

Brief Instructions

Temperature Converter S1SD-1TI-1U

1

Configuration Using DIP Switches

Use the switches to configure the device. Via the switches you can select only a limited number of sensors. A wider range of sensors you can select via software configuration. The following options are available:

Input	Switch S1				
	1	2	3	4	5
Pt100					
Pt1000	ON				
Ni100		ON			
Resistor	ON		ON		
4-wire					
3-wire				ON	
2-wire					ON
Potentiometer	ON		ON	ON	ON
Typ J	ON	ON			
Typ K			ON		
CJC internal					
CJC external				ON	
CJC OFF					ON
+100 mV		ON	ON		
+1000 mV		ON	ON		ON
PC programming	ON	ON	ON		

Start value				Switch S1					
Temp	Res	Poti	mV	6	7	8	9	10	
-200 °C	0 Ω	0 %	-100 mV	ON					
-175 °C	50 Ω	1 %	-90 mV		ON				
-150 °C	100 Ω	2 %	-80 mV	ON	ON				
-125 °C	150 Ω	3 %	-70 mV			ON			
-100 °C	200 Ω	4 %	-60 mV	ON		ON			
-75 °C	250 Ω	5 %	-50 mV		ON	ON			
-50 °C	300 Ω	6 %	-45 mV	ON	ON	ON			
-25 °C	350 Ω	7 %	-40 mV				ON		
0 °C	400 Ω	8 %	-35 mV						
25 °C	450 Ω	9 %	-30 mV	ON			ON		
50 °C	500 Ω	10 %	-25 mV		ON		ON		
75 °C	550 Ω	11 %	-20 mV	ON	ON		ON		
100 °C	600 Ω	12 %	-15 mV			ON	ON		
125 °C	650 Ω	13 %	-10 mV	ON		ON	ON		
150 °C	700 Ω	14 %	-5 mV		ON	ON	ON		
175 °C	750 Ω	15 %	0 mV	ON	ON	ON	ON		
200 °C	800 Ω	20 %	5 mV					ON	
225 °C	850 Ω	25 %	10 mV	ON				ON	
250 °C	900 Ω	30 %	15 mV		ON			ON	
275 °C	950 Ω	35 %	20 mV	ON	ON			ON	
300 °C	1000 Ω	40 %	25 mV			ON		ON	
350 °C	1500 Ω	45 %	30 mV	ON		ON		ON	
400 °C	2000 Ω	50 %	35 mV		ON	ON		ON	
450 °C	2500 Ω	55 %	40 mV	ON	ON	ON		ON	
500 °C	3000 Ω	60 %	45 mV				ON	ON	

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2

Start value				Switch S1				
Temp	Res	Poti	mV	6	7	8	9	10
550 °C	3500 Ω	65 %	50 mV	ON			ON	ON
600 °C	4000 Ω	70 %	60 mV		ON		ON	ON
650 °C	4500 Ω	75 %	70 mV	ON	ON		ON	ON
700 °C	–	80 %	80 mV			ON	ON	ON
800 °C	–	85 %	90 mV	ON		ON	ON	ON
900 °C	–	90 %	–		ON	ON	ON	ON
1000 °C	–	Teach-In	–	ON	ON	ON	ON	ON

End value				Switch S2					
Temp	Res	Poti	mV	1	2	3	4	5	6
-150 °C	100 Ω	10 %	–	ON					
-125 °C	150 Ω	15 %	–		ON				
-100 °C	200 Ω	20 %	–	ON	ON				
-75 °C	250 Ω	25 %	–			ON			
-50 °C	300 Ω	30 %	–	ON		ON			
-25 °C	350 Ω	35 %	–		ON	ON			
0 °C	400 Ω	40 %	–	ON	ON	ON			
25 °C	450 Ω	45 %	–				ON		
50 °C	500 Ω	46 %	–	ON			ON		
75 °C	550 Ω	47 %	–		ON		ON		
100 °C	600 Ω	48 %	100 mV						
125 °C	650 Ω	49 %	95 mV	ON	ON		ON		
150 °C	700 Ω	50 %	90 mV			ON	ON		
175 °C	750 Ω	51 %	85 mV	ON		ON	ON		
200 °C	800 Ω	52 %	80 mV		ON	ON	ON		
225 °C	850 Ω	53 %	75 mV	ON	ON	ON	ON		
250 °C	900 Ω	54 %	70 mV					ON	
275 °C	950 Ω	55 %	65 mV	ON				ON	
300 °C	1000 Ω	56 %	60 mV		ON			ON	
325 °C	1050 Ω	57 %	55 mV	ON	ON			ON	
350 °C	1100 Ω	58 %	50 mV			ON		ON	
375 °C	1150 Ω	59 %	45 mV	ON		ON		ON	
400 °C	1200 Ω	60 %	40 mV		ON	ON		ON	
425 °C	1250 Ω	61 %	35 mV	ON	ON	ON		ON	
450 °C	1300 Ω	62 %	30 mV				ON	ON	
475 °C	1400 Ω	63 %	25 mV	ON			ON	ON	
500 °C	1500 Ω	64 %	20 mV		ON		ON	ON	
525 °C	1600 Ω	65 %	15 mV	ON	ON		ON	ON	
550 °C	1700 Ω	66 %	10 mV			ON	ON	ON	
575 °C	1800 Ω	67 %	5 mV	ON		ON	ON	ON	
600 °C	1900 Ω	68 %	0 mV		ON	ON	ON	ON	
625 °C	2000 Ω	69 %	-5 mV	ON	ON	ON	ON	ON	
650 °C	2100 Ω	70 %	-10 mV						ON
675 °C	2200 Ω	71 %	-15 mV	ON					ON
700 °C	2300 Ω	72 %	-20 mV		ON				ON
725 °C	2400 Ω	73 %	-25 mV	ON	ON				ON
750 °C	2500 Ω	74 %	-30 mV			ON			ON
775 °C	2600 Ω	75 %	-35 mV	ON		ON			ON
800 °C	2700 Ω	76 %	-40 mV		ON	ON			ON
825 °C	2800 Ω	77 %	-45 mV	ON	ON	ON			ON
850 °C	2900 Ω	78 %	-50 mV				ON		ON

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End value				Switch S2					
Temp	Res	Poti	mV	1	2	3	4	5	6
875 °C	3000 Ω	79 %	-55 mV	ON			ON		ON
900 °C	3100 Ω	80 %	-60 mV		ON		ON		ON
925 °C	3200 Ω	81 %	-65 mV	ON	ON		ON		ON
950 °C	3300 Ω	82 %	-70 mV			ON	ON		ON
975 °C	3400 Ω	83 %	-75 mV	ON		ON	ON		ON
1000 °C	3500 Ω	84 %	-80 mV		ON	ON	ON		ON
1025 °C	3600 Ω	85 %	-85 mV	ON	ON	ON	ON		ON
1050 °C	3700 Ω	86 %	-90 mV					ON	ON
1075 °C	3800 Ω	87 %	-	ON				ON	ON
1100 °C	3900 Ω	88 %	-		ON			ON	ON
1125 °C	4000 Ω	89 %	-	ON	ON			ON	ON
1150 °C	4100 Ω	90 %	-			ON		ON	ON
1175 °C	4200 Ω	91 %	-	ON		ON		ON	ON
1200 °C	4300 Ω	92 %	-		ON	ON		ON	ON
1225 °C	4400 Ω	93 %	-	ON	ON	ON		ON	ON
1250 °C	4500 Ω	94 %	-				ON	ON	ON
1275 °C	4600 Ω	95 %	-	ON			ON	ON	ON
1300 °C	4700 Ω	96 %	-		ON		ON	ON	ON
1325 °C	4800 Ω	97 %	-	ON	ON		ON	ON	ON
1350 °C	4900 Ω	98 %	-			ON	ON	ON	ON
1375 °C	5000 Ω	99 %	-	ON		ON	ON	ON	ON
1400 °C	-	100 %	-		ON	ON	ON	ON	ON
1425 °C	-	Teach-In	-	ON	ON	ON	ON	ON	ON

Output	Switch S2			
	7	8	9	10
0 ... 5 V	ON	ON		
0 ... 10 V		ON		
0 ... 20 mA				
4 ... 20 mA	ON			
Characteristic				
rising				
falling			ON	
Diagnostics				
downscale				ON
upscale				

Factory settings: all switches in position OFF

Configuration Using Software

Use software to configure the device. Configuration must be permitted by setting the switches. See table.

The device is equipped with a programming socket on the front. A corresponding adapter is available as an accessory. This adapter can be used to configure the device. The software is available to download from www.pepperl-fuchs.com.

The following options are available:

- You can choose from a wider range of sensor types.
- You can adjust the start value and end value in smaller increments.

Fault Signals on the Output

Characteristic	Diagnostics	Output range ¹	Underrange	Overrange	Fault signal
rising S2.9 = OFF	upscale S2.10 = OFF	0 ... 20 mA 4 ... 20 mA 0 ... 5 V 0 ... 10 V	0 mA 3.8 mA 0 V 0 V	20.5 mA 20.5 mA 5.125 V 10.25 V	22 mA 22 mA 5.5 V 11 V
	downscale S2.10 = ON	0 ... 20 mA 4 ... 20 mA 0 ... 5 V 0 ... 10 V	0 mA 4 mA 0 V 0 V	20 mA 20 mA 5 V 10 V	0 mA 4 mA 0 V 0 V
falling S2.9 = ON	upscale S2.10 = OFF	20 ... 0 mA 20 ... 4 mA 5 ... 0 V 10 ... 0 V	20.5 mA 20.5 mA 5.125 V 10.25 V	0 mA 3.8 mA 0 V 0 V	22 mA 22 mA 5.5 V 11 V
	downscale S2.10 = ON	20 ... 0 mA 20 ... 4 mA 5 ... 0 V 10 ... 0 V	20 mA 20 mA 5 V 10 V	0 mA 4 mA 0 V 0 V	0 mA 4 mA 0 V 0 V

¹ Other output ranges react analogous to the table.

LED Indicators

LED	Status	Description
green LED	Off	No power supply
	On	Normal function
red LED	Flashing rapidly	Device is in teach-in mode
	Flashing slowly	Line fault or faulty teach-in
	On	Device fault

Teach-In Function

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

There are two ways of teaching in the potentiometer using the teach-in function:

- Automatic teach-in of the device in drag mode
- Manual teach-in of the start value and end value

The taught-in values remain stored under the teach-in setting. The start value is 0 % and the end value is 100 % by default.

> Starting the Teach-in Function

Use the teach-in button located behind the cover on the front of the device to teach in the device.

(1) Configure the device using the DIP switches on the side of the device.

(2) Press and hold the teach-in button for longer than 3 seconds.

↳ The red LED will flash rapidly.

(3) Automatic teach-in: Move to the start value and end value. Both values are automatically recorded in the device.

or

Manual teach-in: Move to the first end stop and press and hold the teach-in button for around 0.5 seconds.

Move to the second end stop and press and hold the teach-in button for around 0.5 seconds.

> Ending the Teach-In Function, Saving the Start Value and the End Value

Press and hold the teach-in button for longer than 3 seconds.

↳ The red LED no longer flashes. The values are saved.

> Ending the Teach-In Function without Saving the Start Value and the End Value

Press and hold the teach-in button for longer than 6 seconds.

or

Switch off the device.

↳ The red LED no longer flashes. The values are not saved.

Teach-In Fault

If the span between the start value and the end value is too small, the red LED will flash slowly again after saving the values.

Possible reasons for this include:

- The slider has not moved in drag mode.
- The second end stop is too close to the first end stop.

In the event of an fault, the teach-in function must be performed again in its entirety.