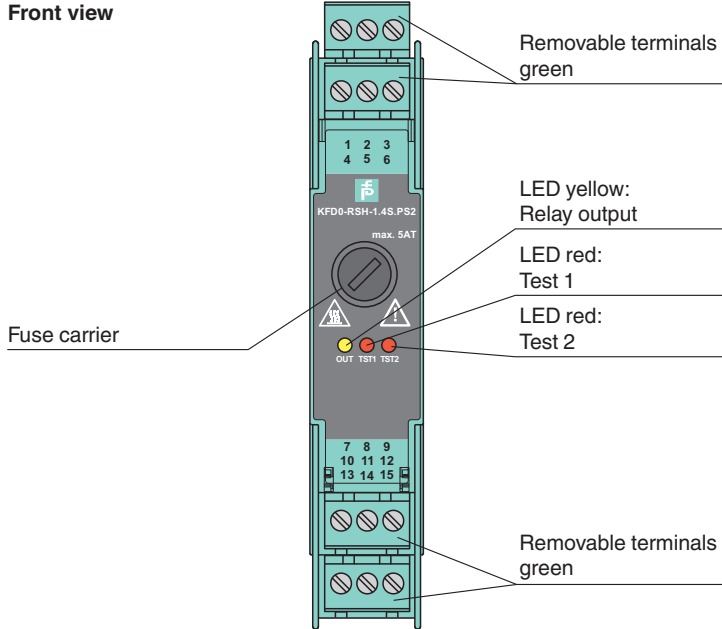
**General information**

Supplementary information


Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see [www.pepperl-fuchs.com](http://www.pepperl-fuchs.com).

**Assembly**



Front view



**Matching System Components**

	<b>K-DUCT-GY</b>	Profile rail, wiring comb field side, gray
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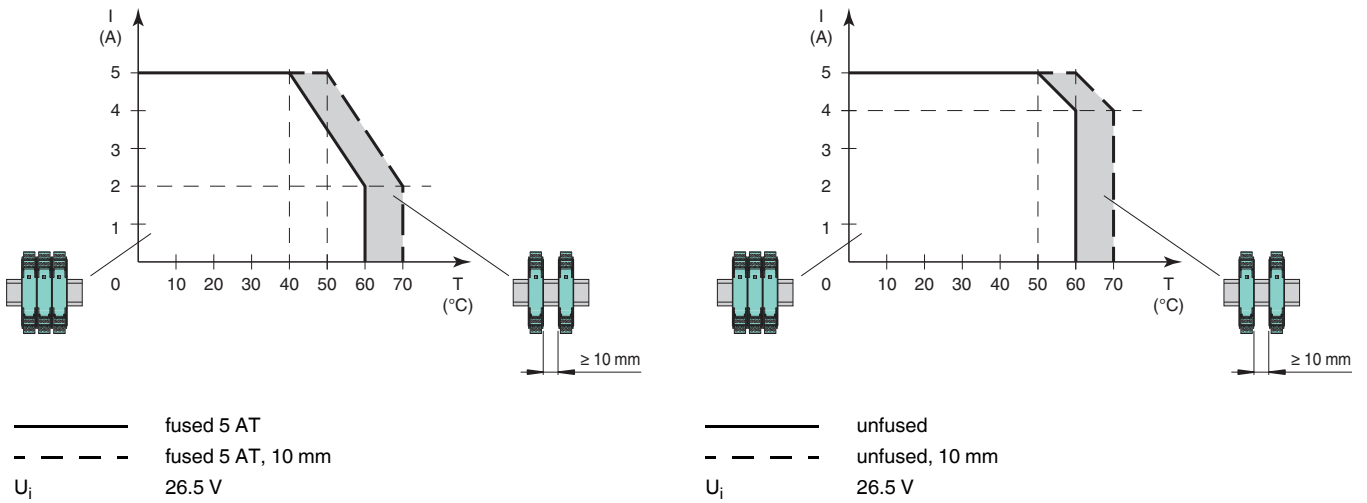
**Accessories**

	<b>KF-ST-5GN</b>	Terminal block for KF modules, 3-pin screw terminal, green
	<b>KF-CP</b>	Red coding pins, packaging unit: 20 x 6

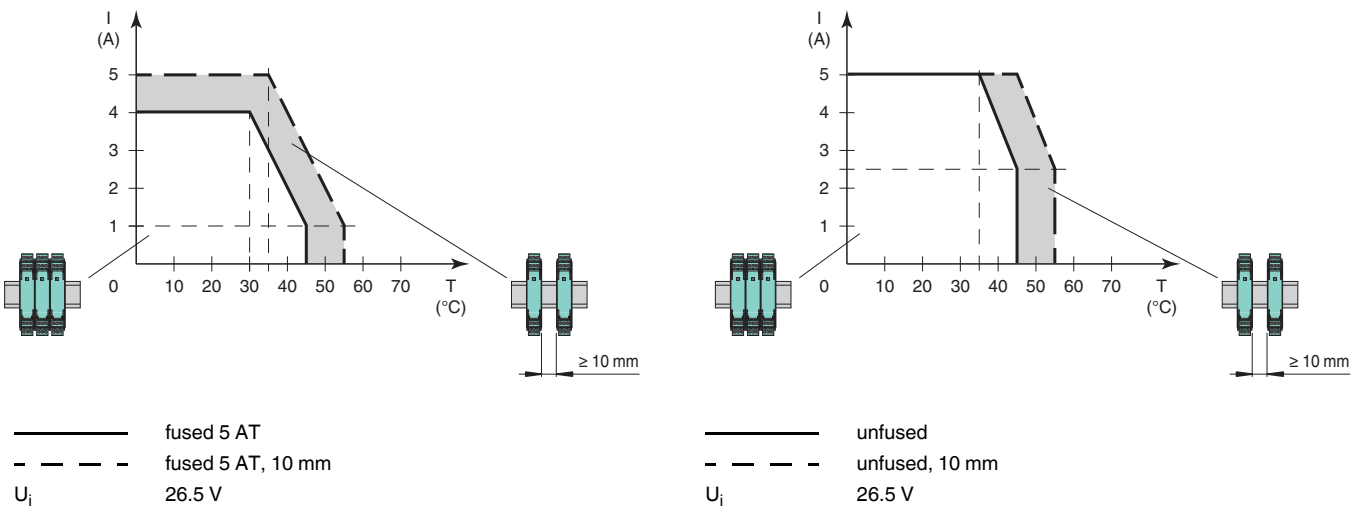
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**Characteristic Curve**

**Derating**

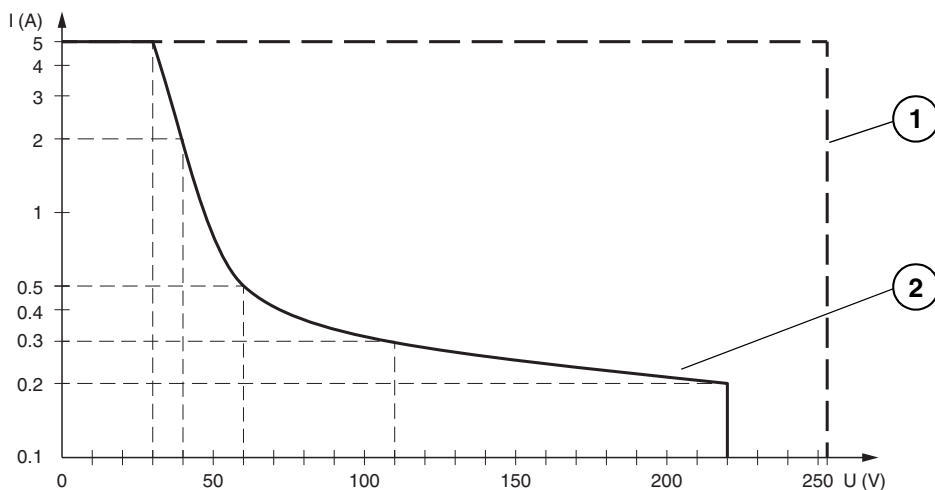


**Derating for Zone 2 Application**



**Characteristic Curve**

**Maximum Switching Power of Output Contacts**



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

- Resistive load DC
- - - - - Resistive load AC
- 1 max.  $10^5$  switching cycles
- 2 max.  $3 \times 10^4$  switching cycles

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