



# Switch Amplifier

## HiC2822

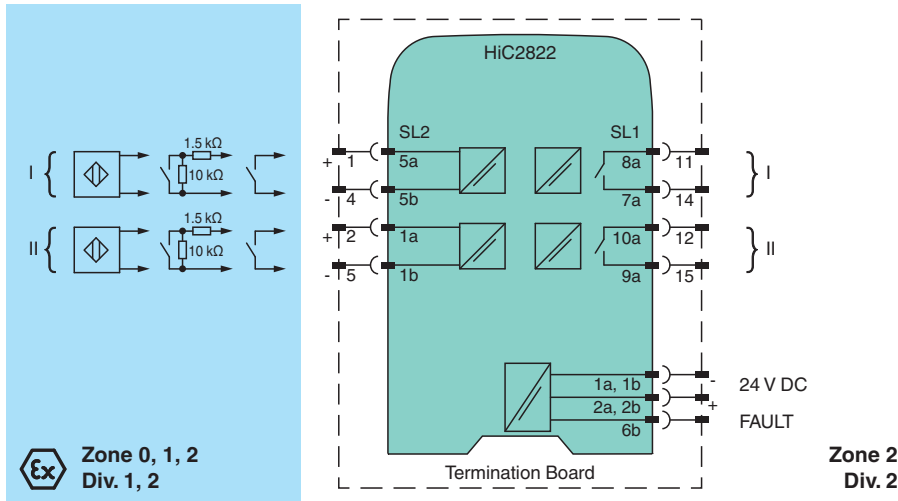
- 2-channel isolated barrier
- 24 V DC supply (bus powered)
- Dry contact or NAMUR inputs
- 2 relay contact outputs
- Line fault detection (LFD)
- Reversible mode of operation
- Up to SIL 2 acc. to IEC/EN 61508



### Function

This isolated barrier is used for intrinsic safety applications. The device transfers digital signals (NAMUR sensors/mechanical contacts) from the explosion-hazardous area to the non-explosion-hazardous area. Each input controls a relay contact output for the non-explosion-hazardous area load. Via switches the mode of operation can be reversed and the line fault detection can be switched off. During a fault state, the relays revert to the de-energized state and LEDs indicate the fault according to NAMUR NE 44. A separate fault bus is available. This fault bus can be monitored if the termination board supports a module fault detection. This device mounts on a HiC termination board.

### Connection



### Technical Data

| General specifications               |       |  |
|--------------------------------------|-------|--|
| Signal type                          |       | Digital Input                                    |
| Functional safety related parameters |       |  |
| Safety Integrity Level (SIL)         |       | SIL 2  |
| Supply                               |       |  |
| Connection                           |       | SL1: 1a(-), 1b(-); 2a(+), 2b(+)                  |
| Rated voltage                        | $U_r$ | 19 ... 30 V DC bus powered via Termination Board |
| Ripple                               |       | ≤ 10 %   |
| Rated current                        | $I_r$ | ≤ 30 mA  |
| Power dissipation                    |       | ≤ 600 mW   |

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## Technical Data

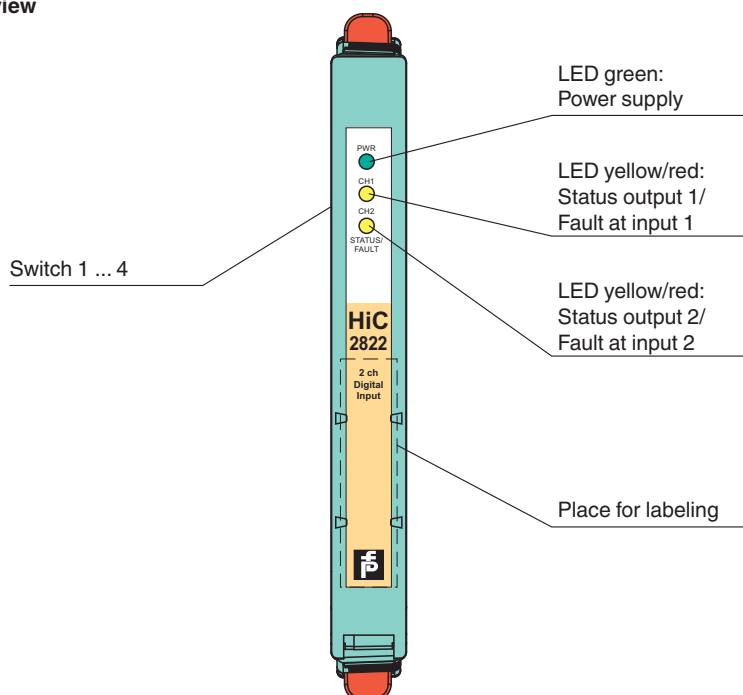
|  |   |
|--|---|
| Power consumption  | ≤ 600 mW  |
| <b>Input</b>   |   |
| Connection side  | field side  |
| Connection   | SL2: 5a(+), 5b(-); 1a(+), 1b(-)   |
| Rated values   | acc. to EN 60947-5-6 (NAMUR), see manual for electrical data                          |
| Open circuit voltage/short-circuit current                     | approx. 10 V DC / approx. 8 mA  |
| Switching point/switching hysteresis                           | 1.2 ... 2.1 mA / approx. 0.2 mA   |
| Line fault detection   | breakage $I \leq 0.1$ mA , short-circuit $I \geq 6.7$ mA                              |
| Pulse/Pause ratio  | min. 20 ms / min. 20 ms   |
| <b>Output</b>  |   |
| Connection side  | control side  |
| Connection   | SL1: 8a, 7a; 10a, 9a  |
| Output I   | signal ; relay  |
| Output II  | signal ; relay  |
| Contact loading  | 50 V DC / 0.5 A   |
| Minimum switch current   | 2 mA / 24 V DC  |
| Energized/De-energized delay                                   | ≤ 20 ms / ≤ 20 ms   |
| Mechanical life  | 10 <sup>7</sup> switching cycles  |
| <b>Fault indication output</b>                                 |   |
| Connection   | SL1: 6b   |
| Output type  | open collector transistor (internal fault bus)  |
| <b>Transfer characteristics</b>                                |   |
| Switching frequency  | ≤ 10 Hz   |
| <b>Galvanic isolation</b>                                      |   |
| Output/power supply  | basic insulation acc. to EN 50178, rated insulation voltage of 50 V AC                |
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| <b>Indicators/settings</b>                                     |   |
| Display elements   | LEDs  |
| Control elements   | DIP switch  |
| Configuration  | via DIP switches  |
| Labeling   | space for labeling at the front   |
| <b>Directive conformity</b>                                    |   |
| Electromagnetic compatibility                                  |   |
| Directive 2014/30/EU   | EN 61326-1:2013 (industrial locations)  |
| <b>Conformity</b>  |   |
| Galvanic isolation   | EN 50178:1997   |
| Electromagnetic compatibility                                  | EN IEC 61326-3-2:2018 , NE 21:2012<br>For further information see system description. |
| Degree of protection   | IEC 60529:2001  |
| Input  | EN 60947-5-6:2000   |
| <b>Ambient conditions</b>                                      |   |
| Ambient temperature  | -20 ... 60 °C (-4 ... 140 °F)   |
| <b>Mechanical specifications</b>                               |   |
| Degree of protection   | IP20  |
| Mass   | approx. 110 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   | pin 1 and 2 trimmed<br>For further information see system description.                |
| <b>Data for application in connection with hazardous areas</b> |   |
| EU-type examination certificate                                | BASEEFA 06 ATEX 0093 X  |
| Marking  | Ⓜ II (1)G [Ex ia Ga] IIC<br>Ⓜ II (1)D [Ex ia Da] IIIC<br>Ⓜ I (M1) [Ex ia Ma] I        |

## Technical Data

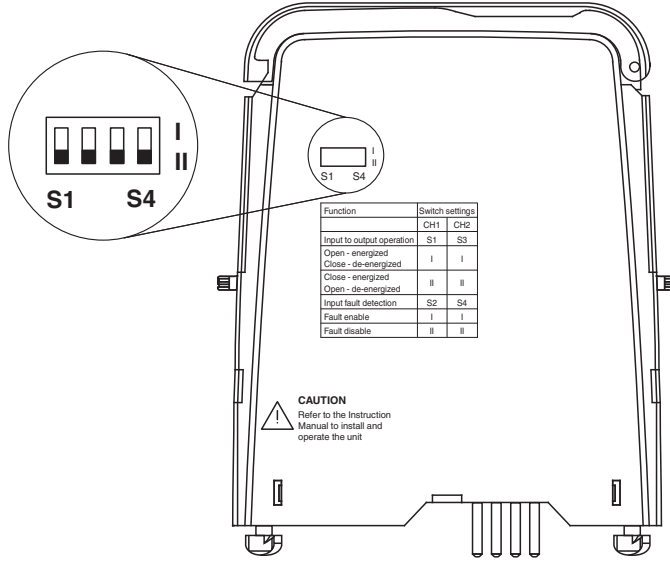
|                                |       |   |
|--------------------------------|-------|---|
| Input                          |       | [Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I   |
| Voltage                        | $U_o$ | 10.5 V  |
| Current                        | $I_o$ | 17.1 mA   |
| Power                          | $P_o$ | 45 mW (linear characteristic)   |
| Supply                         |       |   |
| Maximum safe voltage           | $U_m$ | 253 V AC (Attention! $U_m$ is no rated voltage.)  |
| Output                         |       |   |
| Contact loading                |       | 50 V DC / 0.5 A   |
| Maximum safe voltage           | $U_m$ | 253 V AC (Attention! The rated voltage can be lower.)   |
| Certificate                    |       | PF 08 CERT 1047 X   |
| Marking                        |       | Ⓜ II 3G Ex nA nC IIC T4 Gc  |
| Galvanic isolation             |       |   |
| Input/Output                   |       | safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V   |
| Input/power supply             |       | safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V   |
| Directive conformity           |       |   |
| Directive 2014/34/EU           |       | EN IEC 60079-0:2018+AC:2020 , EN 60079-11:2012 , EN 60079-15:2010   |
| <b>International approvals</b> |       |   |
| FM approval                    |       |   |
| Control drawing                |       | 16-534FM-12 (cFMus)   |
| UL approval                    |       | E106378   |
| Control drawing                |       | 116-0434  |
| IECEX approval                 |       |   |
| IECEX certificate              |       | IECEX BAS 06.0026X  |
| IECEX marking                  |       | [Ex ia Ga] IIC<br>[Ex ia Da] IIIC<br>[Ex ia Ma] I   |
| <b>General information</b>     |       |   |
| Supplementary information      |       | Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see <a href="http://www.pepperl-fuchs.com">www.pepperl-fuchs.com</a> . |

## Assembly

### Front view



## Configuration



## Configuration

Configure the device in the following way:

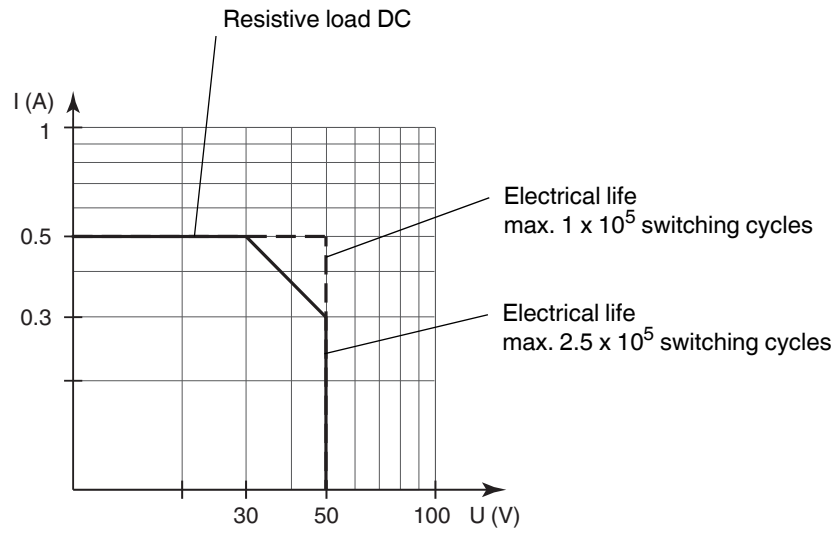
- Push the red Quick Lok Bars on each side of the device in the upper position.
- Remove the device from termination board.
- Set the switches according to the figure in the **Configuration** section.

### Note

The pins for this device are trimmed to polarize it according to its safety parameters. Do not change the setting. For further information see system description.

**Characteristic Curve**

**Maximum switching power of output contacts**



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

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