Relay Module

HiC5861

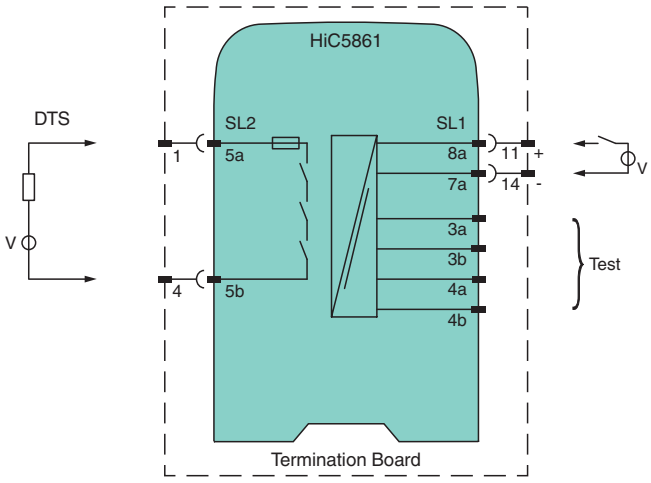
- 1-channel signal conditioner
- 24 V DC supply (loop powered)
- Logic input 19 V DC ... 27.6 V DC
- Relay contact output for de-energized to safe function
- Test pulse immunity
- Up to SIL 3 acc. to IEC/EN 61508
- Up to PL e acc. to EN/ISO 13849

SIL 3 PL e

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 30 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		< 1.3 W
Power consumption		< 1.3 W

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Technical Data

Input		
Connection side		control side
Connection		Input SL1: 8a(+), 7a(-) ; test input SL1: 3a(-), 3b(+), 4a(+), 4b(+)
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 ... 27.6 V
Rated voltage	U_r	19 ... 27.6 V loop powered
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		SL2: 5a, 5b
Contact loading		30 V DC/1 A resistive load
Minimum switch current		10 mA / 24 V DC
Energized/De-energized delay		150 ms / 150 ms
Mechanical life		2 x 10^7 switching cycles
Fuse rating		1.5 A
Transfer characteristics		
Switching frequency		< 3 Hz
Galvanic isolation		
Input/Output		reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 253 V_{eff}
Output/Output		reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 253 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 , EN/ISO 13849-1:2008
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
Mass		approx. 100 g
Dimensions		12.5 x 106 x 128 mm (0.5 x 4.2 x 5.1 inch) (W x H x D)
Mounting		on termination board
Coding		no pin trimmed For further information see system description.
Data for application in connection with hazardous areas		
Certificate		PF 17 CERT 4192 X
Marking		Ⓔx II 3G Ex nC ec IIC T4 Gc
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

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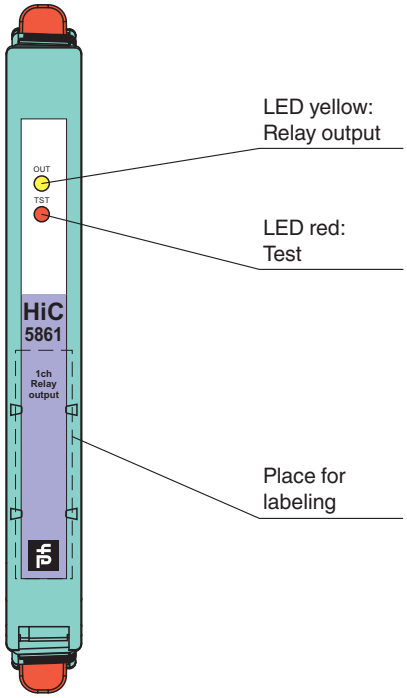
Technical Data

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

Assembly

Front view



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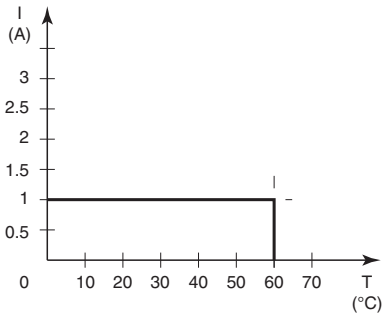
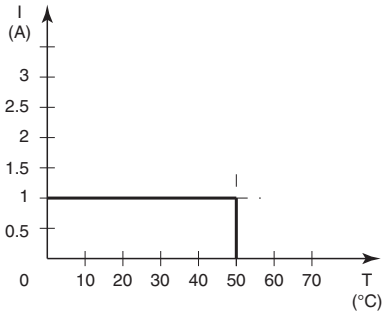
Characteristic Curve

Derating

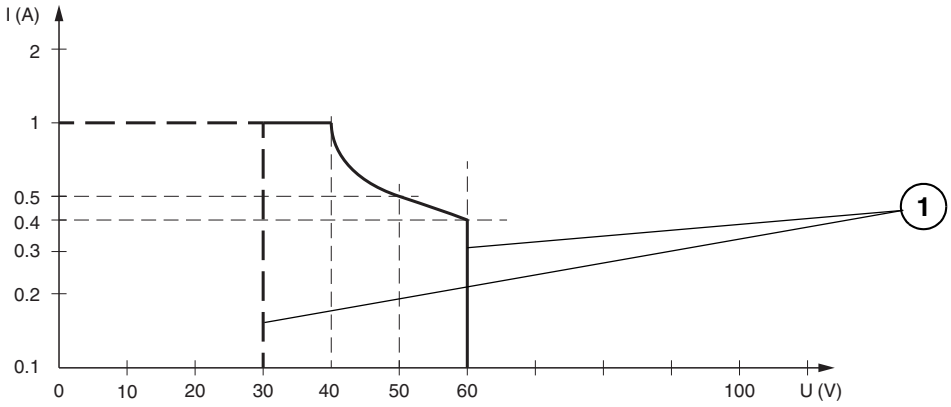


Derating for Zone 2 Application



Characteristic Curve

Maximum Switching Power of Output Contacts



Resistive load DC

Resistive load AC

1 max. 45 x 10^4 switching cycles

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