



# SMART Transmitter Power Supply HiC2025A

- 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
- Reduced intrinsically safe parameters
- SIL 2 (SC 3) acc. to IEC/EN 61508



## Function

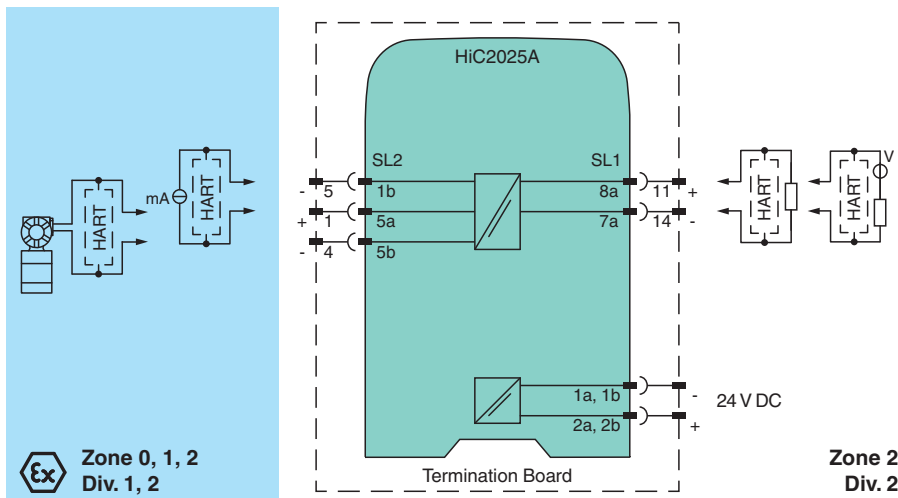
This isolated barrier is used for intrinsic safety applications. The device supplies 2-wire transmitters in the hazardous area, and can also be used with current sources. It transfers the analog input signal to the safe area as an isolated current value. Bi-directional communication is supported for 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

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

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## Technical Data

Signal type	Analog input	
<b>Functional safety related parameters</b>		
Safety Integrity Level (SIL)	SIL 2	
Systematic capability (SC)	SC 3	
<b>Supply</b>		
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	$\leq 1.1 \text{ W}$	
<b>Input</b>		
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	$\geq 14.7 \text{ V}$ at 20 mA $\geq 18 \text{ V}$ at 4 mA on SL2: 5a(+), 5b(-)	
<b>Output</b>		
Connection side	control side	
Connection	SL1: 8a(+), 7a(-)	
Load	0 ... 350 $\Omega$ (source mode)	
Output signal	4 ... 20 mA or 1 ... 5 V (on 250 $\Omega$ , 0.1 % internal shunt) 4 ... 20 mA (sink mode), operating voltage 10 ... 30 V	
Ripple	20 mV <sub>rms</sub>	
<b>Transfer characteristics</b>		
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 <sub>pp</sub> signal 0 ... 3 kHz (-3 dB) control side into the field side: bandwidth with 0.5 V <sub>pp</sub> signal 0 ... 3 kHz (-3 dB)	
Settling time	$\leq 50 \text{ ms}$	
Rise time/fall time	$\leq 10 \text{ ms}$	
<b>Galvanic isolation</b>		
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 <sub>eff</sub>	
<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	EN 61326-1:2013 (industrial locations)	
Directive 2014/30/EU	EN 61326-1:2013 (industrial locations)	
<b>Conformity</b>		
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	

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<b>Ambient conditions</b>	
Ambient temperature	-40 ... 70 °C (-40 ... 158 °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
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	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	$I_o$ 93 mA
Power	$P_o$ 586 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	$U_o$ 1 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
<b>International approvals</b>	
FM approval	
FM certificate	FM 19 US 0122 X , FM 19 CA 0065 X
Control drawing	116-0470 (cFMus)
UL approval	
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
<b>General information</b>	
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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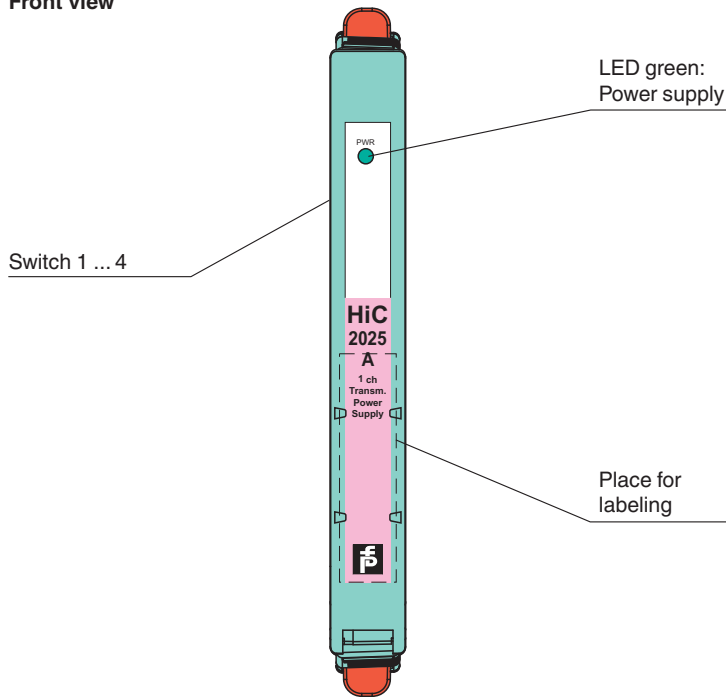
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Assembly

Front view



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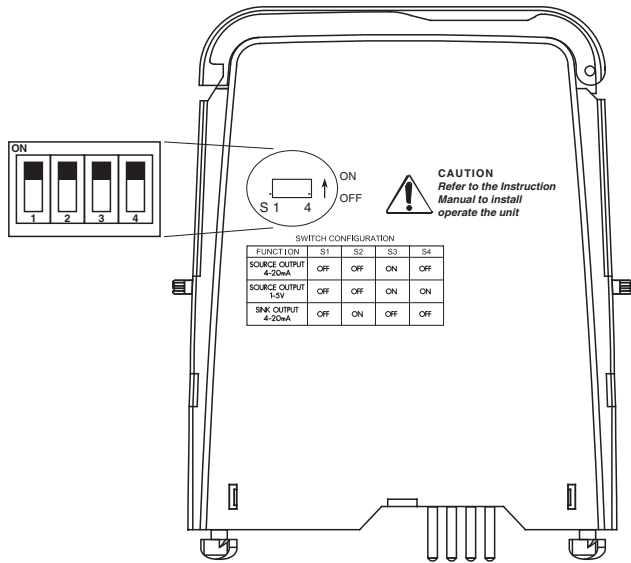
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**Configuration**



**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

**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.*

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