



SMART Transmitter Power Supply HiC2025

- 1-channel isolated barrier
- 24 V DC supply (bus powered)
- Input for 2-wire SMART transmitters and current sources
- Output for 4 mA ... 20 mA or 1 V ... 5 V
- Low power dissipation
- Up to SIL 2 (SC 3) acc. to IEC/EN 61508



Function

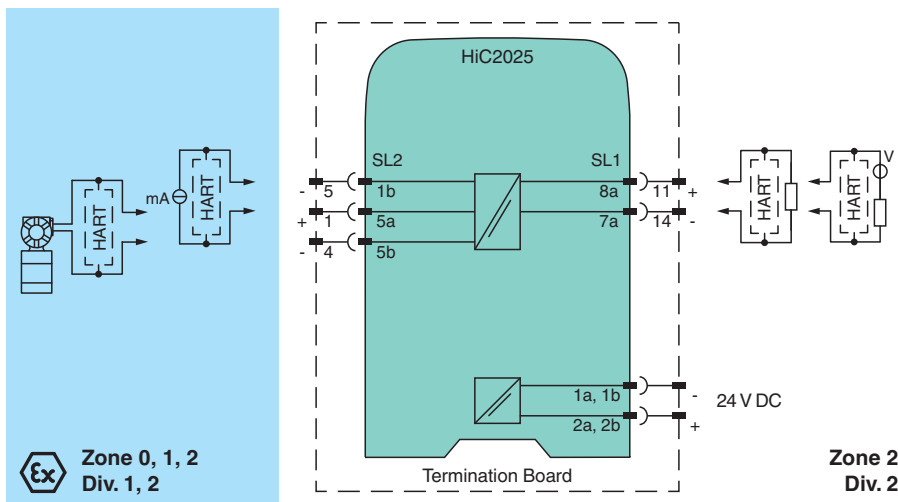
This isolated barrier is used for intrinsic safety applications. The device supplies 2-wire transmitters in the hazardous area, and can also be used with current sources. It transfers the analog input signal to the safe area as an isolated current value. Bi-directional communication is supported for SMART transmitters that use current modulation to transmit data and voltage modulation to receive data. The output is selected as a current source, current sink, or voltage source via DIP switches. This device mounts on a HiC Termination Board.

Application

The device supports the following SMART protocols:

- HART
- BRAIN

Connection



Technical Data

General specifications

Signal type	Analog input
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Release date: 2023-06-01 Date of issue: 2023-06-01 Filename: 321423_eng.pdf

Technical Data

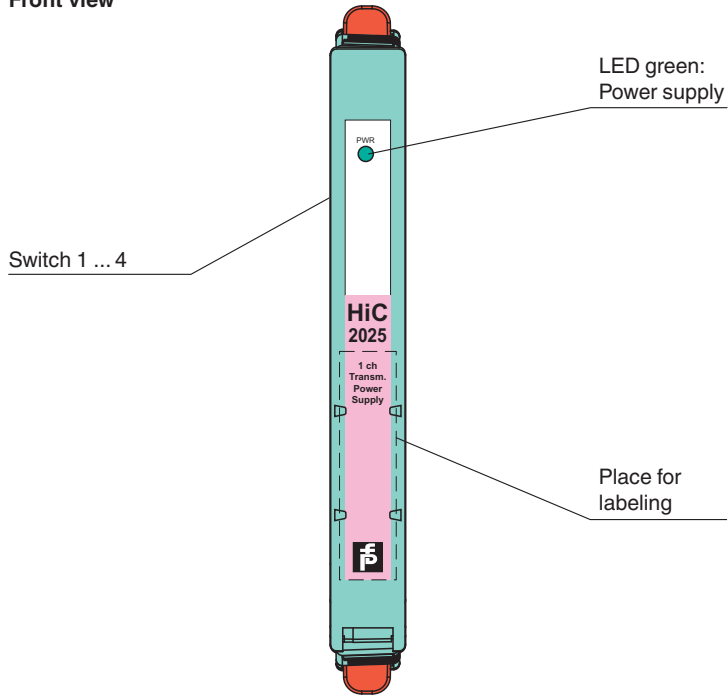
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 2
Systematic capability (SC)		SC 3
Supply		
Connection		SL1: 1a, 1b(-); 2a, 2b(+)
Rated voltage	U_r	19 ... 30 V DC bus powered via Termination Board
Ripple		$\leq 10 \%$
Rated current	I_r	$\leq 45 \text{ mA}$ at 24 V and 20 mA source mode output
Power dissipation		$\leq 800 \text{ mW}$
Power consumption		$\leq 1.1 \text{ W}$
Input		
Connection side		field side
Connection		SL2: 5a(+), 1b(-); 5a(+), 5b(-)
Input signal		4 ... 20 mA limited to approx. 26 mA
Voltage drop		approx. 5 V on SL2: 5a(+), 1b(-)
Available voltage		$\geq 15 \text{ V}$ at 20 mA, $\geq 18 \text{ V}$ at 4 mA on SL2: 5a(+), 5b(-)
Output		
Connection side		control side
Connection		SL1: 8a(+), 7a(-)
Load		0 ... 350 Ω (source mode)
Output signal		source mode: 4 ... 20 mA or 1 ... 5 V (internal resistor: 250 Ω , 0.1 %) sink mode: 4 ... 20 mA, operating voltage 10 ... 30 V For additional internal or external loads the voltage drop has to be considered, e. g. 250 Ω x 20 mA = 5 V.
Ripple		20 mV _{rms}
Transfer characteristics		
Deviation		at 20 °C (68 °F) $< 0.1 \%$ of full scale, incl. non-linearity and hysteresis (source mode and sink mode 4 ... 20 mA) $\leq \pm 0.2 \%$ incl. non-linearity and hysteresis (source mode 1 ... 5 V)
Influence of ambient temperature		$< 2 \mu\text{A/K}$ (-20 ... 70 °C (-4 ... 158 °F)); $< 4 \mu\text{A/K}$ (-40 ... -20 °C (-40 ... -4 °F)) (source mode and sink mode 4 ... 20mA) $< 0.5 \text{ mV/K}$ (-20 ... 70 °C (-4 ... 158 °F)); $< 1 \text{ mV/K}$ (-40 ... -20 °C (-40 ... -4 °F)) (source mode 1...5 V)
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 0.5 V _{pp} signal 0 ... 3 kHz (-3 dB)
Settling time		$\leq 50 \text{ ms}$
Rise time/fall time		$\leq 10 \text{ ms}$
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
Output/power supply		basic insulation according to IEC/EN 61010-1, rated insulation voltage 60 V _{eff}
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 21:2017 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		

Technical Data

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 06 ATEX 017		
Marking	Ⓜ II (1)G [Ex ia Ga] IIC Ⓜ II (1)D [Ex ia Da] IIIC Ⓜ I (M1) [Ex ia Ma] I		
Input	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	
Equipment	SL2: 5a(+), 1b(-)		
Voltage	U _i	30 V	
Current	I _i	128 mA	
Voltage	U _o	7.2 V	
Current	I _o	100 mA	
Power	P _o	25 mW	
Internal capacitance	C _i	5.7 nF	
Internal inductance	L _i	negligible	
Certificate	CESI 19 ATEX 027 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		
International approvals			
FM approval			
FM certificate	FM 19 US 0122 X , FM 19 CA 0065 X		
Control drawing	116-0470 (cFMus)		
UL approval	E106378		
Control drawing	116-0458 (cULus)		
IECEX approval			
IECEX certificate	IECEX CES 06.0002X		
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

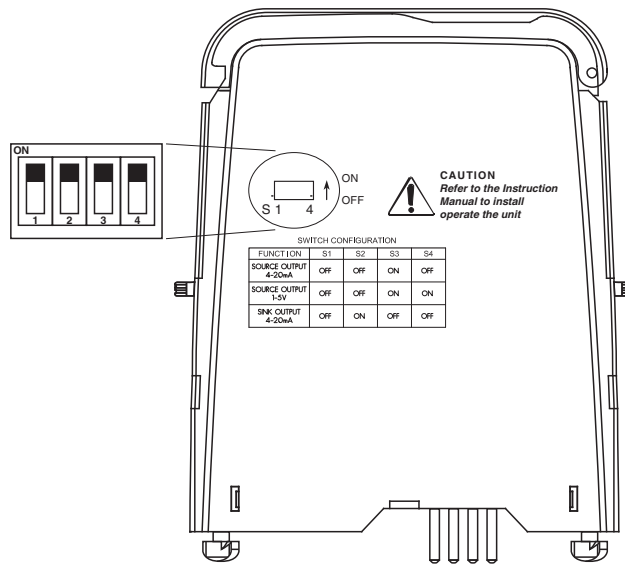
Configure the device in the following way:

- 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

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.

Configuration



Switch position

Function	S1	S2	S3	S4
Current source 4 mA ... 20 mA	OFF	OFF	ON	OFF
Voltage source 1 V ... 5 V	OFF	OFF	ON	ON
Current sink 4 mA ... 20 mA	OFF	ON	OFF	OFF

Factory setting: current source 4 mA ... 20 mA

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