



SMART Transmitter Power Supply HiD2022

- 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 source
- Up to SIL 2 (SC 3) acc. to IEC/EN 61508



Function

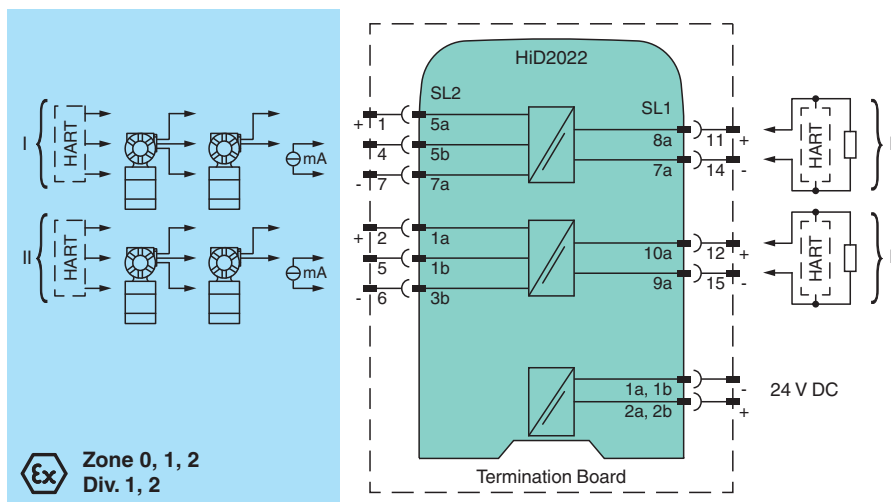
This isolated barrier is used for intrinsic safety applications. The device supplies 2-wire and 3-wire SMART transmitters, and can also be used with 2-wire SMART current sources. It transfers the analog input signal to the safe area as an isolated current value. Digital signals may be superimposed on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

Application

The device supports the following SMART protocols:

- HART
- BRAIN
- Foxboro

Connection



Technical Data

General specifications	
Signal type	Analog input
Functional safety related parameters	
Safety Integrity Level (SIL)	SIL 2
Systematic capability (SC)	SC 3

Release date: 2023-07-31 Date of issue: 2023-07-31 Filename: 239365_eng.pdf

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

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Technical Data

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		$\leq 1.4 \text{ W}$
Power consumption		$\leq 2.6 \text{ W}$
Input		
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		$\geq 16 \text{ V}$ at 20 mA, SL2: 5a(+), 5b(-); 1a(+), 1b(-)
Output		
Connection side		control side
Connection		SL1: 8a(+), 7a(-); 10a(+), 9a(-)
Load		0 ... 650 Ω
Output signal		4 ... 20 mA (overload > 25 mA)
Ripple		max. 50 μA_{rms}
Transfer characteristics		
Deviation		at 20 °C (68 °F), 4 ... 20 mA $\leq 10 \mu\text{A}$ incl. calibration, linearity, hysteresis, loads and fluctuations of supply voltage
Influence of ambient temperature		$\leq 0.25 \mu\text{A/K}$
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 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

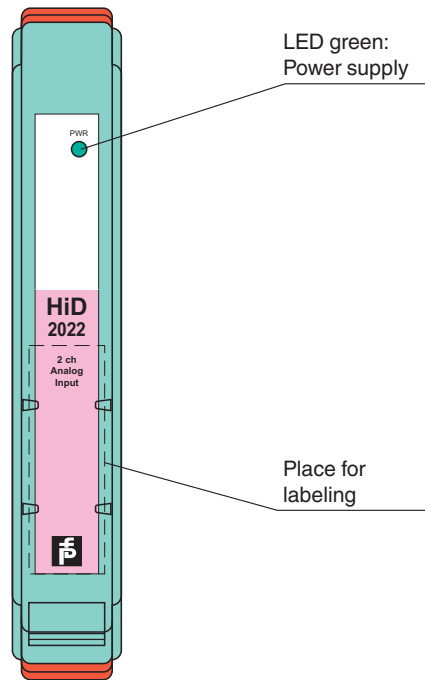
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Technical Data

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
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 IEC 60079-0:2018+AC:2020 , EN 60079-7:2015+A1:2018 , EN 60079-11:2012
International approvals		
IECEx approval		
IECEx certificate		IECEx CML 17.0072X
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



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