SMART Current Driver

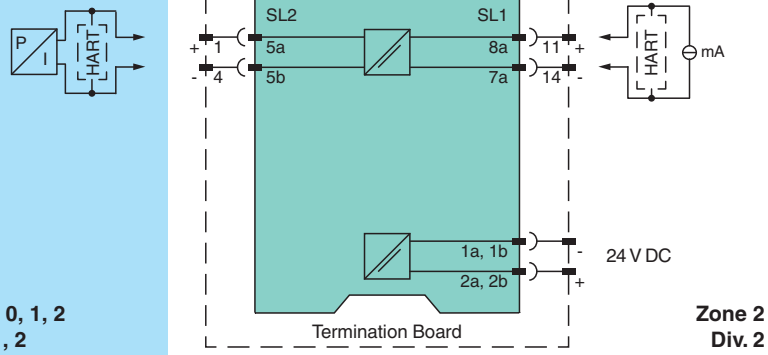
HiC2031HC

- 1-channel isolated barrier
- 24 V DC supply (bus powered)
- Current output up to 625 Ω load
- HART-IP and valve positioner
- Low power dissipation
- Suitable for long field cables (> 1000 m)
- Up to SIL 2 (SC 3) acc. to IEC/EN 61508

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.
Bi-directional communication is supported for HART devices.
An open field circuit presents a high impedance to the control side to allow alarm conditions to be monitored by control systems.
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
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	≤ 35 mA
Power dissipation		≤ 600 mW

Release date: 2023-06-05 Date of issue: 2023-06-05 Filename: 226027_eng.pdf

Technical Data

Power consumption		≤ 700 mW
Input		
Connection side		control side
Connection		SL1: 8a(+), 7a(-)
Input signal		4 ... 20 mA , limited to approx. 27 mA
Input voltage		depending on switch configuration open loop voltage of the control system < 19 V open loop voltage of the control system < 26 V
Voltage drop		depending on switch configuration open loop voltage of the control system < 19 V: approx. 5 V at 20 mA open loop voltage of the control system < 26 V: approx. 12 V at 20 mA
Input resistance		> 100 kΩ, with field wiring open
Output		
Connection side		field side
Connection		SL2: 5a(+), 5b(-)
Voltage		≥ 12.5 V at 20 mA
Current		4 ... 20 mA
Load		0 ... 625 Ω
Ripple		20 mV rms
Transfer characteristics		
Deviation		at 20 °C (68 °F), 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
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 21:2012 For further information see system description.
Degree of protection		IEC 60529
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 and 4 trimmed For further information see system description.
Data for application in connection with hazardous areas		
EU-type examination certificate		CESI 11 ATEX 012
Marking		⟨Ex⟩ II (1)G [Ex ia Ga] IIC ⟨Ex⟩ II (1)D [Ex ia Da] IIIC ⟨Ex⟩ I (M1) [Ex ia Ma] I
Output		Ex ia
Supply		
Maximum safe voltage	U_m	253 V AC (Attention! U_m is no rated voltage.)
Equipment		SL2: 5a(+), 5b(-)
Voltage	U_o	20 V

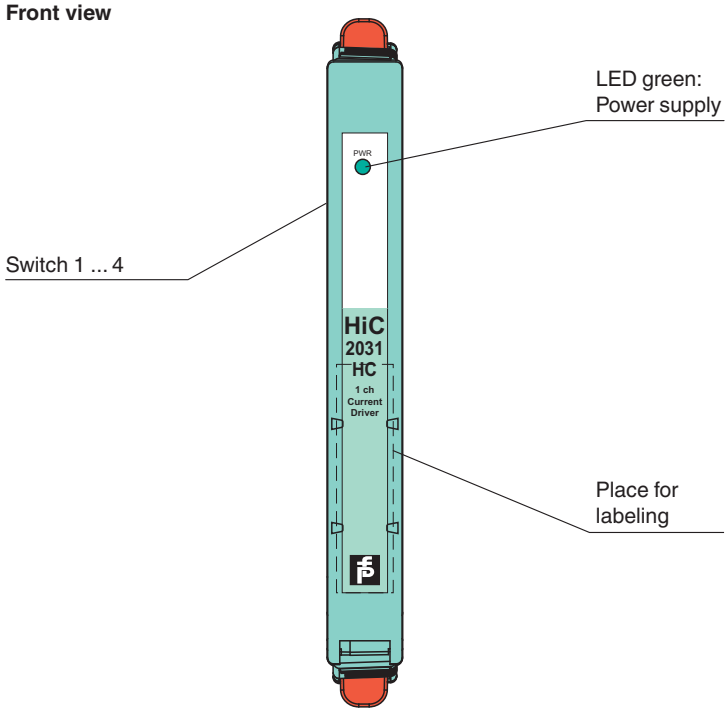
Release date: 2023-06-05 Date of issue: 2023-06-05 Filename: 226027_eng.pdf

Technical Data

Current	I_o	100 mA
Power	P_o	500 mW
Internal capacitance	C_i	5.7 nF
Internal inductance	L_i	negligible
Output		
Maximum safe voltage	U_m	253 V AC (Attention! The rated voltage can be lower.)
Certificate		CESI 19 ATEX 050 X
Marking		Ⓔx 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 IEC 60079-0:2018+AC:2020 , EN 60079-7:2015+A1:2018 , EN 60079-11:2012
International approvals		
UL approval		E106378
Control drawing		116-0393 (cULus)
IECEx approval		
IECEx certificate		IECEx CES 11.0010X
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

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

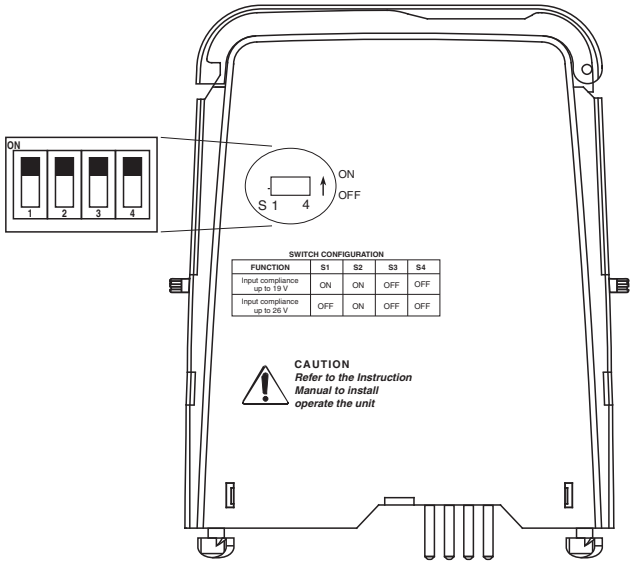
Release date: 2023-06-05 Date of issue: 2023-06-05 Filename: 226027_eng.pdf

Configuration

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.

Release date: 2023-06-05 Date of issue: 2023-06-05 Filename: 226027_eng.pdf

Configuration



Switch position

Function	S1	S2	S3	S4
Open loop voltage of the control system < 19 V	ON	ON	OFF	OFF
Open loop voltage of the control system < 26 V	OFF	ON	OFF	OFF

Factory setting: open loop voltage of the control system < 19 V

Release date: 2023-06-05 Date of issue: 2023-06-05 Filename: 226027_eng.pdf