



Switch Amplifier

HiC2831

- 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 (resistive acc. to EN 60947-5-6)
- Line fault transparency (LFT)
- SIL 2 (SC 3) acc. to IEC/EN 61508



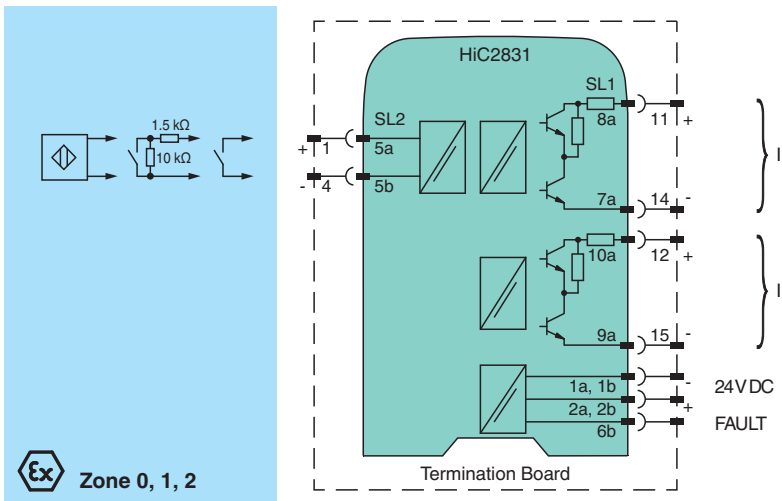
SIL 2



Function

This isolated barrier is used for intrinsic safety applications. The device transfers digital signals from NAMUR sensors or dry contacts from the hazardous area to the non-hazardous area. The input controls two passive transistor outputs with a resistive output characteristic (acc. to EN60947-5-6). The outputs have three defined states: 1-signal = 1.8 kΩ, 0-signal = 14 kΩ and fault > 100 kΩ. This output characteristic offers line fault transparency on the signal lines. Via switches the mode of operation can be reversed and the line fault detection can be switched off. 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
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	≤ 10 %
Rated current	I_r ≤ 25 mA

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

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Technical Data

Power dissipation		≤ 500 mW
Power consumption		≤ 600 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 $I \leq 0.1$ mA , short-circuit $I \geq 6.5$ mA
Pulse/Pause ratio		min. 100 μ s / min. 100 μ s
Output		
Connection side		control side
Connection		SL1: 8a(+), 7a(-); 10a(+), 9a(-)
Rated voltage	U_r	8 V DC
Response time		≤ 200 μ s
Output I, II		signal or error message, passive transistor output (resistive) 0-signal: 14 k Ω \pm 10 % 1-signal: 1.8 k Ω \pm 10 % fault: > 100 k Ω
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 according to IEC/EN 61010-1, rated insulation voltage 60 V _{eff}
Output/Output		basic insulation according to IEC/EN 61010-1, rated insulation voltage 60 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 21:2012 , EN 61326-3-2:2008
Degree of protection		IEC 60529:2001
Protection against electrical shock		IEC 61010-1
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
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 11 ATEX E 026
Marking		Ⓜ II (1) G [Ex ia] IIC Ⓜ II (1) D [Ex ia] IIIC Ⓜ I (M1) [Ex ia] I
Input		Ex ia
Voltage	U_o	10.5 V

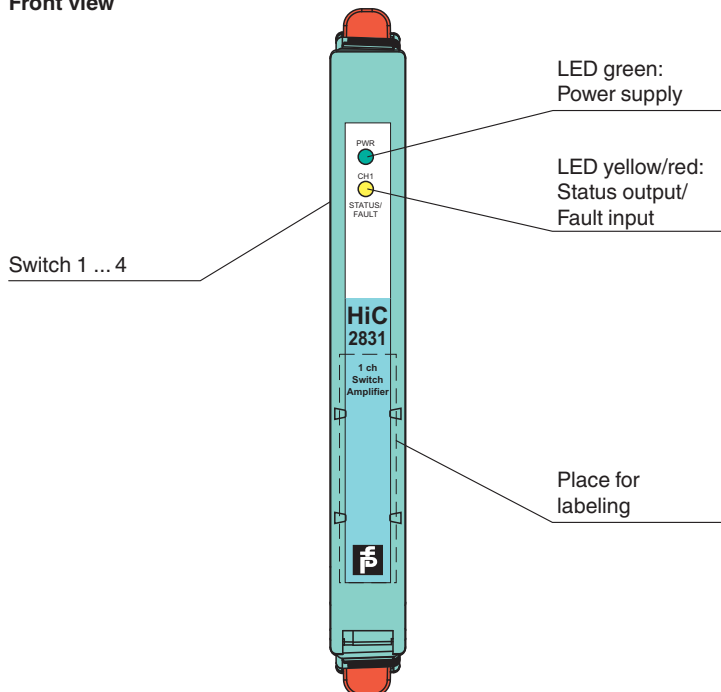
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Technical Data

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! U_m is no rated voltage.)
Certificate	KIWA 15 ATEX 0037 X	
Marking	Ⓜ II 3G Ex ec 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 60079-0:2012+A11:2013 , EN 60079-11:2012 , EN 60079-7:2015+A1:2018 , EN 50303:2000	
International approvals		
FM approval		
Control drawing	116-0430 (cFMus)	
UL approval		
Control drawing	116-0331	
IECEX approval		
IECEX certificate	IECEX BVS 11.0040 IECEX KIWA 15.0019X	
IECEX marking	[Ex ia Ga] IIC, [Ex ia] IIIC , [Ex ia] I Ex ec IIC T4 Gc	
General information		
Supplementary information	Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com .	

Assembly

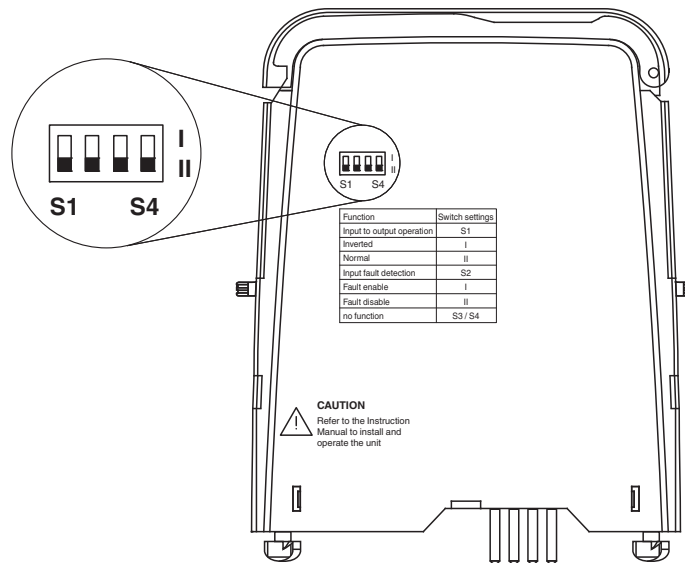
Front view



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

Configuration



Switch settings

S	Function	Position	
1	Mode of operation	Inverted	I
		Normal	II
2	Input line fault detection	ON	I
		OFF	II
3	no function		
4	no function		

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.



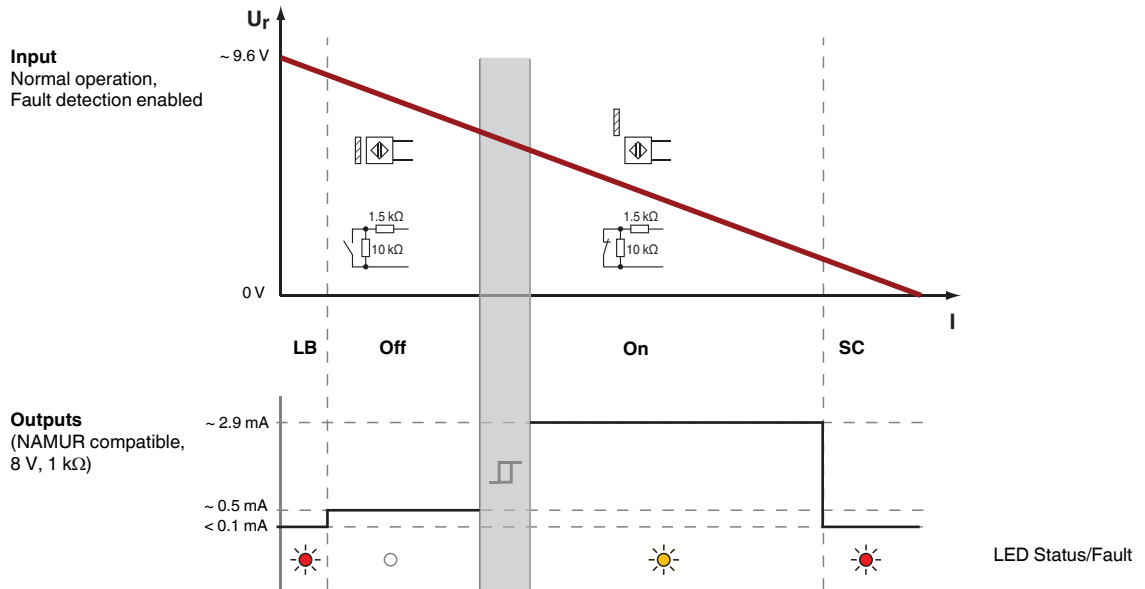
The pins for this device are trimmed to polarize it according to its safety parameter. Do not change! For further information see system description.

Characteristic Curve

Switching points

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