



SMART Transmitter Power Supply HiD2022SK

SIL 2

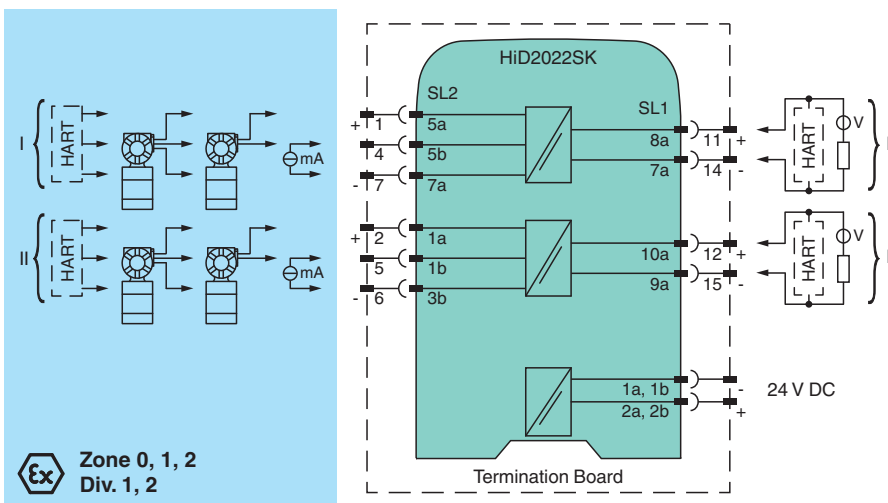
- 2-channel isolated barrier
- 24 V DC supply (bus powered)
- Input 2-wire and 3-wire SMART transmitters and 2-wire SMART current sources
- Output 0/4 mA ... 20 mA current sink
- Up to SIL 2 acc. to IEC 61508



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



Ex Zone 0, 1, 2
Div. 1, 2

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

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Technical Data

Input	
Connection side	field side
Connection	SL2: 5a(+), 5b, 7a(-); 1a(+), 1b, 3b(-)
Input signal	0/4 ... 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	0/4 ... 20 mA (overload > 25 mA)
Ripple	max. 50 μA _{rms}
External supply (loop)	2 ... 30 V DC
Transfer characteristics	
Deviation	at 20 °C (68 °F), 0/4 ... 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	
Directive 2014/30/EU	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 106 x 128 mm (0.7 x 4.2 x 5 inch)
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

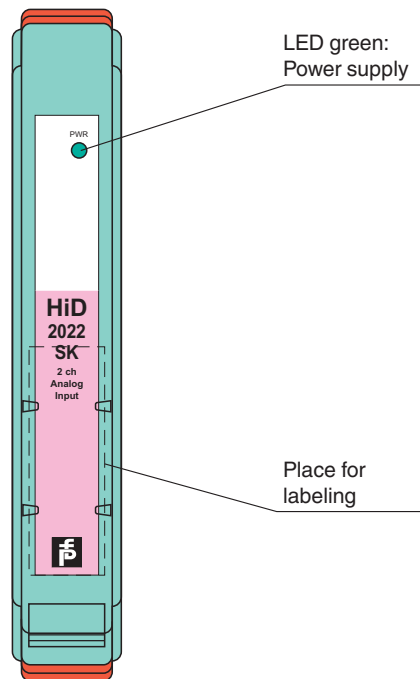
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Technical Data

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 60079-11:2012, voltage peak value 375 V
Input/power supply	safe electrical isolation acc. to IEC/EN 60079-11:2012, 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 CML 17.0072X
Approved for	[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