

Temperature Converter

S1SD-1TI-1U

- 1-channel signal conditioner
- 24 V DC supply
- Thermocouple, RTD, potentiometer or mV input
- Input for PTC thermistor
- Current and voltage output
- Line fault (LFD) and sensor burnout detection
- Accuracy 0.1 %
- Connection via screw terminals



Function

This signal conditioner provides the galvanic isolation between field circuits and control circuits.

The device has an input for signals of the following field devices:

- resistance thermometers
- thermocouples
- PTC thermistors
- potentiometers
- voltage sources
- field device with its own characteristic

The device provides the following standard signals at the output:

- 0/2 mA ... 10 mA signal
- 0/4 mA ... 20 mA signal
- 0/1 V ... 5 V signal
- 0/2 V ... 10 V signal

This device has an integrated cold junction compensation. You can also implement external cold junction compensation.

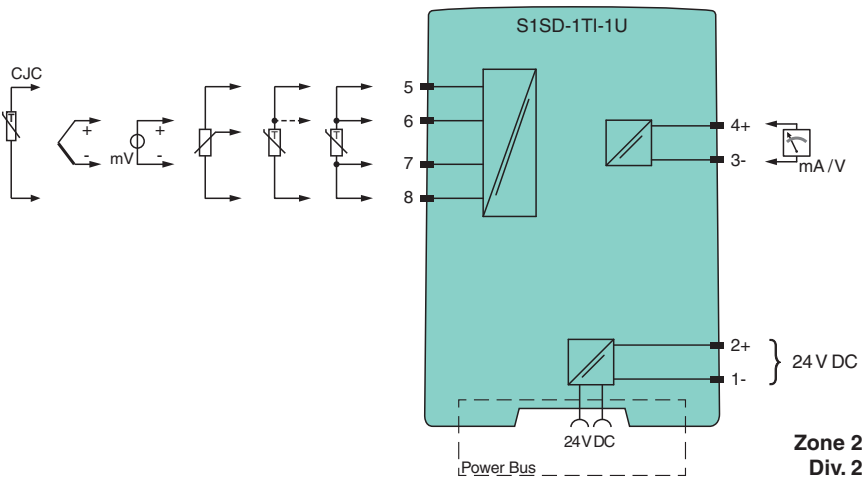
A fault is signalized by LEDs.

The device is easily configured by the use of DIP switches.

The Teach-In function can be used to teach in the potentiometer start value and end value.

The device can be powered via terminals or Power Bus.

Connection



Technical Data

General specifications	
Signal type	Analog input
Operation time	MTBF: 353 a acc. to SN 29500 stationary continuous operating, average ambient temperature 40 °C (104 °F)

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Technical Data

Supply

Connection		Power Bus or terminals 1-, 2+
Rated voltage	U_r	16.8 ... 31.2 V DC
Power dissipation		0.7 W
Power consumption		0.8 W

Interface

Programming interface		programming socket
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Input

Connection side		field side
Connection		terminals 5, 6, 7, 8
PTC		type KT, KTY, ST
Measuring current		approx. 200 μ A
Types of measuring		2-, 3-, 4-wire connection
Lead resistance		$\leq 100 \Omega$ per line
Measurement loop monitoring		sensor breakage, lead breakage, short circuit
RTD		type Pt100, Pt200, Pt500, Pt1000 (EN 60751:1995) type Ni100, Ni200, Ni500, Ni1000 (DIN 43760)
Measuring current		approx. 200 μ A
Types of measuring		2-, 3-, 4-wire connection
Lead resistance		max. 100 Ω per line
Measurement loop monitoring		sensor breakage, lead breakage, short circuit
Thermocouples		type B, E, J, K, N, S, T (IEC 584-1:1995) type L, U (DIN 43710:1985) type C, D (ASTM E988)
Cold junction compensation		external (Pt100) and internal, manually
Lead resistance		max. 10 k Ω
Measurement loop monitoring		sensor breakage, lead breakage
Resistor		
Measurement range		0 ... 5 k Ω
Potentiometer		0.2 ... 50 k Ω
Types of measuring		3-wire connection
Voltage		-100 ... 100 mV -1000 ... 1000 mV
Input resistance		$\geq 1 M\Omega$

Output

Connection side		control side
Connection		terminals 3-, 4+
Analog voltage output		0/1 ... 5 V, 0/2 ... 10 V, load $\geq 2 k\Omega$
Analog current output		0/2 ... 10 mA, 0/4 ... 20 mA, load $\leq 600 \Omega$
Ripple		$\leq 10 mV_{eff}$
Fault signal		downscale or upscale

Transfer characteristics

Accuracy		max. 0.1 % of full-scale value
Measuring time		$\leq 300 ms$
Deviation		
RTD		$< 0.1 K/0.05 \%$ of the measured value
Thermocouples		$< 0.3 K/0.1 \%$ of the measured value
Voltage		$< 0.1 \%$ of the measured value
Potentiometer		$< 0.02 \%$ of the measured value
Influence of ambient temperature		$< 100 ppm/K$ of full-scale value

Galvanic isolation

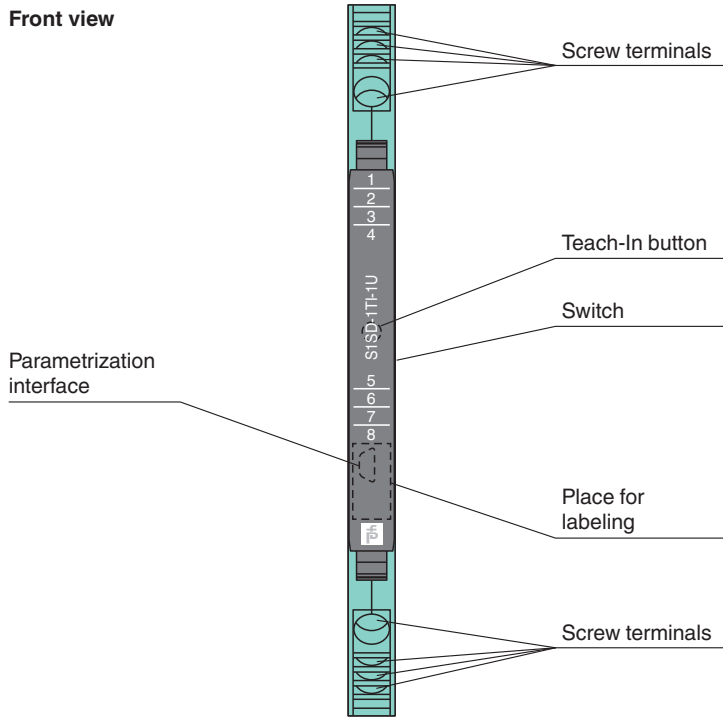
Output/power supply		safe electrical isolation by reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V_{eff} test voltage 3 kV, 50 Hz, 1 min
Input/Other circuits		safe electrical isolation by reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V_{eff} test voltage 3 kV, 50 Hz, 1 min

Technical Data









Indicators/settings	
Control elements	DIP switch keys
Configuration	via DIP switches via keys via software
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 ² (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
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



Matching System Components

	S1SD-2PF	Power Feed Module
	SC-Config	Configuration software
	S-ADP-USB	Adapter with USB Interface
	PACTware 5.0	FDT Framework
	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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