



SMART Current Driver

HiC2031

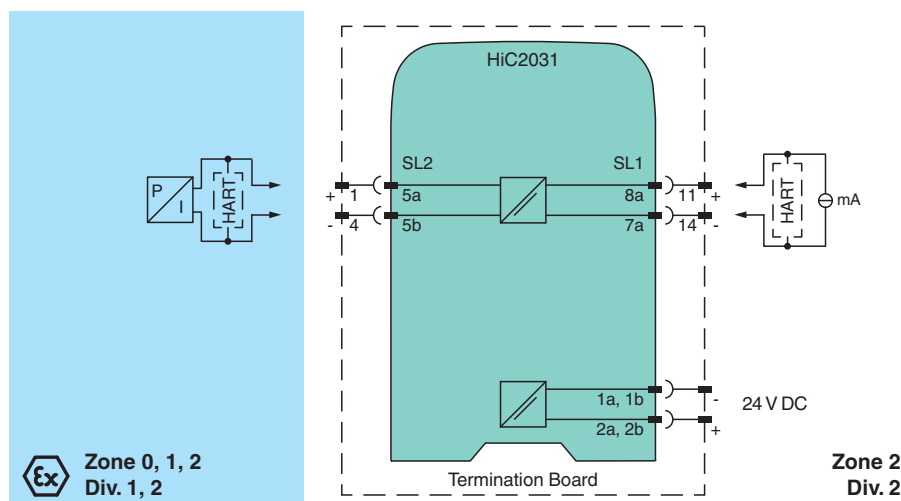
- 1-channel isolated barrier
- 24 V DC supply (bus powered)
- Current output up to 650 Ω load
- Low power dissipation
- Up to SIL 2 acc. to IEC/EN 61508

CE  **SIL 2**

Function

This isolated barrier is used for intrinsic safety applications. It repeats the input signal from a control system to drive HART I/P converters, valve actuators, and displays located in a hazardous area. Digital signals are superimposed on the analog values at the field side or control side and are transferred bi-directionally. An open field circuit presents a high impedance to the control side to allow alarm conditions to be monitored by the control system. This device mounts on a HiC termination board.

Connection



Technical Data

General specifications

Signal type Analog output

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
Ripple		$\leq 10 \%$
Rated current	I_r	$\leq 30 \text{ mA}$
Power dissipation		$\leq 600 \text{ mW}$
Power consumption		$\leq 700 \text{ mW}$

Technical Data

Input

Connection side		control side
Connection		SL1: 8a(+), 7a(-)
Input signal		4 ... 20 mA limited to approx. 30 mA
Input voltage		depending on switch configuration open loop voltage of the control system < 23 V open loop voltage of the control system < 27 V
Voltage drop		depending on switch configuration open loop voltage of the control system < 23 V: approx. 6 V at 20 mA open loop voltage of the control system < 27 V: approx. 10 V at 20 mA
Input resistance		> 100 kΩ, with field wiring open

Output

Connection side		field side
Connection		SL2: 5a(+), 5b(-)
Voltage		≥ 13 V at 20 mA
Current		4 ... 20 mA
Load		0 ... 650 Ω
Ripple		20 mV rms

Transfer characteristics

Deviation		at 20 °C (68 °F), 0/4 ... 20 mA ≤ ± 0.1 % incl. non-linearity and hysteresis
Influence of ambient temperature		< 2 μA/K (0 ... 60 °C (32 ... 140 °F)); < 4 μA/K (-20 ... 0 °C (-4 ... 32 °F))
Frequency range		field side into the control side: bandwidth with 0.5 V _{pp} signal 0 ... 3 kHz (-3 dB) control side into the field side: bandwidth with 1 mA _{pp} signal 0 ... 3 kHz (-3 dB)
Rise time		10 to 90 % ≤ 100 ms

Galvanic isolation

Input/Output		safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V
Input/power supply		functional insulation acc. to IEC 62103, rated insulation voltage 50 V _{eff}
Output/power supply		safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V

Indicators/settings

Display elements		LED
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

Ambient conditions

Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
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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)
Mounting		on termination board
Coding		pin 1 and 3 trimmed For further information see system description.

Data for application in connection with hazardous areas

EU-type examination certificate		CESI 06 ATEX 017
Marking		⊕ II (1)G [Ex ia Ga] IIC ⊕ II (1)D [Ex ia Da] IIC ⊕ I (M1) [Ex ia Ma] I
Output		Ex ia
Supply		

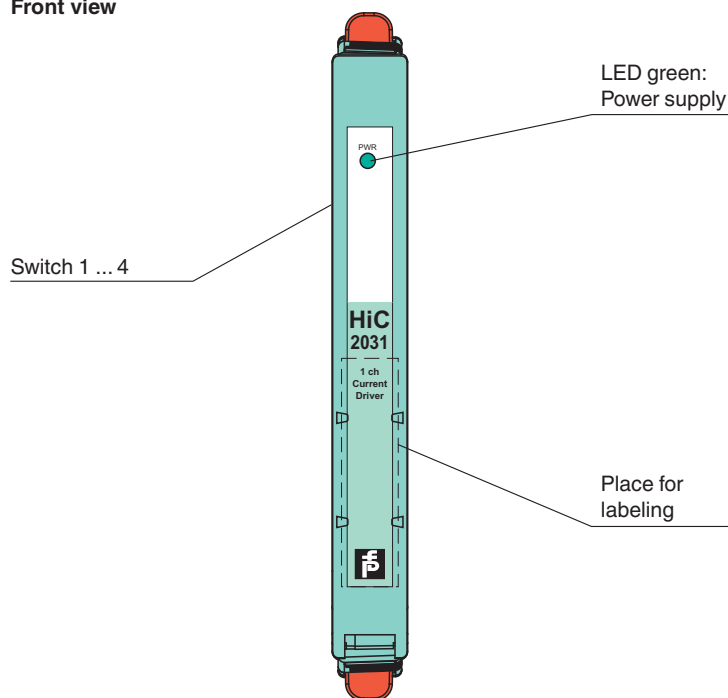
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Technical Data

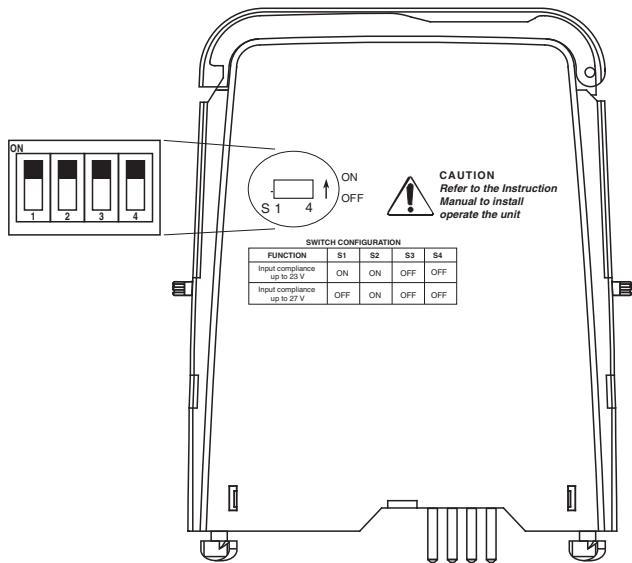
Maximum safe voltage	U_m	253 V AC (Attention! U_m is no rated voltage.)
Equipment		SL2: 5a(+), 5b(-)
Voltage	U_o	25.2 V
Current	I_o	100 mA
Power	P_o	630 mW
Internal capacitance	C_i	5.7 nF
Internal inductance	L_i	negligible
Certificate		KIWA 15 ATEX 0035 X
Marking		II 3G Ex ec IIC T4 Gc
Directive conformity		
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		16-534FM-12 (cFMus)
IECEx approval		
IECEx certificate		IECEx CES 06.0002 IECEx KIWA 15.0017X
IECEx marking		[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] 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



Configuration



Switch position

Function	S1	S2	S3	S4
Open loop voltage of the control system < 23 V	ON	ON	OFF	OFF
Open loop voltage of the control system < 27 V	OFF	ON	OFF	OFF

Factory setting: open loop voltage of the control system < 23 V

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.