



SMART Transmitter Power Supply HiD2022SK

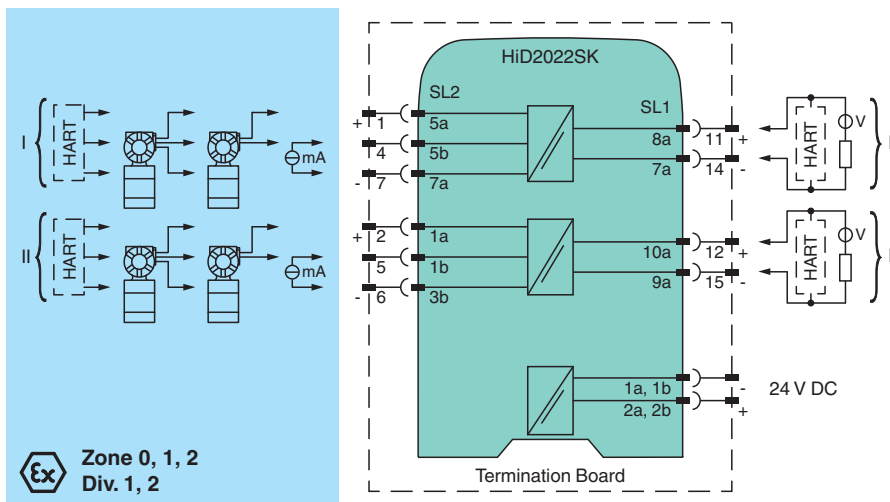
- 2-channel isolated barrier
- 24 V DC supply (bus powered)
- Input 2-wire and 3-wire SMART transmitters and 2-wire SMART current sources
- Output 4 mA ... 20 mA, current sink
- Up to SIL 2 acc. to IEC/EN 61508



Function

This isolated barrier is used for intrinsic safety applications. The device supplies 2-wire and 3-wire SMART transmitters, and can also be used with 2-wire SMART current sources. It transfers the analog input signal to the safe area as an isolated current value. Digital signals may be superimposed on the input signal in the hazardous or non-hazardous area and are transferred bi-directionally. The device provides a sink mode output on the safe area terminals. This device mounts on a HiD Termination Board.

Connection



Technical Data

General specifications

Signal type Analog input

Functional safety related parameters

Safety Integrity Level (SIL) SIL 2

Supply

Connection SL1: 1a(-), 1b(-); 2a(+), 2b(+)

Rated voltage U_r 18 ... 30 V DC bus powered via Termination Board

Ripple within the supply tolerance

Power dissipation ≤ 1.4 W

Power consumption ≤ 2 W

Input

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

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Technical Data

Connection side	field side	
Connection	SL2: 5a(+), 5b, 7a(-); 1a(+), 1b, 3b(-)	
Input signal	4 ... 20 mA , current limit 27 mA	
Input resistance	max. 265 Ω SL2: 5b, 7a; 1b, 3b ; max. 330 Ω SL2: 5a, 7a; 1a, 3b	
Available voltage	≥ 16 V at 20 mA , SL2: 5a(+), 5b(-); 1a(+), 1b(-)	
Output		
Connection side	control side	
Connection	SL1: 8a(+), 7a(-); 10a(+), 9a(-)	
Output signal	4 ... 20 mA (overload > 25 mA)	
Ripple	max. 50 μA _{rms}	
External supply (loop)	2 ... 30 V DC If the external voltage is > 24 V, a load ≥ ((V - 24) / 0.02) Ω is required. V represents the value of the external voltage.	
Transfer characteristics		
Deviation	at 20 °C (68 °F), 4 ... 20 mA ≤ 10 μA incl. calibration, linearity, hysteresis, loads and fluctuations of supply voltage	
Influence of ambient temperature	≤ 0.25 μA/K	
Frequency range	field side into the control side: band width with 1 V _{pp} signal 0 ... 7.5 kHz (-3 dB) safe area to hazardous area: band width with 1 V _{SS} signal 0.3 ... 7.5 kHz (-3 dB)	
Settling time	200 μs	
Rise time/fall time	100 μs	
Galvanic isolation		
Output/power supply	functional insulation, rated insulation voltage 50 V AC	
Output/Output	functional insulation, rated insulation voltage 50 V AC	
Indicators/settings		
Display elements	LED	
Labeling	space for labeling at the front	
Directive conformity		
Electromagnetic compatibility	EN 61326-1:2013 (industrial locations)	
Conformity		
Electromagnetic compatibility	NE 21:2012 EN 61326-3-2:2008	
Degree of protection	IEC 60529:2001	
Ambient conditions		
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)	
Relative humidity	5 ... 90 %, non-condensing up to 35 °C (95 °F)	
Mechanical specifications		
Degree of protection	IP20	
Mass	approx. 140 g	
Dimensions	18 x 114 x 130 mm (0.7 x 4.5 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	CML 17 ATEX 2143X	
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 _m	250 V (Attention! The rated voltage can be lower.)
Equipment	SL2: 5a(+), 5b(-); 1a(+), 1b(-)	
Voltage	U _o	26.2 V
Voltage	U _q	27.25 V
Current	I _o	93 mA

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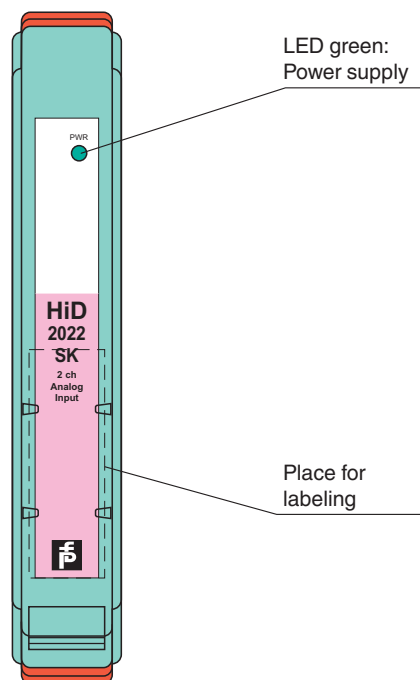
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Technical Data

Power	P _o	634 mW
Equipment		SL2: 5b(+), 7a(-); 1b(+), 3b(-)
Voltage	U _i	30 V
Current	I _i	115 mA
Power	P _i	max 1 W
Voltage	U _o	2 V
Current	I _o	8.5 mA
Power	P _o	4.3 mW
Equipment		SL2: 5a(+), 5b, 7a(-); 1a(+), 1b, 3b(-)
Voltage	U _o	26.2 V
Voltage	U _q	27.25 V
Current	I _o	115 mA
Power	P _o	784 mW
Certificate		CML 17 ATEX 3144X
Marking		Ⓜ II 3G Ex ec IIC T4 Gc
Galvanic isolation		
Input/Output		safe electrical isolation acc. to IEC/EN 60079-11:2007, voltage peak value 375 V
Input/power supply		safe electrical isolation acc. to IEC/EN 60079-11:2007, voltage peak value 375 V
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013 , EN 60079-11:2012 , EN 60079-7:2015
International approvals		
UL approval		
Control drawing		pending
IECEX approval		
IECEX certificate		IECEX CML 17.0072X
IECEX marking		[Ex ia Ga] IIC , [Ex ia Da] IIIC , [Ex ia Ma] I
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



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Application

The device supports the following SMART protocols:

- HART
- BRAIN
- Foxboro