



# SMART Transmitter Power Supply HiC2027

- 1-channel isolated barrier
- 24 V DC supply (bus powered)
- Input for 2-wire SMART transmitters and current sources
- Signal splitter (1 input and 2 outputs)
- Dual output 0/4 mA ... 20 mA or 0/1 V ... 5 V
- SIL 2 (SC 3) acc. to IEC/EN 61508



## Function

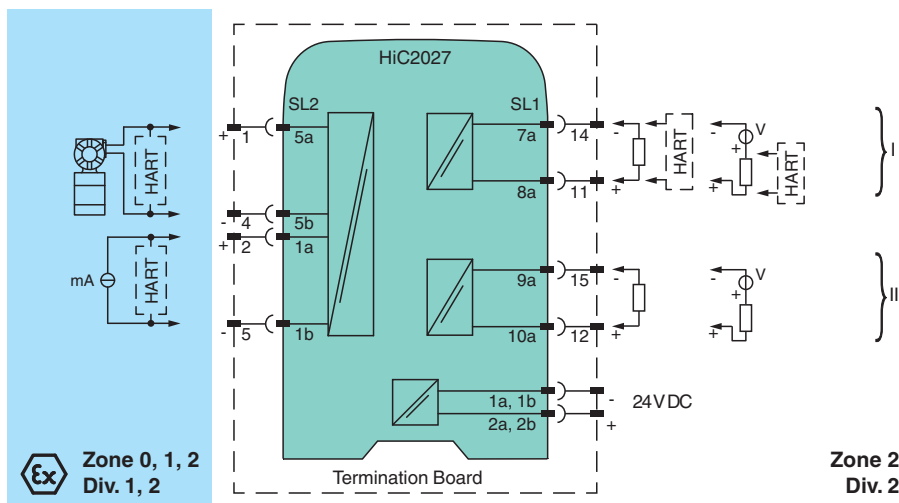
This isolated barrier is used for intrinsic safety applications. The device supplies 2-wire transmitters in the hazardous area, and can also be used with current sources. It transfers the analog input signal to the safe area as two isolated output signals. Bi-directional communication is supported for 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 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
Functional safety related parameters	
Safety Integrity Level (SIL)	SIL 2
Systematic capability (SC)	SC 3
Supply	

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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

Pepperl+Fuchs Group  
www.pepperl-fuchs.com

USA: +1 330 486 0002  
pa-info@us.pepperl-fuchs.com

Germany: +49 621 776 2222  
pa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091  
pa-info@sg.pepperl-fuchs.com



## Technical Data

Connection		SL1: 1a, 1b(-); 2a, 2b(+)
Rated voltage	$U_r$	20 ... 30 V DC bus powered via Termination Board
Ripple		within the supply tolerance
Power dissipation		approx. 1.4 W at 20 mA transfer current, 250 $\Omega$ in both outputs
Power consumption		2 W
<b>Input</b>		
Connection side		field side
Connection		SL2: 5a(+), 5b(-): sink SL2: 1a(+), 1b(-), 7a(-): source
Input signal		0/4 ... 20 mA
Voltage drop		SL2: 1a(+), 1b(-), 7a(-): $\leq 6.1$ V at 20 mA
Short-circuit current		SL2: 5a(+), 5b(-): 25 mA
Input resistance		SL2: 5a(+), 5b(-): max. 500 $\Omega$ (BRAIN) (250 $\Omega$ load)
Available voltage		SL2: 5a(+), 5b(-): $\geq 16$ V at 20 mA , $\geq 18.5$ V at 4 mA
<b>Output</b>		
Connection side		control side
Connection		SL1: 8a(+), 7a(-), channel 1: source and sink SL1: 10a(+), 9a(-), channel 2: source and sink
Load		channel 1: 0 ... 500 $\Omega$ (20 mA)/ $> 1$ M $\Omega$ (5 V) channel 2: 0 ... 500 $\Omega$ (20 mA)/ $> 1$ M $\Omega$ (5 V)
Output signal		0/4 ... 20 mA or 0/1 ... 5 V
Ripple		max. 50 $\mu$ A <sub>rms</sub>
<b>Transfer characteristics</b>		
Deviation		$I_{out} < 20$ $\mu$ A (0.1 %); $V_{out} < 10$ mV (0.2 %) incl. calibration, linearity, hysteresis and fluctuation of supply voltage, at 20 °C (68 °F), 0/4 ... 20 mA, 0/1 ... 5 V
Influence of ambient temperature		current output: 0.25 $\mu$ A/K voltage output: 80 $\mu$ V/K
Frequency range		field side into the control side: bandwidth with 0.5 $V_{pp}$ signal 0 ... 6 kHz (-3 dB) control side into the field side: bandwidth with 0.5 $V_{pp}$ signal 0.3 ... 6 kHz (-3 dB)
Settling time		6 ms
Rise time/fall time		2 ms
<b>Galvanic isolation</b>		
Output/power supply		functional insulation, rated insulation voltage 50 V AC
Output/Output		functional insulation, rated insulation voltage 50 V AC
<b>Indicators/settings</b>		
Display elements		LED
Control elements		DIP switch
Configuration		via DIP switches
Labeling		space for labeling at the front
<b>Directive conformity</b>		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013 (industrial locations)
<b>Conformity</b>		
Electromagnetic compatibility		NE 21:2012 EN 61326-3-2:2008
Degree of protection		IEC 60529:2001
Protection against electrical shock		UL 61010-1:2012
<b>Ambient conditions</b>		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
<b>Mechanical specifications</b>		
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

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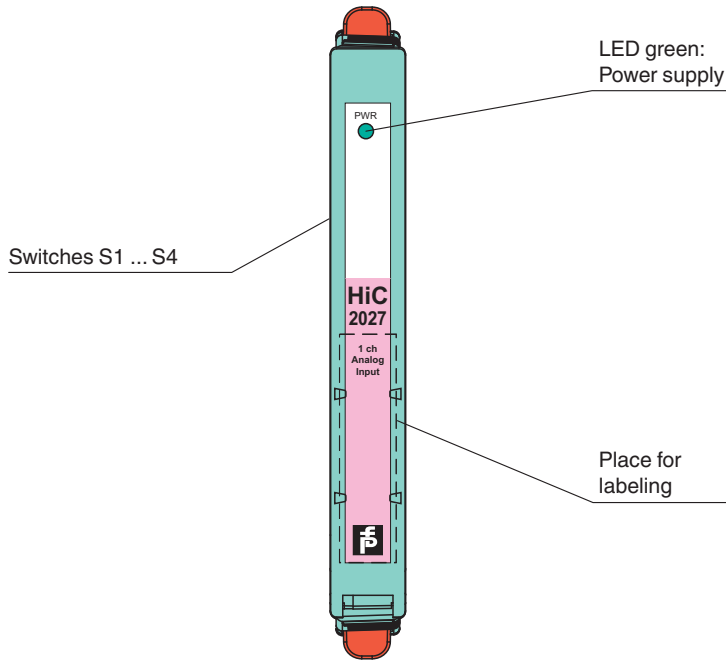
**Technical Data**

Coding	pin 2 and 3 trimmed For further information see system description.		
<b>Data for application in connection with hazardous areas</b>			
EU-type examination certificate	BASEEFA 13 ATEX 0075 X		
Marking	Ⓜ II (1)G [Ex ia Ga] IIC Ⓜ II (1)D [Ex ia Da] IIIC Ⓜ I (M1) [Ex ia Ma] I		
Input	[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I		
Supply			
Maximum safe voltage	U <sub>m</sub>	250 V (Attention! The rated voltage can be lower.)	
Equipment	terminals 5a, 5b		
Voltage	U <sub>o</sub>	25.2 V	
Voltage	U <sub>q</sub>	28.2 V	
Current	I <sub>o</sub>	93 mA	
Power	P <sub>o</sub>	656 mW	
Internal capacitance	C <sub>i</sub>	12 nF	
Internal inductance	L <sub>i</sub>	0 mH	
Equipment	terminals 1a, 1b, 7a		
Voltage	U <sub>i</sub>	30 V	
Current	I <sub>i</sub>	115 mA	
Power	P <sub>i</sub>	700 mW	
Voltage	U <sub>o</sub>	5 V	
Current	I <sub>o</sub>	6.8 mA	
Power	P <sub>o</sub>	1.6 mW	
Output			
Maximum safe voltage	U <sub>m</sub>	250 V (Attention! The rated voltage can be lower.)	
Certificate	BASEEFA 13 ATEX 0076 X		
Marking	Ⓜ II 3G Ex nA II T4 Gc [device in zone 2]		
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		
<b>International approvals</b>			
UL approval			
Control drawing	116-0349 (cULus)		
IECEX approval			
IECEX certificate	IECEX BAS 13.0042X		
IECEX marking	[Ex ia Ga] IIC , [Ex ia Da] IIIC , [Ex ia Ma] I		
<b>General information</b>			
Note	Both output loads must be connected to ensure complete and correct operation within the technical specification.		
Supplementary information	Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see <a href="http://www.pepperl-fuchs.com">www.pepperl-fuchs.com</a> .		

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Assembly

Front view



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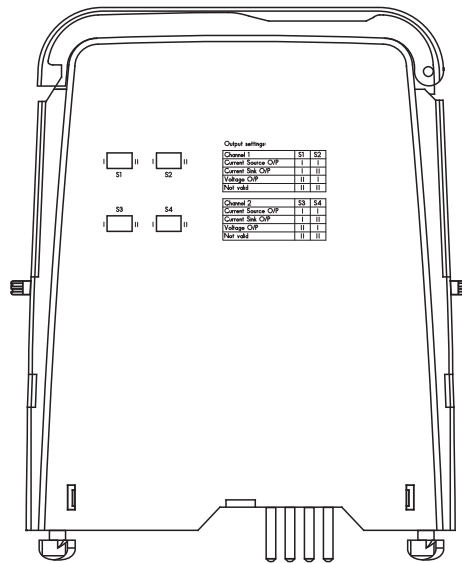
USA: +1 330 486 0002  
pa-info@us.pepperl-fuchs.com

Germany: +49 621 776 2222  
pa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091  
pa-info@sg.pepperl-fuchs.com

 **PEPPERL+FUCHS**

**Configuration**



**Output switch settings**

Channel 1	S1	S2
Current source output	I	I
Current sink output	I	II
Voltage output	II	I
Not valid	II	II

Channel 2	S3	S4
Current source output	I	I
Current sink output	I	II
Voltage output	II	I
Not valid	II	II

Factory settings: current source output, for both channels.

**Product Versions**

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The device has a predecessor which has other position and function of the switches. The differences between the switches and their function can be seen in the following table.

Previous device						New device				
HiC2027, part number 206327						HiC2027, part number 272951				
Switch S2 settings						Output switch settings				
Channel 1		S2.4	S2.5	S2.6	S2.7	S2.8	Channel 1		S1	S2
Current source output		ON	ON	OFF	OFF	OFF	Current source output		I	I
Current sink output		ON	OFF	ON	OFF	OFF	Current sink output		I	II
Voltage output		ON	ON	OFF	ON	OFF	Voltage output		II	I
-						Not valid		II	II	
Channel 2		S2.1	S2.2	S2.3	S2.4	S2.8	Channel 2		S3	S4
Current source output		ON	OFF	OFF	ON	OFF	Current source output		I	I
Current sink output		OFF	ON	OFF	ON	OFF	Current sink output		I	II
Voltage output		ON	OFF	ON	ON	OFF	Voltage output		II	I
-						Not valid		II	II	

Factory settings: current source output, for both channels.

## 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.*