



Switch Amplifier

HiC2841

- 1-channel isolated barrier
- 24 V DC supply (bus powered)
- Dry contact or NAMUR input
- Usable as signal splitter (1 input and 2 outputs)
- 2 passive transistor outputs
- Line fault detection (LFD)
- Reversible mode of operation
- SIL 2 (SC 3) acc. to IEC/EN 61508



SIL 2



Function

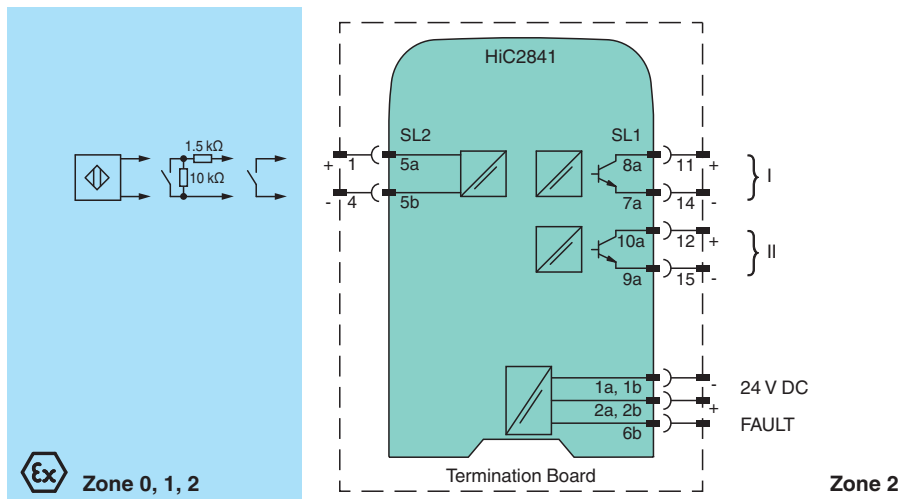
This isolated barrier is used for intrinsic safety applications. It transfers digital signals (NAMUR sensors/mechanical contacts) from a hazardous area to a safe area.

The proximity sensor or switch controls two passive transistors for the safe area load. Both transistor outputs are isolated from each other and isolated from the power supply. The mode of operation can be reversed using switch S1. Switch S3 allows output II to be switched between a signal output and an error message output. Switch S2 enables or disables line fault detection of the field circuit.

During an error condition, the transistors revert to their de-energized state and LEDs indicate the fault according to NAMUR NE44. A separate output bus is available. The fault conditions can be monitored via a Fault Indication Board.

This module mounts on a HiC Termination Board.

Connection



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

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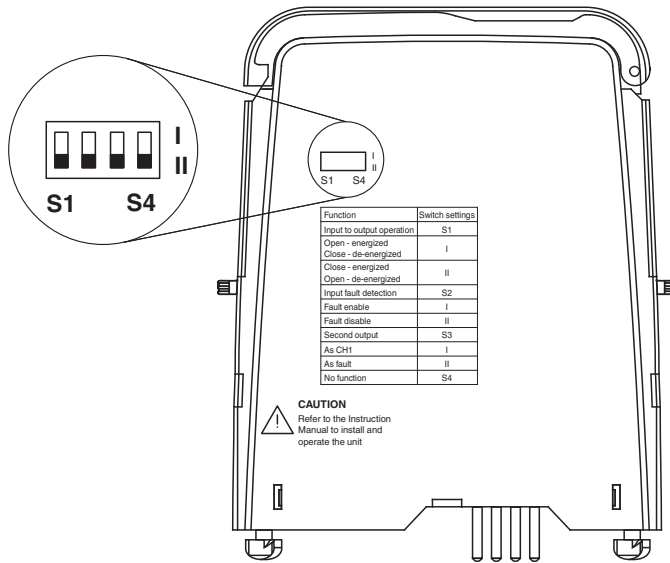
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Configuration



Technical Data

General specifications

Signal type Digital Input

Functional safety related parameters

Safety Integrity Level (SIL) SIL 2
Systematic capability (SC) SC 3

Supply

Connection SL1: 1a(-), 1b(-); 2a(+), 2b(+)
Rated voltage U_r 19 ... 30 V DC bus powered via Termination Board
Ripple $\leq 10\%$
Rated current I_r $\leq 25\text{ mA}$
Power dissipation $\leq 500\text{ mW}$
Power consumption $\leq 600\text{ mW}$

Input

Connection side field side
Connection SL2: 5a(+), 5b(-)
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 $I \leq 0.1\text{ mA}$, short-circuit $I \geq 6.5\text{ mA}$
Pulse/Pause ratio min. 100 μs / min. 100 μs

Output

Connection side control side
Connection SL1: 8a(+), 7a(-); 10a(+), 9a(-)
Rated voltage U_r 30 V DC
Rated current I_r 50 mA
Response time $\leq 200\ \mu\text{s}$
Signal level 1-signal: (external voltage) - 1 V max. for 50 mA ($T_{amb} = 25\text{ }^\circ\text{C}$ (77 $^\circ\text{F}$))
0-signal: blocked output (off-state current $\leq 10\ \mu\text{A}$)
Output I signal ; Transistor
Output II signal or error message ; Transistor

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Technical Data

Fault indication output		
Connection		SL1: 6b
Output type		open collector transistor (internal fault bus)
Transfer characteristics		
Switching frequency		≤ 5 kHz
Galvanic isolation		
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
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		
Galvanic isolation		EN 50178:1997
Electromagnetic compatibility		NE 21:2006 For further information see system description.
Degree of protection		IEC 60529
Protection against electrical shock		IEC 61140
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Relative humidity		≤ 90 % , non-condensing
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		pin 1 and 2 trimmed For further information see system description.
Data for application in connection with hazardous areas		
EU-type examination certificate		BVS 09 ATEX E 157
Marking		⊕ II (1)GD [Ex ia] IIC, [Ex iaD] [circuit(s) in zone 0/1/2/20/21/22] ⊕ I (M1) [Ex ia] I
Input		Ex ia, Ex iaD
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		
Maximum safe voltage	U _m	253 V AC (Attention! The rated voltage can be lower.)
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 60079-0:2012+A11:2013 , EN 60079-11:2012 , EN 50303:2000
International approvals		
UL approval		
Control drawing		116-0331
IECEx approval		
IECEx certificate		IECEx BVS 09.0060

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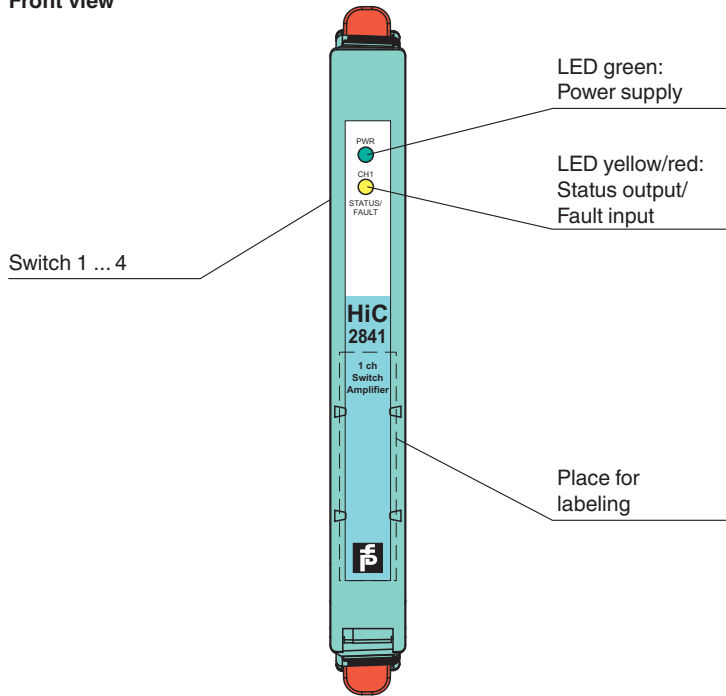
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Technical Data

IECEX marking	[Ex ia Ga] IIC, [Ex ia] I , [Ex iaD]
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

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.*