Voltage Repeater

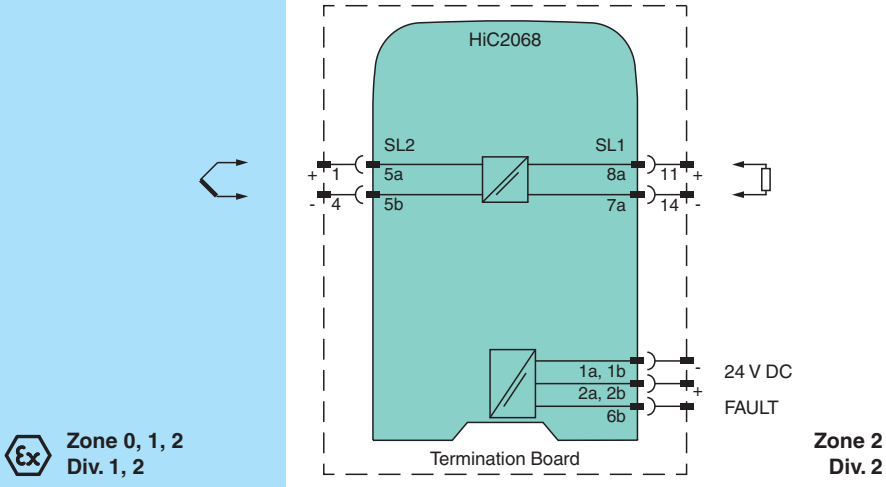
HiC2068

- 1-channel isolated barrier
- 24 V DC supply (bus powered)
- Voltage input 0 mV ... ± 500 mV
- Voltage output 0 mV ... ± 500 mV
- Selectable up/downscale sensor breakage detection
- Fault output signal

Function

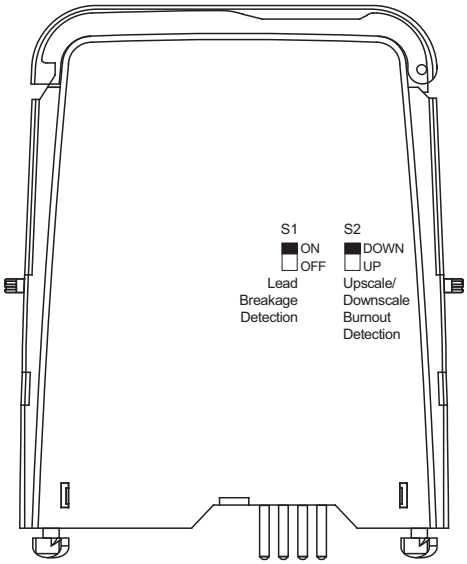
This isolated barrier is used for intrinsic safety applications. It transfers low voltage signals from thermocouples, load cells, strain gauges, operational amplifiers, and inductive oscillation sensors located in hazardous areas to safe areas.
The input voltage of the terminals 5a and 5b is transferred to the terminals 7a and 8a.
The input, output, and power supply are galvanically isolated from each other. Upscale or downscale lead breakage monitoring is selectable via switches located on the front panel of the device.
Note: This unit requires three minutes after power-up to reach the accuracy cited in the technical data.

Connection



Release date: 2022-09-15 Date of issue: 2022-09-15 Filename: 208113_eng.pdf

Configuration



Technical Data

General specifications		
Signal type		Analog input
Supply		
Connection		SL1: 1a(-), 1b(-); 2a(+), 2b(+)
Rated voltage	U_r	20 ... 30 V DC bus powered via Termination Board
Ripple		within the supply tolerance
Rated current	I_r	≤ 22 mA
Power dissipation/power consumption		0.7 W max.
Lockout voltage		> 11 V DC
Input		
Connection side		field side
Connection		SL2: 5a(+), 5b(-)
Input resistance		≥ 1.4 MΩ
Transmission range		0 ... ± 500 mV
Offset voltage/current		≤ 5 µV / ≤ 5 nA
Output		
Connection side		control side
Connection		SL1: 8a(+), 7a(-)
Voltage		0 ... ± 500 mV
Load		Accuracy figures for infinite load impedance. Additional 0.03 % of span for a load resistance of 10 kΩ
Output resistance		max. 3 Ω
Line fault detection		input: ± 700 mV output: ± 1 V
Fault indication output		
Connection		SL1: 6b
Output type		open collector transistor (internal fault bus)
Fault voltage		< V_{cc}/2 (when connected to V_{cc} via 10 kΩ pull up resistor)
Transfer characteristics		
Deviation		

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After calibration		at 20 °C (68 °F): ± 30 µV up to ± 100mV/± 0.03 % of the span up to +500 mV/± 0.03 % of the span up to -500 mV
Influence of ambient temperature		± 10 µV/K (typical ± 2.5 µV/K)
Absolute		< 0.25 K at 30 V voltage supply
Bandwidth		DC to > 350 Hz (-3 dB)
Settling time		< 1 ms
Rise time/fall time		< 100 µs
Galvanic isolation		
Output/power supply		functional insulation, rated insulation voltage 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		
Electromagnetic compatibility		NE 21:2006 For further information see system description.
Degree of protection		IEC 60529:2001
Protection against electrical shock		UL 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 106 x 128 mm (0.5 x 4.2 x 5.1 inch) (W x H x D)
Mounting		on termination board
Coding		pin 2, 3 and 4 trimmed For further information see system description.
Data for application in connection with hazardous areas		
EU-type examination certificate		BASEEFA 10 ATEX 0031X
Marking		Ⓔx II (1)GD, I (M1), [Ex ia] IIC, [Ex iaD], [Ex ia] I (-20 °C ≤ T_{amb} ≤ 60 °C) [circuit(s) in zone 0/1/2]
Voltage	U_o	5.5 V DC
Current	I_o	2.4 mA
Power	P_o	3.3 mW
Supply		
Maximum safe voltage	U_m	253 V (Attention! The rated voltage can be lower.)
Certificate		BASEEFA 10 ATEX 0032X
Marking		Ⓔx II 3G Ex nA II T4
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 60079-15:2010
International approvals		
UL approval		
Control drawing		116-0317 (cULus)
IECEx approval		
IECEx certificate		IECEx BAS 10.0012X IECEx BAS 10.0013X
IECEx marking		[Zone 0] [Ex ia] IIC, [Ex iaD], [Ex ia] I Ex nA II T4

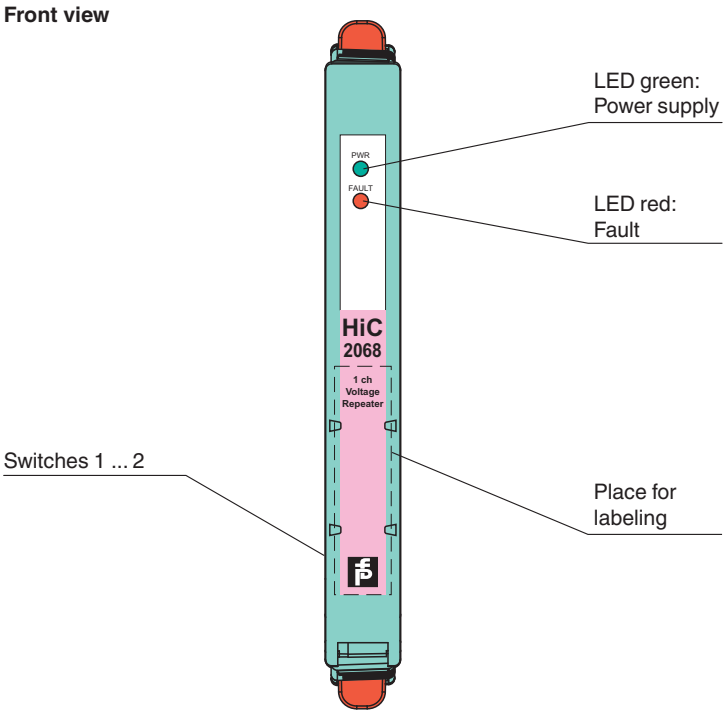
Release date: 2022-09-15 Date of issue: 2022-09-15 Filename: 208113_eng.pdf

Technical Data

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.

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