# Switch Amplifier

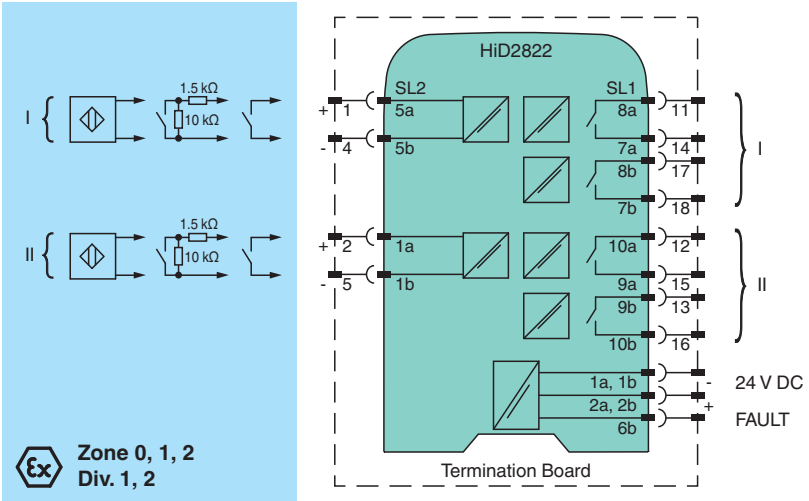
# HiD2822

- 2-channel isolated barrier
- 24 V DC supply (bus powered)
- Dry contact or NAMUR inputs
- Usable as signal splitter (1 input and 2 outputs)
- 2 relay contact outputs per channel
- Line fault detection (LFD)
- Up to SIL 2 acc. to IEC/EN 61508

## Function

This isolated barrier is used for intrinsic safety applications. It transfers digital signals (NAMUR sensors/mechanical contacts) from a hazardous area to a safe area.
The proximity sensor or switch controls two form A normally open relay outputs for the safe area load. The module output changes state when the input signal changes state. The normal output state can be reversed with the selector switches on the side of the unit.
Line fault detection (LFD) can be selected or disabled via a selector switch.
During an error condition, the relay reverts to its de-energized state and the LEDs indicate the fault. A separate fault output bus is available. The fault conditions can be monitored via a Fault Indication Board.
This module mounts on a HiD 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 |
| Rated current | $I_r$ | 45 mA at 24 V, relay energized |
| Power dissipation | | 1.1 W at 24 V |
| **Input** | | |

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## Technical Data

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|---|---|---|
| Connection side | | field side |
| Connection | | SL2: 5a(+), 5b(-); 1a(+), 1b(-) |
| Rated values | | acc. to EN 60947-5-6 (NAMUR) |
| 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 ≥ 6.5 mA |
| Pulse/Pause ratio | | min. 20 ms / min. 20 ms |
| **Output** | | |
| Connection side | | control side |
| Connection | | SL1: 8a, 7a, 8b, 7b; 10a, 9a, 10b, 9b |
| Output | | signal: 2 relays SPST per channel, phase selectable |
| Response time | | 20 ms |
| Contact loading | | 50 V DC / 0.5 A non-inductive |
| Mechanical life | | $10^7$ switching cycles |
| **Fault indication output** | | |
| Connection | | SL1: 6b |
| Output type | | open collector transistor (internal fault bus) |
| **Transfer characteristics** | | |
| Switching frequency | | < 10 Hz |
| **Galvanic isolation** | | |
| Input/Output | | basic insulation according to IEC/EN 61010-1, rated insulation voltage 300 $V_{eff}$ |
| Input/power supply | | basic insulation according to IEC/EN 61010-1, rated insulation voltage 300 $V_{eff}$ |
| Output/power supply | | basic insulation according to IEC/EN 61010-1, rated insulation voltage 50 $V_{eff}$ |
| Output/Output | | basic insulation according to IEC/EN 61010-1, rated insulation voltage 50 $V_{eff}$ |
| **Indicators/settings** | | |
| Display elements | | LEDs |
| Control elements | | DIP switch |
| Configuration | | via DIP switches |
| Labeling | | space for labeling at the front |
| **Directive conformity** | | |
| Electromagnetic compatibility | | |
| Directive 2014/30/EU | | EN 61326-1:2013 (industrial locations) |
| **Conformity** | | |
| Electromagnetic compatibility | | NE 21:2017<br>EN 61326-3-2:2018<br>For further information see system description. |
| Degree of protection | | IEC 60529:2001 |
| Protection against electrical shock | | UL 61010-1:2012 |
| **Ambient conditions** | | |
| Ambient temperature | | -20 ... 60 °C (-4 ... 140 °F) |
| **Mechanical specifications** | | |
| Degree of protection | | IP20 |
| Mass | | approx. 140 g |
| Dimensions | | 18 x 114 x 130 mm (0.7 x 4.5 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. |
| **Data for application in connection with hazardous areas** | | |
| EU-type examination certificate | | CESI 21 ATEX 017 |
| Marking | | ⟨Ex⟩ II (1)G [Ex ia Ga] IIC<br>⟨Ex⟩ II (1)D [Ex ia Da] IIIC<br>⟨Ex⟩ I (M1) [Ex ia Ma] I |
| Input | | Ex ia |
| Voltage | $U_o$ | 13.2 V |
| Current | $I_o$ | 20 mA |

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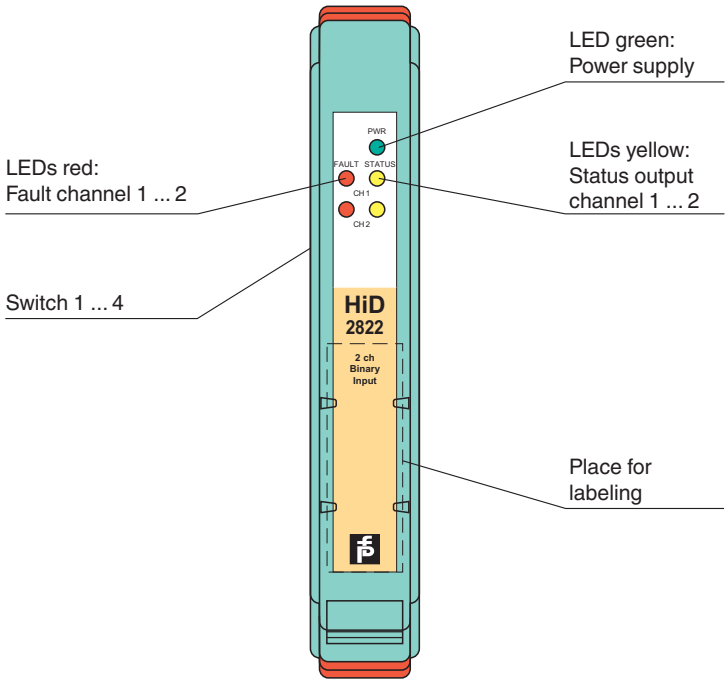
## Technical Data

| | | |
|---|---|---|
| Power | $P_o$ | 66 mW |
| Supply | | |
| Maximum safe voltage | $U_m$ | 250 V AC (Attention! $U_m$ is no rated voltage.) |
| Galvanic isolation | | |
| Input/input | | safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 60 V |
| 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 , EN 60079-11:2012 |
| **International approvals** | | |
| CSA approval | | CoC 80097459 (cCSAus) |
| Control drawing | | 116-0487 (cCSAus) |
| IECEx approval | | |
| IECEx certificate | | IECEx CES 21.0011 |
| IECEx marking | | [Ex ia Ga] IIC , [Ex ia Da] IIIC , [Ex ia Ma] I |
| **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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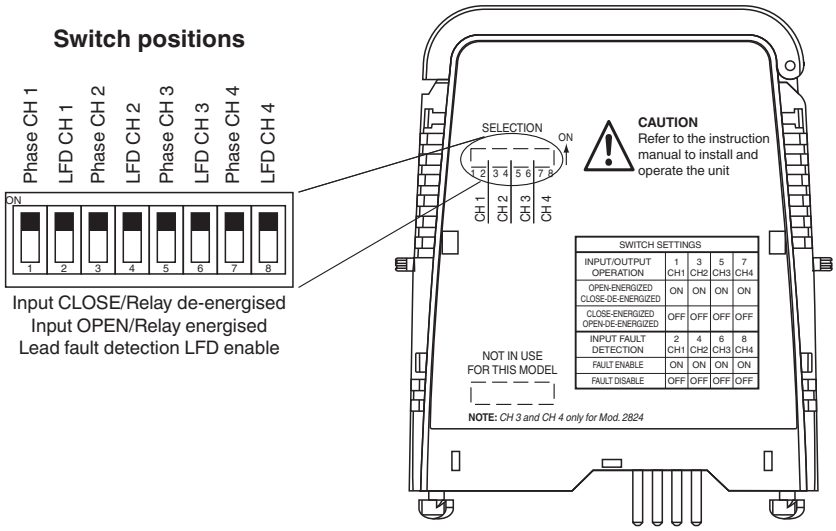
## Configuration




*Channel 3 and 4 (switch 5 ... 8) only for HiD2824.*

## Configuration

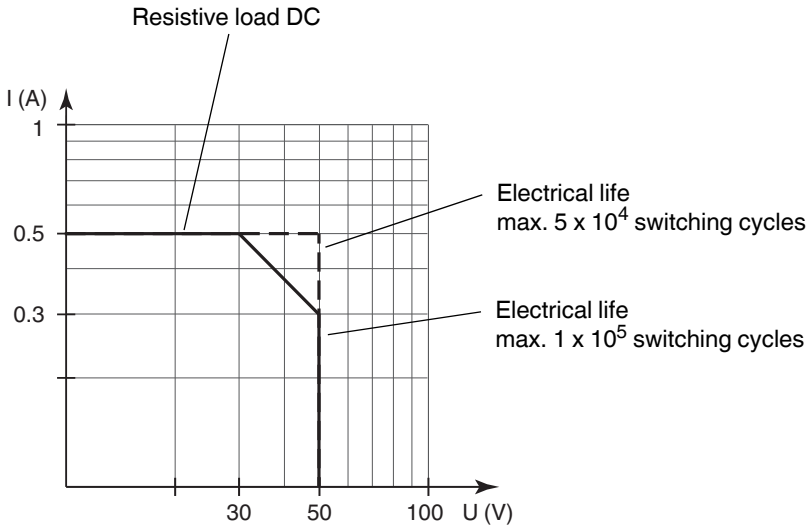
Configure the device in the following way:

- Push the red Quick Lok Bars on each side of the device in the upper position.
- Remove the device from Termination Board.
- Set the DIP switches according to the figure.

*The pins for this device are trimmed to polarize it according to its safety parameter. Do not change! 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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