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

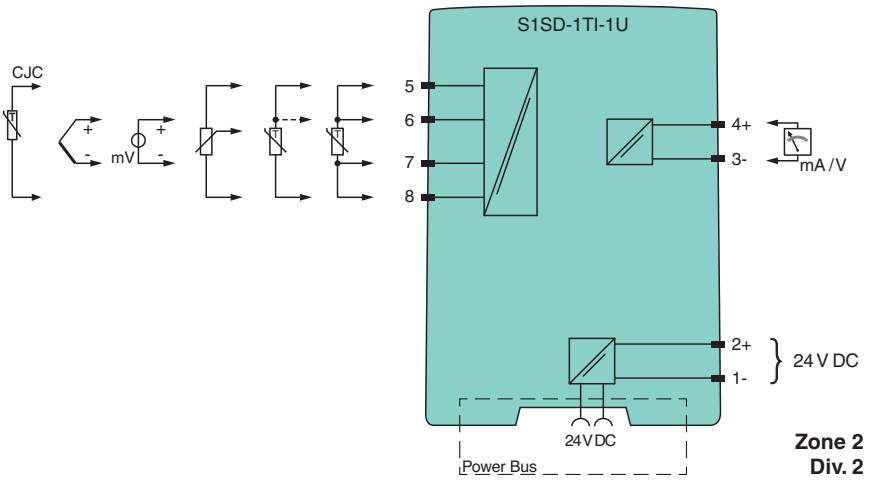
Function

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)

Release date: 2023-03-13 Date of issue: 2023-03-13 Filename: 276400_eng.pdf

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
Input		
Connection side		field side
Connection		terminals 5, 6, 7, 8
PTC		type KT, KTY, ST
Measuring current		approx. 200 µA
Types of measuring		2-, 3-, 4-wire connection
Lead resistance		≤ 100 Ω 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 µA
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 kΩ
Measurement loop monitoring		sensor breakage, lead breakage
Resistor		
Measurement range		0 ... 5 kΩ
Potentiometer		0.2 ... 50 kΩ
Types of measuring		3-wire connection
Voltage		-100 ... 100 mV -1000 ... 1000 mV
Input resistance		≥ 1 MΩ
Output		
Connection side		control side
Connection		terminals 3-, 4+
Analog voltage output		0/1 ... 5 V , 0/2 ... 10 V , load ≥ 2 kΩ
Analog current output		0/2 ... 10 mA, 0/4 ... 20 mA, load ≤ 600 Ω
Ripple		≤ 10 mV_{eff}
Fault signal		downscale or upscale
Transfer characteristics		
Accuracy		max. 0.1 % of full-scale value
Measuring time		≤ 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

Release date: 2023-03-13 Date of issue: 2023-03-13 Filename: 276400_eng.pdf

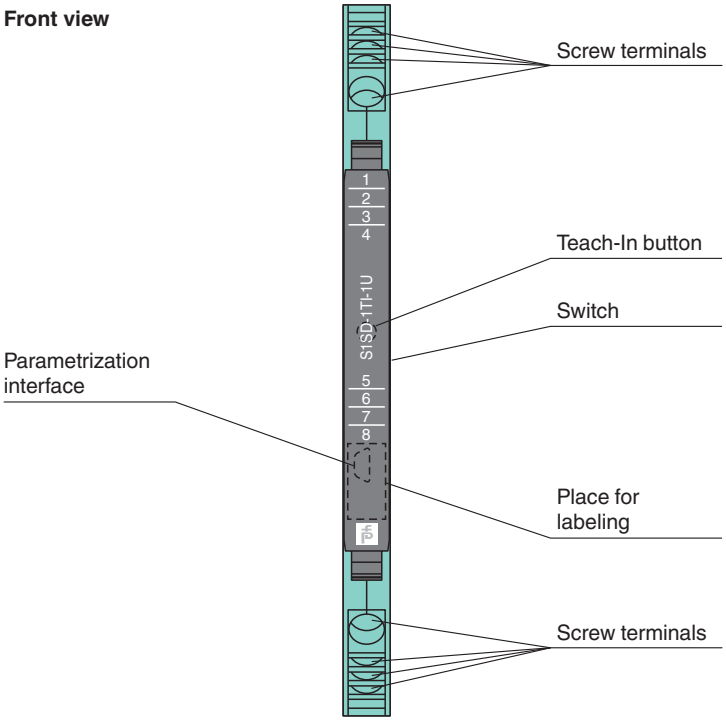
Technical Data

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 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	Ⓔx 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.

Release date: 2023-03-13 Date of issue: 2023-03-13 Filename: 276400_eng.pdf

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

Release date: 2023-03-13 Date of issue: 2023-03-13 Filename: 276400_eng.pdf