



# Relay Module

## HiC5861Y1

PL e

SIL 3

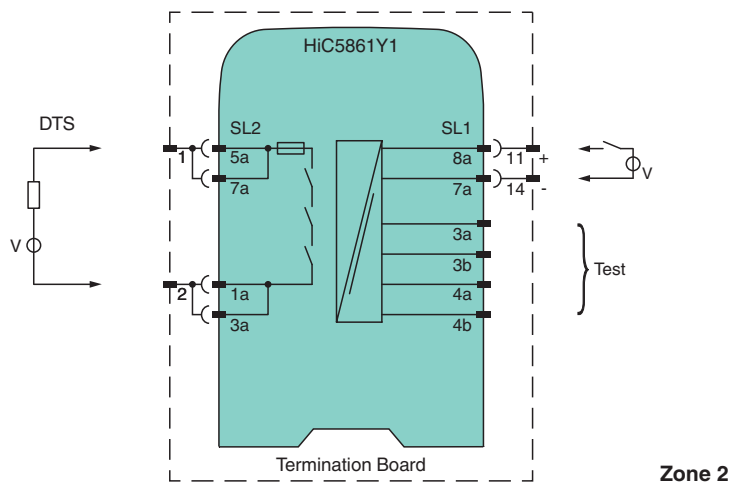
- 1-channel signal conditioner
- 24 V DC supply (loop powered)
- Logic input 19 V DC ... 27.6 V DC
- Relay contact output for de-energized to safe function
- Test pulse immunity
- Up to SIL 3 acc. to IEC 61508
- Up to PL e acc. to EN/ISO 13849



### 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 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



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

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**PF** PEPPERL+FUCHS

## 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: $\geq 36$ mA (minimum load current DO card)
Output		
Connection side		field side
Connection		SL2: 5a, 7a; 1a, 3a
Contact loading		253 V AC/2 A/cos $\phi$ 0,7; 30 V DC/2 A resistive load
Minimum switch current		10 mA / 24 V DC
Energized/De-energized delay		150 ms / 150 ms
Mechanical life		2 x 10 <sup>7</sup> switching cycles
Fuse rating		3.15 A
Transfer characteristics		
Switching frequency		< 3 Hz
Galvanic isolation		
Input/Output		reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 253 V <sub>eff</sub>
Output/Output		reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 253 V <sub>eff</sub>
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 128 x 106 mm (0.5 x 5.1 x 4.2 inch)
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 4312 X
Marking		Ⓜ 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
General information		

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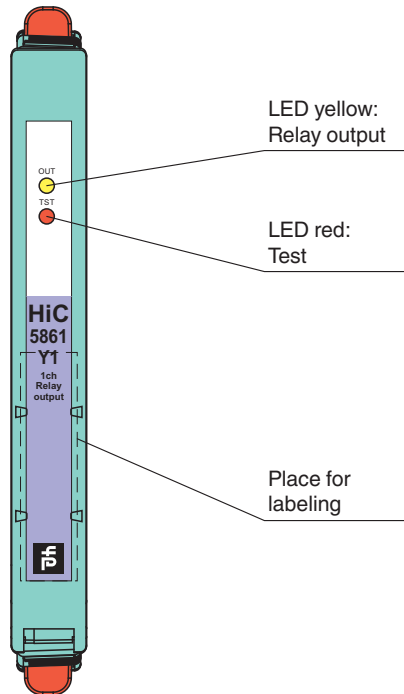
### Technical Data

Supplementary information

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

### Assembly

Front view



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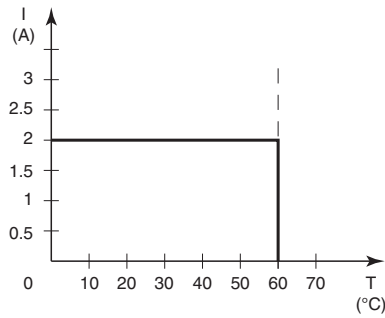
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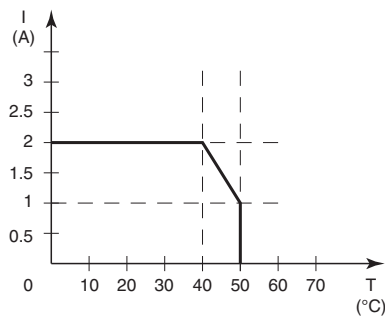
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**Characteristic Curve**

**Derating**

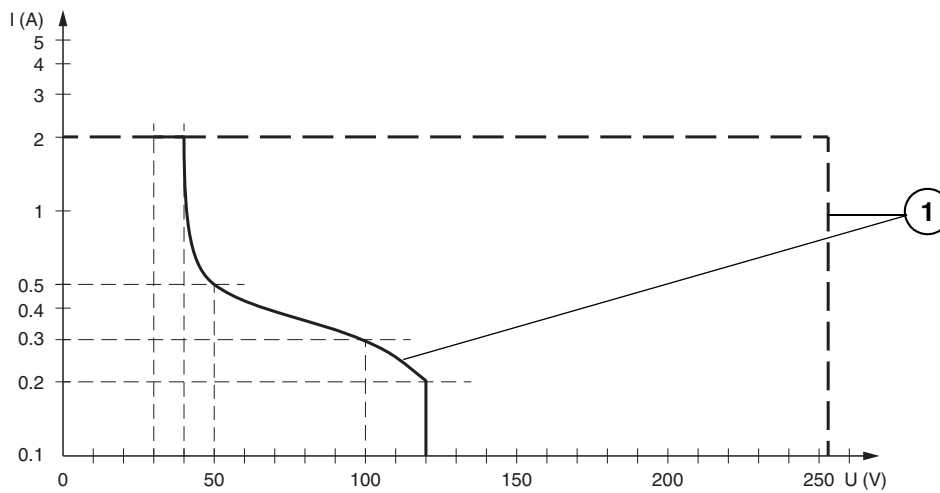


**Derating for Zone 2 Application**



**Characteristic Curve**

**Maximum Switching Power of Output Contacts**



- Resistive load DC
- - - Resistive load AC
- 1 max.  $45 \times 10^4$  switching cycles

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