Relay Module

KFD0-RSH-1.1E.1

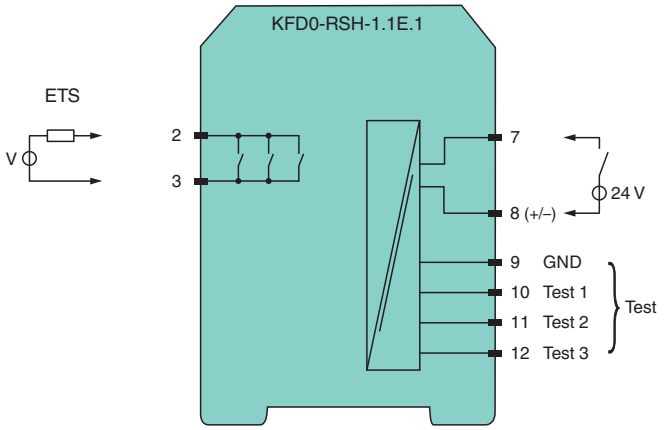
- 1-channel signal conditioner
- 24 V DC supply (loop powered)
- Logic input 19 V DC ... 26.5 V DC, non-polarized
- Relay contact output for energized to safe function
- Test pulse immunity
- Up to SIL 3 acc. to IEC/EN 61508

CE SIL 3

Function

This signal conditioner provides the galvanic isolation between field circuits and control circuits.
The device 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 circuit.
The energized to safe (ETS) function is permitted for SIL 3 applications.
For testing of the relays, test terminals can be used. The test mode will be indicated by a LED according to NAMUR NE44.

Connection



Technical Data

General specifications		
Signal type		Digital Output
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Systematic capability (SC)		SC 3
Supply		
Connection		loop powered
Rated voltage	U_r	19 ... 30 V DC loop powered
Power dissipation		< 1.5 W
Power consumption		< 1.5 W
Input		
Connection side		control side
Connection		Input terminals 7, 8 ; test input terminals 9, 10, 11, 12

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Technical Data

Pulse/Pause ratio		150 ms / 150 ms
Test pulse length		max. 4 ms from DO card
Test input		see functional safety manual
Signal level		0-signal: -5 ... 5 V 1-signal: 19 ... 26.5 V
Rated current	I_r	0-signal: typ. 1.6 mA at 1.5 V DC; typ. 8 mA at 3 V DC (maximum leakage current DO card) 1-signal: ≥ 36 mA (minimum load current DO card)
Output		
Connection side		field side
Connection		terminals 2, 3
Contact loading		253 V AC/5 A/cos ϕ 0.7; 30 V DC/5 A resistive load 253 V AC / 1/2 HP
Minimum switch current		10 mA / 24 V DC
Energized/De-energized delay		150 ms / 150 ms
Mechanical life		5 x 10^6 switching cycles
Transfer characteristics		
Switching frequency		< 3 Hz
Galvanic isolation		
Input/Output		reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V_{eff}
Indicators/settings		
Display elements		LEDs
Labeling		space for labeling at the front
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013 (industrial locations)
Low voltage		
Directive 2014/35/EU		EN 61010-1:2010+A1:2019+A1:2019/AC:2019
Machinery Directive		
Directive 2006/42/EC		EN IEC 62061:2021 , EN/ISO 13849-1:2015
Conformity		
Electromagnetic compatibility		NE 21:2017 , EN 61326-3-1:2017 , EN IEC 61326-3-2:2018
Degree of protection		IEC 60529:2013
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F) Observe the temperature range limited by derating, see section derating.
Mechanical specifications		
Degree of protection		IP20
Connection		screw terminals
Mass		approx. 120 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
Height		119 mm
Width		20 mm
Depth		115 mm
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com.

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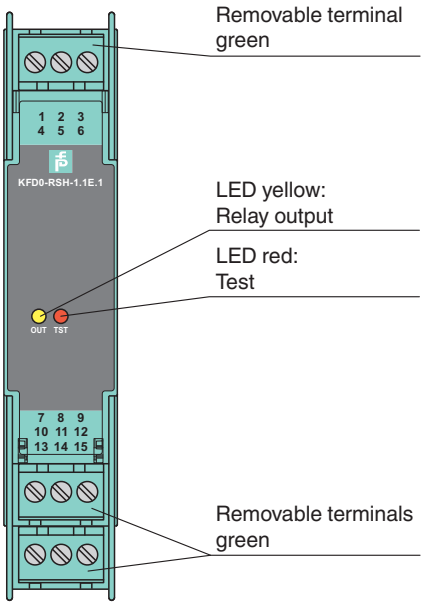
Assembly

Front view



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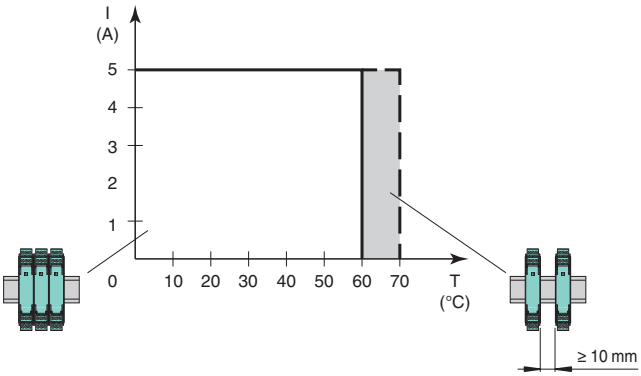
Characteristic Curve

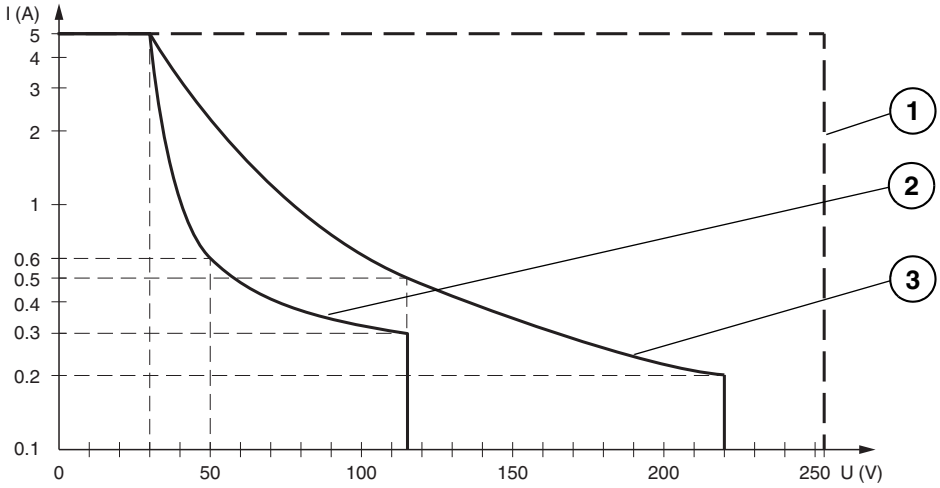
Derating



———	unfused
- — — -	unfused, 10 mm
U_i	26.5 V

Characteristic Curve

Maximum Switching Power of Output Contacts



———	Resistive load DC
- — — -	Resistive load AC
1	max. 10^5 switching cycles
2	max. 10^5 switching cycles
3	max. 3 x 10^4 switching cycles

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

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