



Switch Amplifier

HiC2821

- 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 relay contact outputs
- Fault relay contact output
- Line fault detection (LFD)
- Reversible mode of operation
- Up to SIL 2 acc. to IEC/EN 61508



SIL 2



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.

The input controls two relay contact outputs for the non-explosion-hazardous area load.

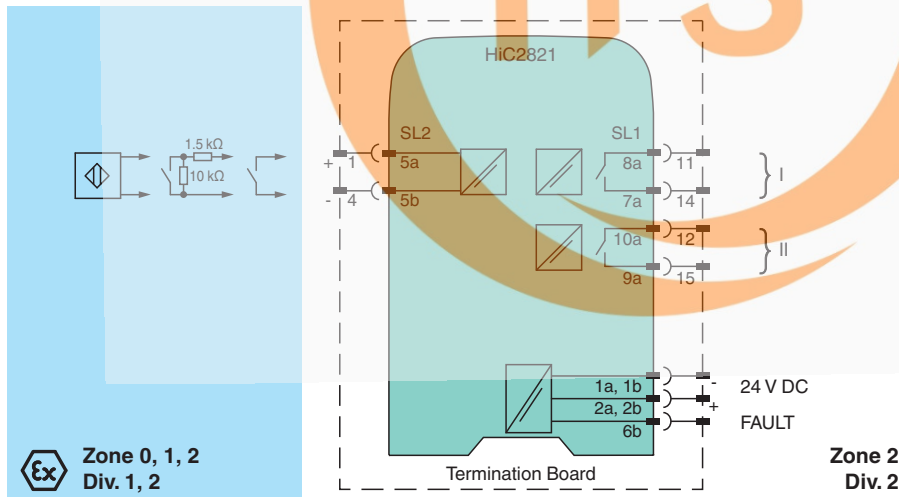
Via switches the mode of operation can be reversed and the line fault detection can be switched off.

Via switch the function of the second output can be defined as a signal output or a fault indication output.

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
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Functional safety related parameters

Safety Integrity Level (SIL)	SIL 2
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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

Technical Data

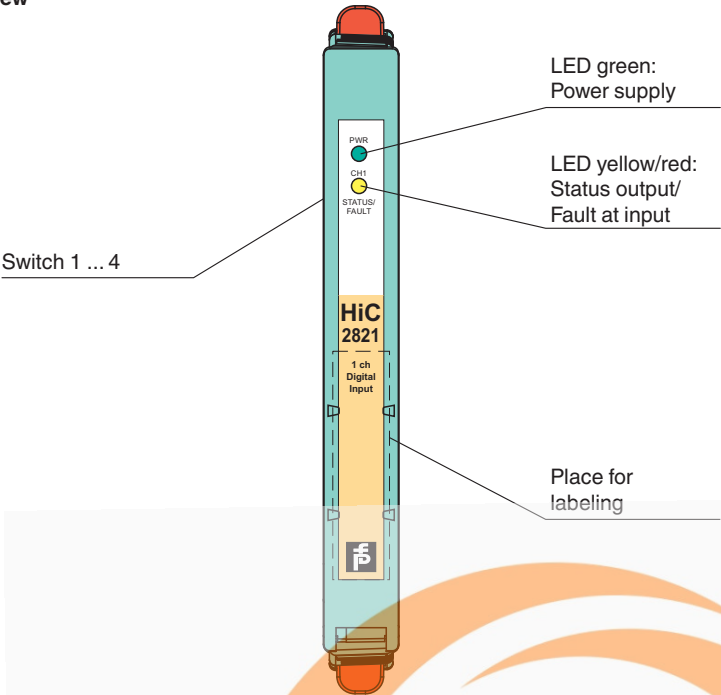
Power dissipation	≤ 500 mW
Power consumption	≤ 500 mW
Input	
Connection side	field side
Connection	SL2: 5a(+), 5b(-)
Rated values	acc. to EN 60947-5-6 (NAMUR), see manual for electrical data
Open circuit voltage/short-circuit current	approx. 10 V DC / approx. 8 mA
Switching point/switching hysteresis	1.2 ... 2.1 mA / approx. 0.2 mA
Line fault detection	breakage $I \leq 0.1$ mA , short-circuit $I \geq 6.7$ mA
Pulse/Pause ratio	min. 20 ms / min. 20 ms
Output	
Connection side	control side
Connection	SL1: 8a, 7a; 10a, 9a
Output I	signal ; relay
Output II	signal or fault message ; 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 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	
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	EN IEC 61326-3-2:2018 , NE 21:2012 For further information see system description.
Degree of protection	IEC 60529:2001
Input	EN 60947-5-6:2000
Ambient conditions	
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
Mechanical specifications	
Degree of protection	IP20
Mass	approx. 100 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 For further information see system description.
Data for application in connection with hazardous areas	
EU-type examination certificate	BASEEFA 06 ATEX 0093 X

Technical Data

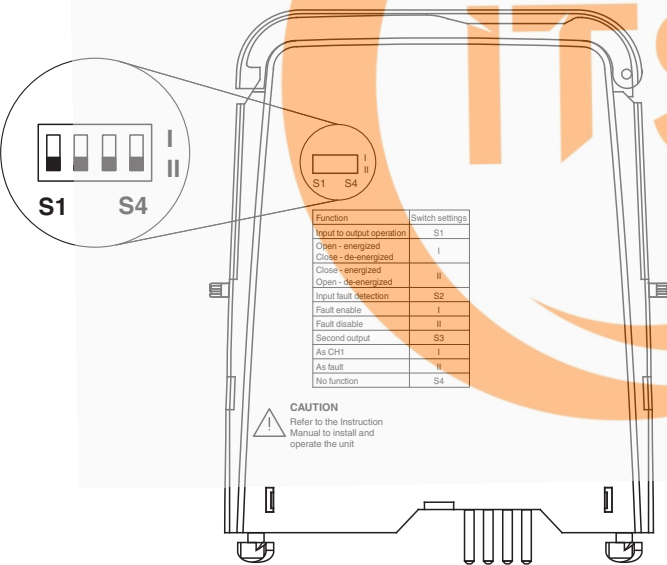
Marking	Ⓢ II (1)G [Ex ia Ga] IIC Ⓢ II (1)D [Ex ia Da] IIIC Ⓢ I (M1) [Ex ia Ma] I	
Input		[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I
Voltage	U_o	10.5 V
Current	I_o	17.1 mA
Power	P_o	45 mW (linear characteristic)
Supply		
Maximum safe voltage	U_m	253 V AC (Attention! U_m is no rated voltage.)
Output		
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
International approvals		
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 [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



Configuration



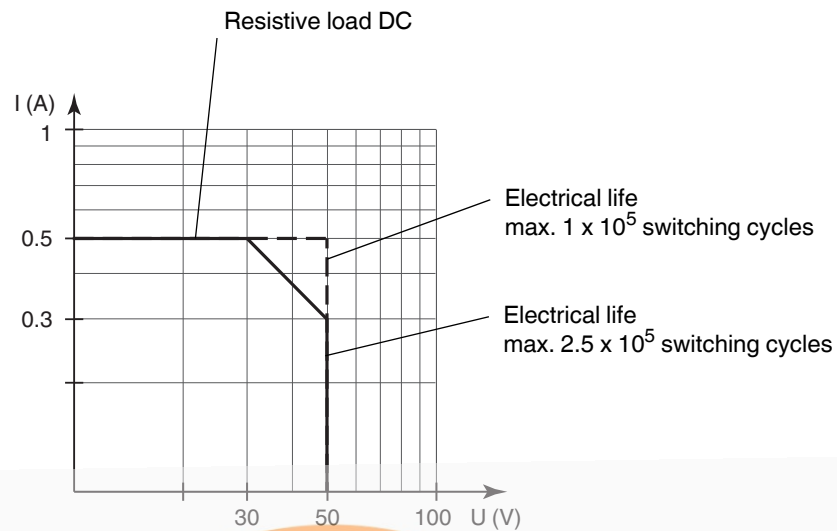
Configuration

- 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.

