Isolating Amplifier

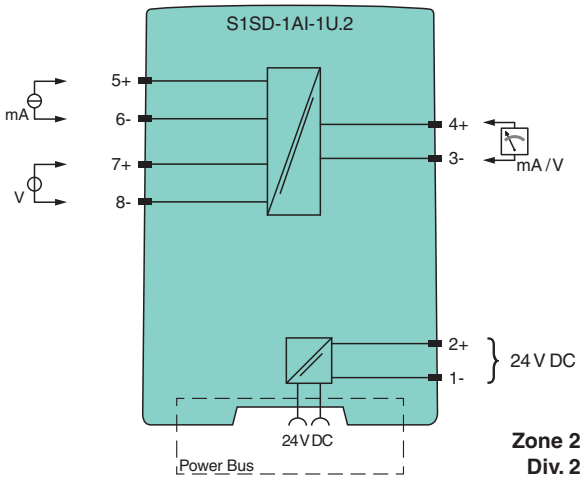
S1SD-1AI-1U.2

- 1-channel signal conditioner
- 24 V DC supply
- Input bipolar current and voltage sources
- Output bipolar current and voltage sources
- Accuracy 0.1 %
- Configurable via DIP switches and potentiometer
- Connection via screw terminals

Function

This signal conditioner provides the galvanic isolation between field circuits and control circuits.
The device has an input for bipolar current and voltage sources.
At the output the signals are available as bipolar current and voltage sources.
The device is easily configured by the use of DIP switches and potentiometers.
The device can be powered via terminals or Power Bus.

Connection



Technical Data

General specifications		
Signal type		Analog input
Operation time		MTBF: 490 a acc. to SN 29500 stationary continuous operating, average ambient temperature 40 °C (104 °F)
Supply		
Connection		Power Bus or terminals 1-, 2+
Rated voltage	U_r	16.8 ... 31.2 V DC
Power dissipation		0.6 W
Power consumption		0.8 W
Input		
Connection side		field side

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Technical Data

Transmission range		linearity range: unipolar -1 ... 110 % bipolar -110 ... 110 %
Input I		
Connection		terminals 5+, 6-
Input signal		0/4 ... 20 mA , 0/2 ... 10 mA , ± 10 mA, ± 20 mA , max. 50 mA
Input resistance		≤ 25 Ω
Input II		
Connection		terminals 7+, 8-
Input signal		0/1 ... 5 V , 0/2 ... 10 V , ± 5 V , ± 10 V , max. 30 V
Input resistance		> 1 MΩ
Output		
Connection side		control side
Connection		terminals 3-, 4+
Analog voltage output		0/1 ... 5 V , 0/2 ... 10 V , ± 5 V, ± 10 V , load ≥ 2 kΩ
Analog current output		0/4 ... 20 mA, ± 10 mA, ± 20 mA, load ≤ 600 Ω
Ripple		≤ 10 mV $_{eff}$
Transfer characteristics		
Accuracy		max. 0.1 % of full-scale value
Influence of ambient temperature		< 100 ppm/K of full-scale value
Frequency range		0 ... 100 Hz , 0 ... 8 kHz
Settling time		7 ms , 100 µs
Galvanic isolation		
Output/power supply		safe electrical isolation by reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V_{eff} test voltage 3 kV, 50 Hz, 1 min
Input/Other circuits		safe electrical isolation by reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V_{eff} test voltage 3 kV, 50 Hz, 1 min
Indicators/settings		
Control elements		DIP switch potentiometer
Configuration		via DIP switches via potentiometer
Labeling		space for labeling at the front
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013 (industrial locations)
Conformity		
Degree of protection		IEC 60529:2001
Protection against electrical shock		EN 61010-1:2010
Ambient conditions		
Ambient temperature		-25 ... 70 °C (-13 ... 158 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
Damaging gas		designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications		
Degree of protection		IP20
Connection		screw terminals
Core cross section		0.5 ... 2.5 mm² (20 ... 14 AWG)
Mass		approx. 70 g
Dimensions		6.2 x 97 x 107 mm (0.24 x 3.82 x 4.21 inch) (W x H x D) , housing type S1
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
Certificate		DEMKO 16 ATEX 1750X
Marking		⟨Ex⟩ II 3G Ex nA IIC T4 Gc
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013 , EN 60079-15:2010

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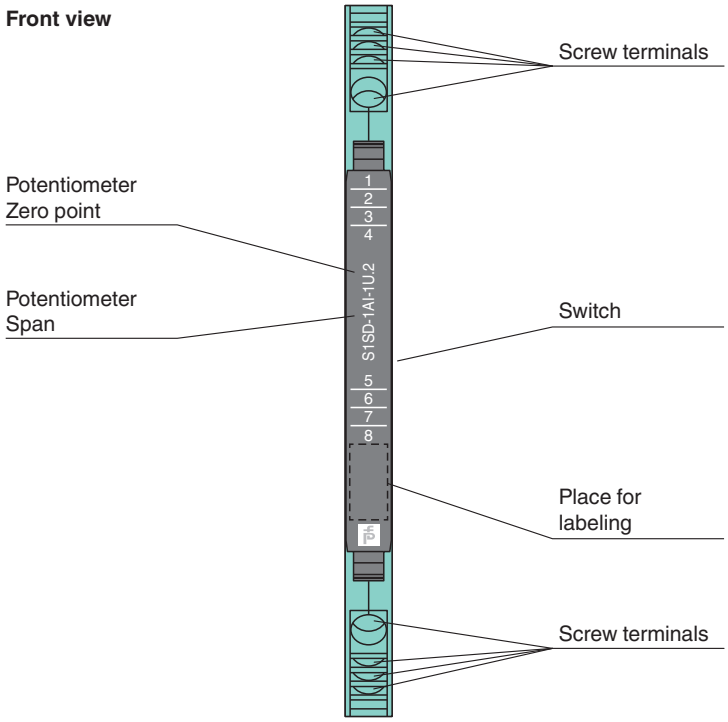
Technical Data

International approvals		
UL approval		E106378
IECEx approval		
IECEx certificate		IECEx UL 16.0116X
IECEx marking		Ex nA 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



Configuration

Switch settings

Input – switch S1						Signal	Output – switch S2					
1	2	3	4	5	6		1	2	3	4	5	6
ON						± 10 V	ON	ON		ON		
						0 ... 10 V	ON	ON				
		ON				2 ... 10 V	ON	ON			ON	
ON	ON					± 5 V	ON	ON	ON	ON		
	ON					0 ... 5 V	ON	ON	ON			
	ON	ON				1 ... 5 V	ON	ON	ON		ON	
ON						± 20 mA				ON		
						0 ... 20 mA						
		ON				4 ... 20 mA					ON	
ON	ON					± 10 mA			ON	ON		
	ON					0 ... 10 mA			ON			
	ON	ON				2 ... 10 mA			ON		ON	
						Filter 8 kHz						
						Filter 100 Hz						ON
				ON		Zero potentiometer active						
					ON	Span potentiometer active						

Factory settings: all switches in position OFF

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Matching System Components

	**S1SD-2PF**	Power Feed Module
	**POWERBUS-SETL5.250**	Power bus for 35 mm DIN mounting rail, height: 7.5 mm, length: 250 mm
	**POWERBUS-SETH5.250**	Power bus for 35 mm DIN mounting rail, height: 15 mm, length: 250 mm
	**POWERBUS-COV.250**	Cover for 35 mm DIN mounting rail, length: 250 mm
	**POWERBUS-CAP**	End Cap for Power Bus

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