

Relay Module

KFD0-RSH-1.1D.F1

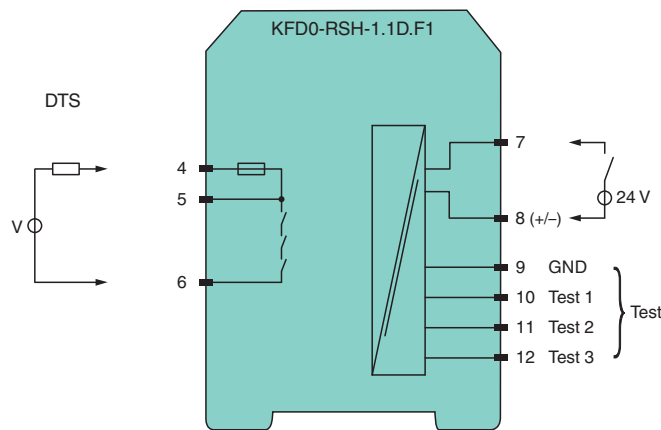
- 1-channel signal conditioner
- 24 V DC supply (loop powered)
- Logic input 19 V DC ... 26.5 V DC, non-polarized
- Relay contact output for de-energized to safe function
- Test pulse immunity
- Up to SIL 3 acc. to IEC/EN 61508
- Up to PL e acc. to EN/ISO 13849



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 de-energized to safe (DTS) function is permitted for SIL 3 and PL e applications. The relays are of diverse design, but have a common effect on the individual switching output. For testing of the relays, test terminals can be used. The test mode will be indicated by a LED according to NAMUR NE44. The output is protected against contact welding by a fuse.

Connection



Zone 2

Technical Data

General specifications	
Signal type	Digital Output
Functional safety related parameters	
Safety Integrity Level (SIL)	SIL 3
Performance level (PL)	PL e
Supply	
Connection	loop powered
Rated voltage	U_r 19 ... 30 V DC loop powered
Power dissipation	< 1.5 W
Power consumption	< 1.5 W

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Technical Data

Input	
Connection side	control side
Connection	Input terminals 7, 8 ; test input terminals 9, 10, 11, 12
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 4, 5, 6
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
Fuse rating	2.5 A (scope of delivery) max. 5 AT, recommended maximum utilization of the fuse: 80 %
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
Machinery Directive	
Directive 2006/42/EC	EN 62061:2005+AC:2010+A1:2013+A2:2015 , EN/ISO 13849-1:2015
Conformity	
Electromagnetic compatibility	NE 21:2012 , EN 61326-3-1:2008 , EN 61326-3-2:2008
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
Mounting	on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas	
Certificate	PF 15 CERT 3933 X
Marking	Ⓔ II 3G Ex nC ec IIC T4 Gc [device in zone 2]
Directive conformity	
Directive 2014/34/EU	EN 60079-0:2012+A11:2013 , EN 60079-7:2015 , EN 60079-15:2010
International approvals	
UL approval	E106378
General information	

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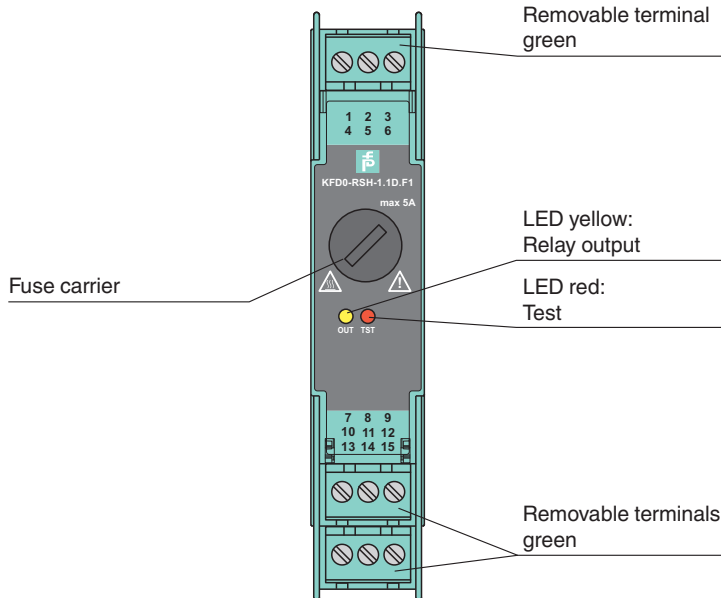
Technical Data

Supplementary information


Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com.

Assembly



Front view



Matching System Components

	K-DUCT-GY	Profile rail, wiring comb field side, gray
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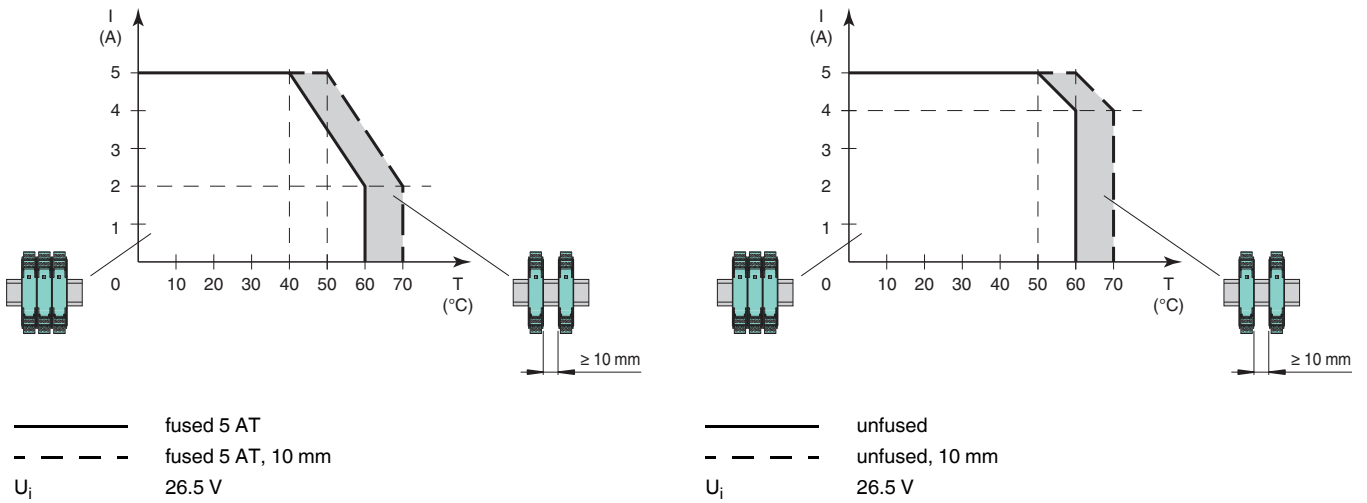
Accessories

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

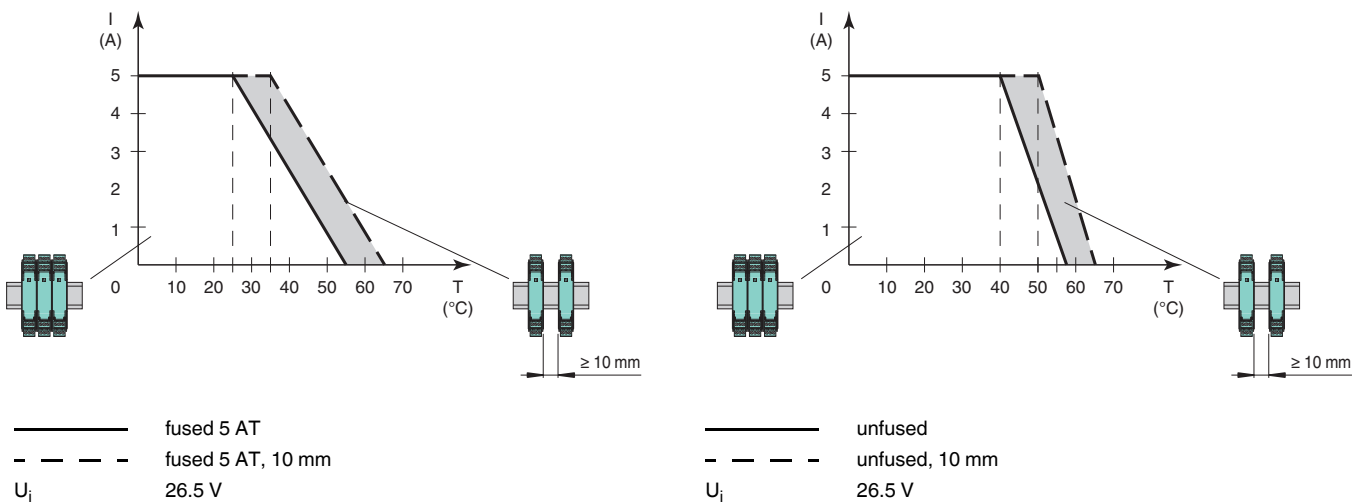
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Characteristic Curve

Derating

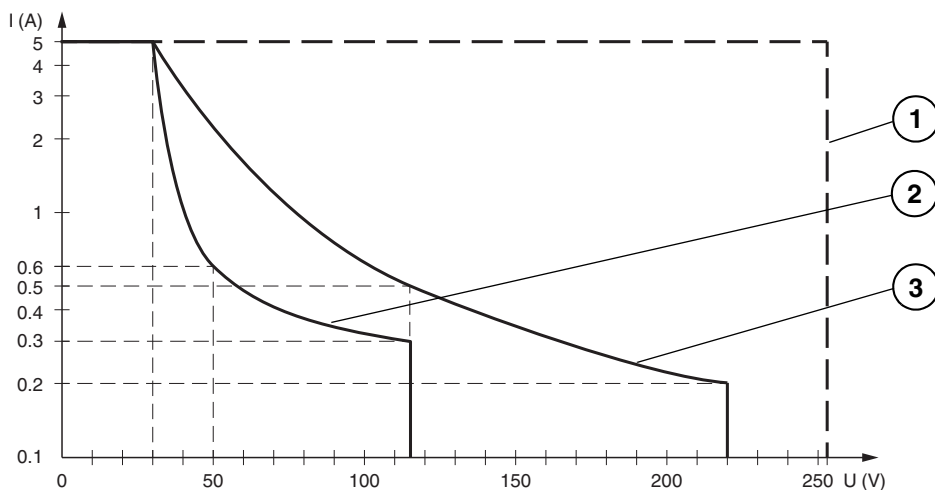


Derating for Zone 2 Application



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. 10^5 switching cycles
- 3 max. 3×10^4 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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