



SMART Current Driver HiC2031ES

- 1-channel isolated barrier
- 24 V DC supply (bus powered)
- Current output up to 650 Ω load
- HART-IP and valve positioner
- Low power dissipation
- Line fault detection (LFD)
- Up to SIL 3 acc. to IEC/EN 61508



Function

This isolated barrier is used for intrinsic safety applications.

The device repeats the input signal from a control system to drive HART I/P converters, electrical valves, and positioners located in a hazardous area.

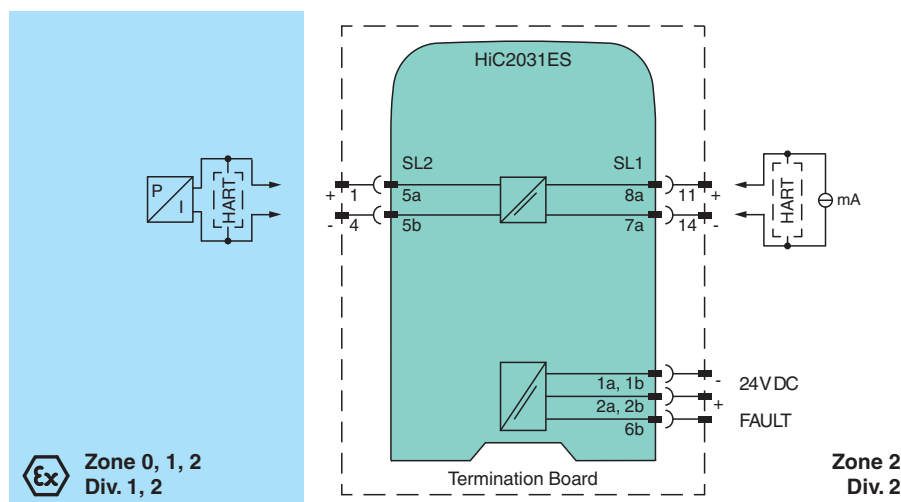
Digital signals are superimposed on the analog values at the field side or control side and are transferred bi-directionally.

An open or short field circuit presents a high impedance to the control side to allow alarm conditions to be monitored by the control system.

Line fault detection of the field circuit is indicated by a red LED and an output on the fault bus.

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 3

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 ≤ 33 mA at 24 V

Power dissipation ≤ 700 mW at 20 mA and 500 Ω load

Technical Data

Power consumption	≤ 800 mW
Input	
Connection side	control side
Connection	SL1: 8a(+), 7a(-)
Input signal	4 ... 20 mA, limited to approx. 25 mA
Input voltage	open loop voltage of the control system < 30 V
Voltage drop	approx. 6 V at 20 mA
Input resistance	> 100 kΩ, with field wiring open or < 50 Ω
Output	
Connection side	field side
Connection	SL2: 5a(+), 5b(-)
Voltage	≥ 13 V at 20 mA
Current	4 ... 20 mA
Load	100 ... 650 Ω
Ripple	20 mV rms
Line fault detection	field wiring open or < 50 Ω and test current < 2 mA
Fault indication output	
Connection	SL1: 6b
Output type	open collector transistor (internal fault bus)
Transfer characteristics	
Deviation	at 20 °C (68 °F), 4 ... 20 mA < 0.1 % of full scale, incl. non-linearity and hysteresis
Influence of ambient temperature	< 2 μA/K (-20 ... 70 °C (-4 ... 158 °F)); < 4 μA/K (-40 ... -20 °C (-40 ... -4 °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 % ≤ 10 ms
Galvanic isolation	
Input/Output	safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V
Input/power supply	basic insulation according to IEC/EN 61010-1, rated insulation voltage 60 V _{eff}
Output/power supply	safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V
Indicators/settings	
Display elements	LEDs
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 21:2017 EN 61326-3-2:2018 For further information see system description.
Degree of protection	IEC 60529:2001
Protection against electrical shock	UL 61010-1:2012
Ambient conditions	
Ambient temperature	-40 ... 70 °C (-40 ... 158 °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 3 trimmed For further information see system description.
Data for application in connection with hazardous areas	
EU-type examination certificate	CESI 20 ATEX 007 X
Marking	Ⓢ II (1)G [Ex ia Ga] IIC Ⓢ II (1)D [Ex ia Da] IIIC Ⓢ I (M1) [Ex ia Ma] I

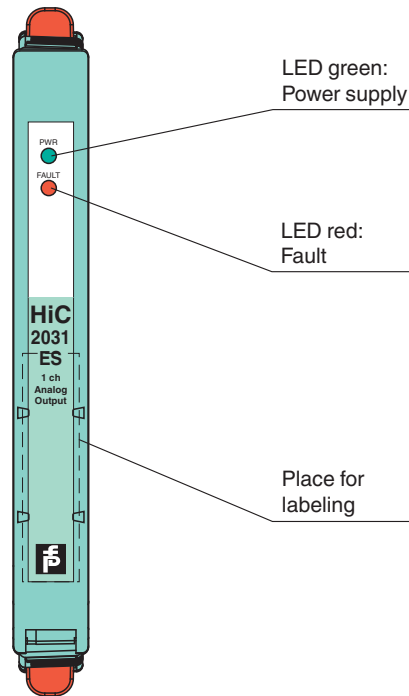
Release date: 2023-08-10 Date of issue: 2023-08-10 Filename: 70101789_eng.pdf

Technical Data

Output		Ex ia
Supply		
Maximum safe voltage	U_m	250 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		CESI 20 ATEX 008 X
Marking		II 3G Ex ec IIC T4 Gc
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018 , EN 60079-11:2012 , EN 60079-7:2015
International approvals		
UL approval		E106378
Control drawing		116-0472 (cULus)
IECEx approval		
IECEx certificate		IECEx CES 20.0008X
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



Safety Information

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

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