

**Features**

- 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.

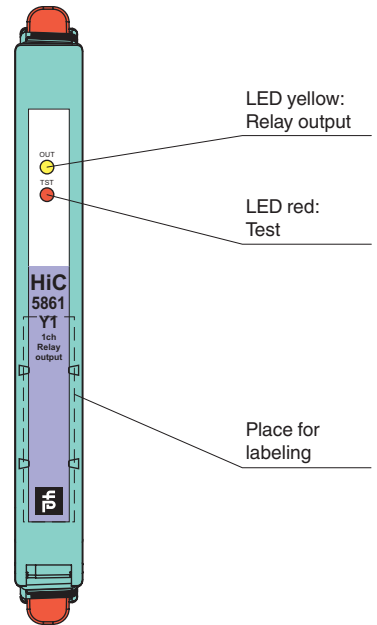
The relays are of diverse design, but have a common effect on the individual switching output.

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.

**Assembly**

Front view

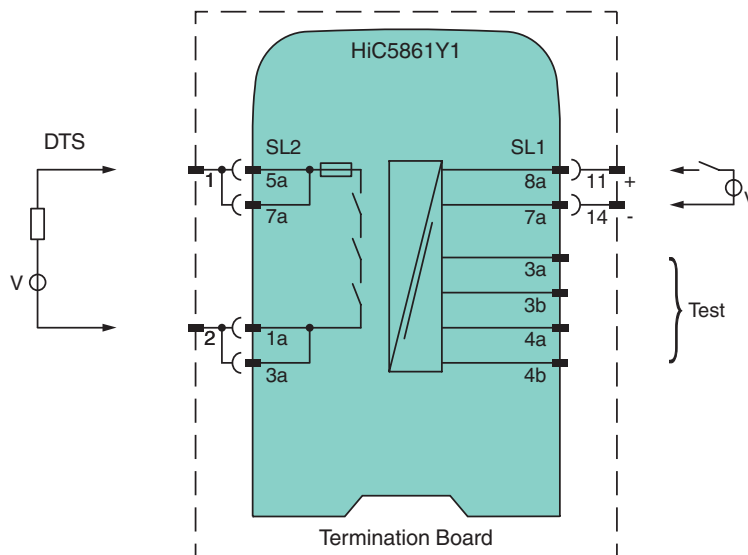


CE

SIL 3

PL e

**Connection**



Zone 2

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Pepperl+Fuchs Group  
www.pepperl-fuchs.com

USA: +1 330 486 0002  
pa-info@us.pepperl-fuchs.com

Germany: +49 621 776 2222  
pa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091  
pa-info@sg.pepperl-fuchs.com

|  |       |  |
|--|-------|--|
| <b>General specifications</b>                                  |       |  |
| Signal type  |       | Digital Output   |
| <b>Functional safety related parameters</b>                    |       |  |
| Safety Integrity Level (SIL)                                   |       | SIL 3  |
| Performance level (PL)   |       | PL e   |
| <b>Supply</b>  |       |  |
| Connection   |       | loop powered   |
| Rated voltage  | $U_r$ | 19 ... 30 V DC loop powered  |
| Power dissipation  |       | < 1.3 W  |
| Power consumption  |       | < 1.3 W  |
| <b>Input</b>   |       |  |
| 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  |       | ≤ 4 ms from DO card  |
| Test input   |       | see Functional Safety Manual   |
| Signal level   |       | 0-signal: -5 ... 5 V<br>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)<br>1-signal: ≥ 36 mA (minimum load current DO card) |
| <b>Output</b>  |       |  |
| Connection side  |       | field side   |
| Connection   |       | SL2: 5a, 7a; 1a, 3a  |
| Contact loading  |       | 253 V AC/2 A/cos φ 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   |
| <b>Transfer characteristics</b>                                |       |  |
| Switching frequency  |       | < 3 Hz   |
| <b>Galvanic isolation</b>                                      |       |  |
| 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>   |
| <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  |
| Machinery Directive  |       |  |
| Directive 2006/42/EC   |       | EN 62061:2005 , EN/ISO 13849-1:2008  |
| <b>Conformity</b>  |       |  |
| Electromagnetic compatibility                                  |       | NE 21:2012 , EN 61326-3-1:2008 , EN 61326-3-2:2008   |
| Degree of protection   |       | IEC 60529:2013   |
| <b>Ambient conditions</b>                                      |       |  |
| Ambient temperature  |       | -20 ... 60 °C (-4 ... 140 °F)<br>Observe the temperature range limited by derating, see section derating.                                    |
| <b>Mechanical specifications</b>                               |       |  |
| 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<br>For further information see system description.  |
| <b>Data for application in connection with hazardous areas</b> |       |  |
| 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  |
| <b>General information</b>                                     |       |  |

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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).

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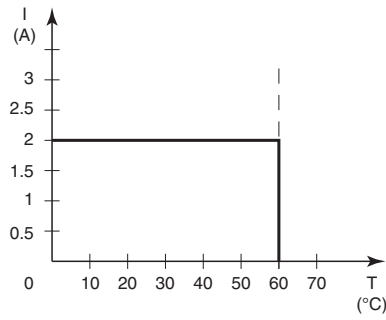
Pepperl+Fuchs Group  
[www.pepperl-fuchs.com](http://www.pepperl-fuchs.com)

USA: +1 330 486 0002  
[pa-info@us.pepperl-fuchs.com](mailto:pa-info@us.pepperl-fuchs.com)

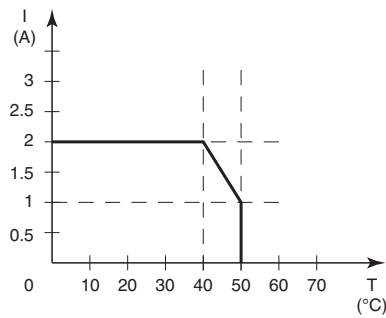
Germany: +49 621 776 2222  
[pa-info@de.pepperl-fuchs.com](mailto:pa-info@de.pepperl-fuchs.com)

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[pa-info@sg.pepperl-fuchs.com](mailto:pa-info@sg.pepperl-fuchs.com)

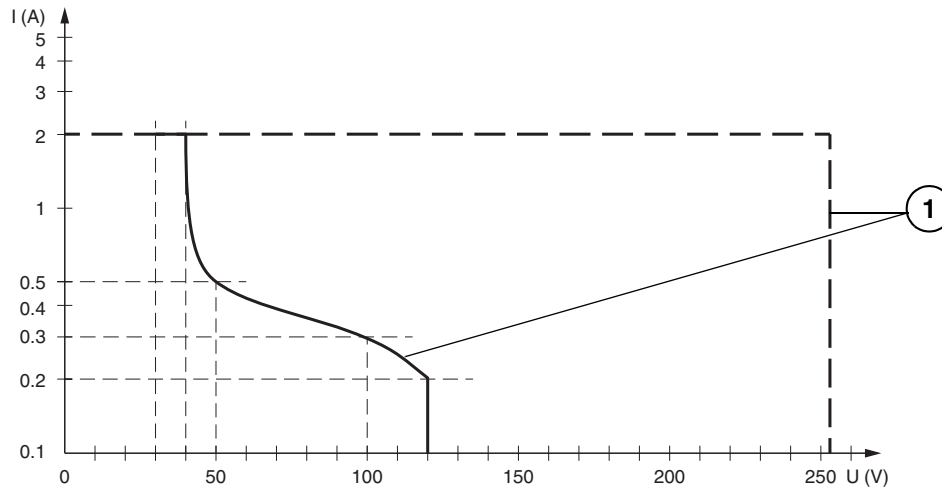
Derating



Derating for Zone 2 Application



Maximum Switching Power of Output Contacts



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

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