

# Isolating Amplifier

## S1SD-1AI-1U.1

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



### Function

This signal conditioner provides the galvanic isolation between field circuits and control circuits. The device has an input for the following signals:

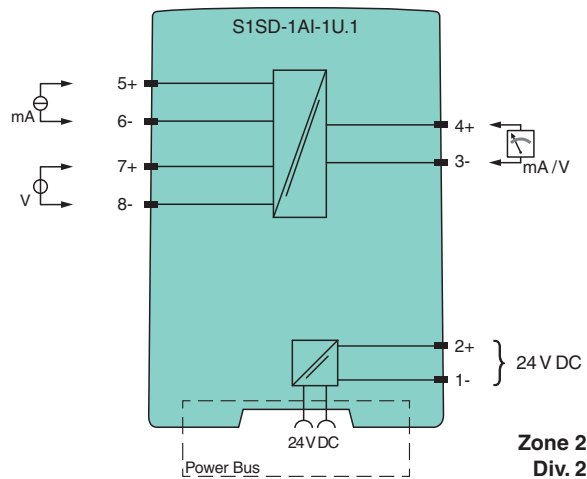
- 0/4 mA ... 20 mA signal
- 0/2 V ... 10 V signal

The device provides the following standard signals at the output:

- 0/4 mA ... 20 mA signal
- 0/2 V ... 10 V signal

The device is easily configured by the use of DIP switches. The device can be powered via terminals or Power Bus.

### Connection



### Technical Data

General specifications	
Signal type	Analog input
Operation time	MTBF: 536 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	0.7 W

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## Technical Data

Input	
Connection side	field side
Transmission range	linearity range: -1 ... 110 %
Input I	
Connection	terminals 5+, 6-
Input signal	0/4 ... 20 mA , max. 50 mA
Input resistance	≤ 25 Ω
Input II	
Connection	terminals 7+, 8-
Input signal	0/2 ... 10 V , max. 30 V
Input resistance	> 100 kΩ
Output	
Connection side	control side
Connection	terminals 3-, 4+
Analog voltage output	0/2 ... 10 V , load ≥ 2 kΩ
Analog current output	0/4 ... 20 mA , load ≤ 600 Ω
Ripple	≤ 10 mV <sub>eff</sub>
Transfer characteristics	
Accuracy	max. 0.1 % of full-scale value
Influence of ambient temperature	< 100 ppm/K of full-scale value
Frequency range	0 ... 10 Hz , 0 ... 100 Hz , 0 ... 5 kHz
Settling time	70 ms , 7 ms , 150 μs
Galvanic isolation	
Output/power supply	safe electrical isolation by reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub> 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 <sub>eff</sub> test voltage 3 kV, 50 Hz, 1 min
Indicators/settings	
Control elements	DIP switch
Configuration	via DIP switches
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 mm <sup>2</sup> (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	Ⓔ II 3G Ex nA IIC T4 Gc
Directive conformity	
Directive 2014/34/EU	EN 60079-0:2012+A11:2013 , EN 60079-15:2010

**Technical Data**

**International approvals**

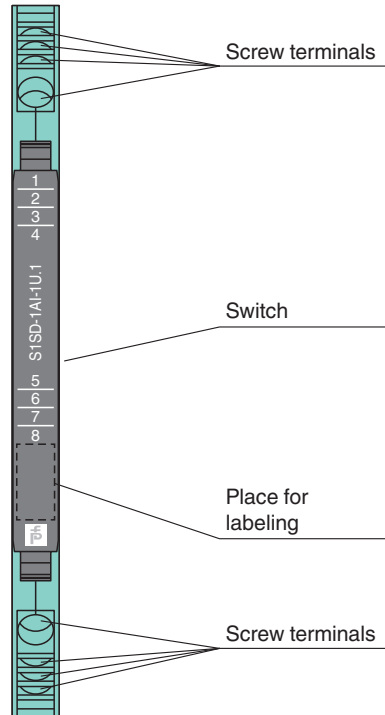
UL approval	E106378
IECEX approval	
IECEX certificate	IECEX UL 16.0116X
IECEX marking	Ex nA IIC T4 Gc

**General information**

Supplementary information Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see [www.pepperl-fuchs.com](http://www.pepperl-fuchs.com).

**Assembly**

Front view



**Configuration**






**Switch Settings**

Input	Output	Switch					
		S1	S2	S3	S4	S5	S6
0 ... 20 mA	0 ... 20 mA						
4 ... 20 mA					ON		
0 ... 10 V					ON		
2 ... 10 V	4 ... 20 mA			ON			
0 ... 20 mA				ON			
4 ... 20 mA				ON			
0 ... 10 V	0 ... 10 V	ON	ON				
4 ... 20 mA		ON	ON		ON		
0 ... 10 V		ON	ON				
2 ... 10 V		ON	ON		ON		
0 ... 20 mA	2 ... 10 V	ON	ON	ON			
4 ... 20 mA		ON	ON				
0 ... 10 V		ON	ON	ON			
2 ... 10 V		ON	ON				
Filter 5 kHz							
Filter 100 Hz					ON		
Filter 10 Hz							ON

Factory settings: all switches in position OFF

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## Matching System Components

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