



# 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.

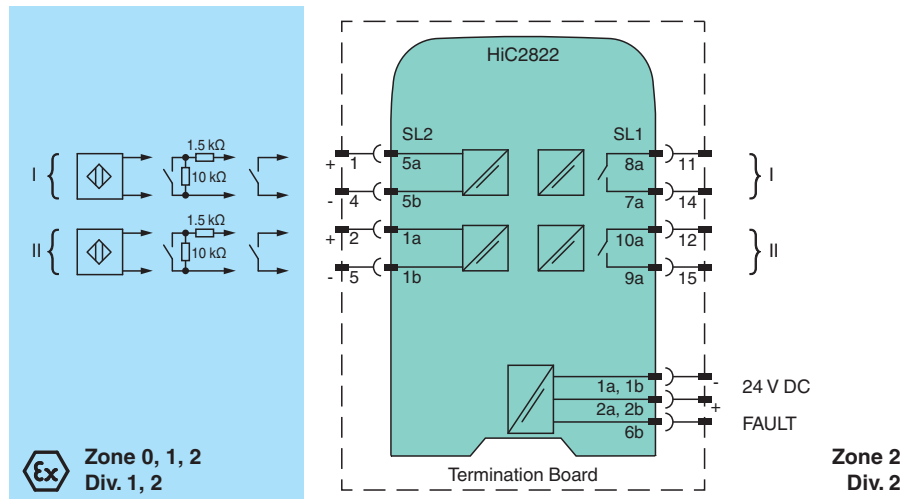
Each input controls a relay contact output for the non-explosion-hazardous area load.

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 <sub>r</sub> | 19 ... 30 V DC bus powered via Termination Board |
| Ripple            |                | ≤ 10 %                                           |
| Rated current     | I <sub>r</sub> | ≤ 30 mA                                          |
| Power dissipation |                | ≤ 600 mW                                         |

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

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

**PEPPERL+FUCHS**

## Technical Data

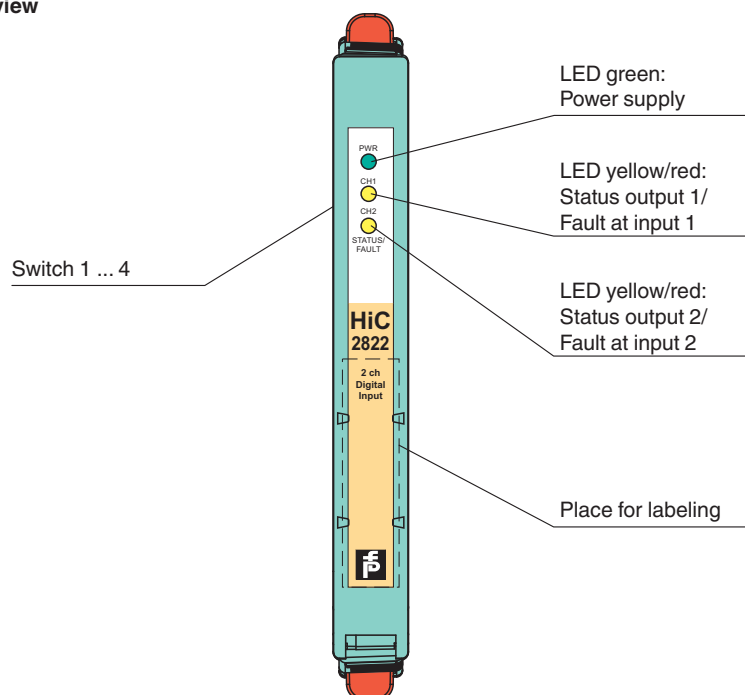
|                                                                |                                                                                       |
|----------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 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 ≤ 0.1 mA , short-circuit I ≥ 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                |
| Output/Output                                                  | basic insulation acc. to EN 50178, rated insulation voltage of 50 V AC                |
| <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



Release date: 2023-06-05 Date of issue: 2023-06-05 Filename: 216690\_eng.pdf

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

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

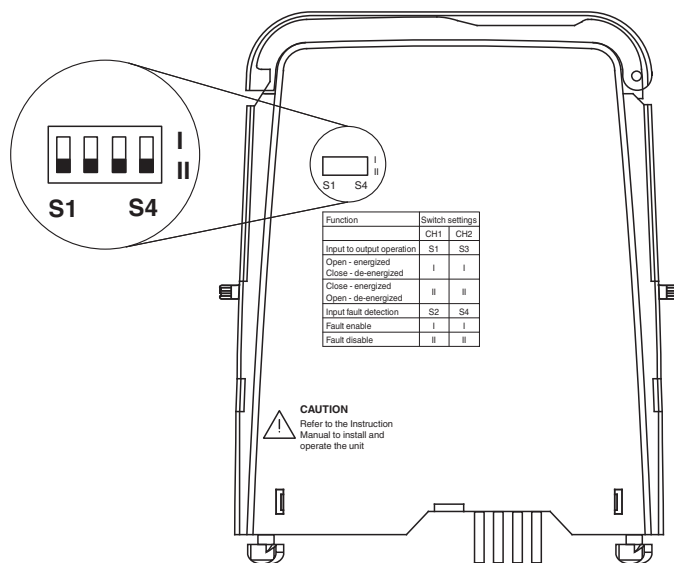
USA: +1 330 486 0002  
[pa-info@us.pepperl-fuchs.com](mailto:pa-info@us.pepperl-fuchs.com)

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

Singapore: +65 6779 9091  
[pa-info@sg.pepperl-fuchs.com](mailto:pa-info@sg.pepperl-fuchs.com)

**PEPPERL+FUCHS**

## Configuration



## Configuration

Configure the device in the following way:

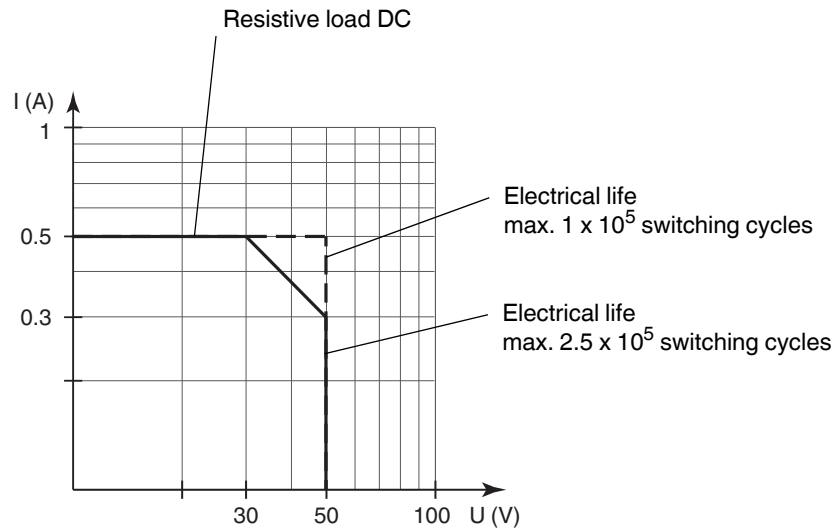
- Push the red Quick Lok Bars on each side of the device in the upper position.
- Remove the device from termination board.
- Set the switches according to the figure in the **Configuration** section.

### 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.