

Switch Amplifier

S1SD-1DI-1R

- 1-channel signal conditioner
- 24 V DC supply
- Input for 2- or 3-wire sensors or AC/DC voltage sources
- Relay contact output
- Timer function
- Configurable by DIP switches
- Connection via screw terminals



Function

This signal conditioner provides the galvanic isolation between field circuits and control circuits. The device transmits the status of 2- and 3-wire sensors to the relay output.

The device has an input for the following digital signals:

- Mechanical contacts
- 2-wire sensors (NAMUR, SN, DC, S0)
- 3-wire sensors (NPN, PNP, push-pull)
- AC/DC voltage sources

The input is reverse polarity protected and short-circuit proofed.

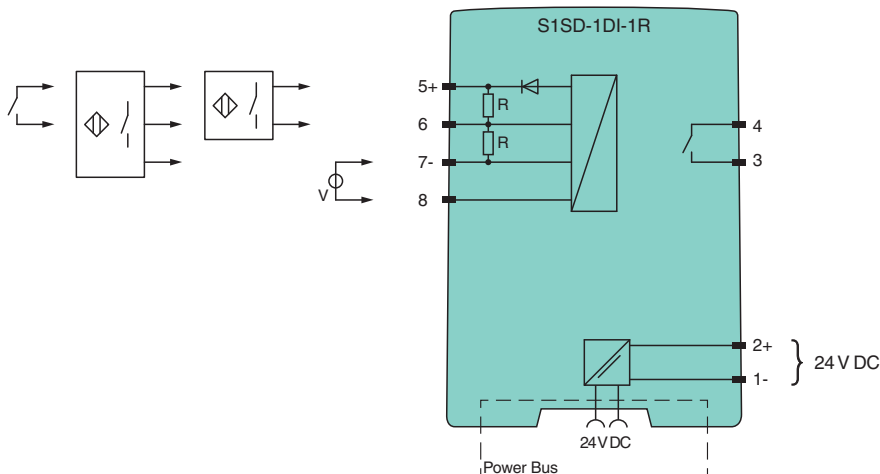
The connected sensors can also be supplied externally.

The device has an adjustable on delay, an off delay, or an one-shot function for the relay contact output.

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	Digital Input	
Supply		
Connection	Power Bus or terminals 1-, 2+	
Rated voltage	U_r	16.8 ... 31.2 V DC
Power dissipation	0.6 W	

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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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Technical Data

Power consumption	1.1 W
Input	
Connection side	field side
NAMUR sensor	
Type	2-wire
Connection	terminals 5+, 6
Signal	acc. to EN 60947-5-6 (NAMUR)
Sensor supply	8 V
Open-circuit	< 0.1 mA
Switching point	1.2 ... 2.1 mA
Short-circuit	> 6 mA
Input impedance	1 kΩ
Mechanical contact	
Type	2-wire
Connection	terminals 5+, 6
Sensor supply	15 V
External supply	≤ 32 V
Switching point	8 ... 10 V / 1.2 ... 2.1 mA
Input impedance	4 kΩ
SN sensor	
Type	2-wire
Connection	terminals 5+, 6
Sensor supply	8 V
Open-circuit	< 0.1 mA
Switching point	1.2 ... 2.1 mA
Short-circuit	> 6 mA
Input impedance	1 kΩ
2-wire DC sensor	
Type	2-wire
Connection	terminals 5+, 6
Signal	acc. to EN 60947-5-2
Sensor supply	16 V / 25 mA , short-circuit protected
External supply	≤ 32 V
Switching point	2 ... 5 mA
Input impedance	1 kΩ
S0 sensor	
Type	2-wire
Connection	terminals 5+, 6
Signal	acc. to EN 62053-31 , Type B
Sensor supply	15 V
Switching point	0.15 ... 2 mA
Input impedance	4 kΩ
NPN sensor	
Type	3-wire
Connection	terminals 5+, 6, 7-
Signal	acc. to EN 60947-5-2
Sensor supply	16 V / 25 mA , short-circuit protected
External supply	≤ 32 V
Switching point	3 ... 5 V
Input impedance	4 kΩ
PNP sensor	
Type	3-wire
Connection	terminals 5+, 6, 7-

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Technical Data

Signal	acc. to EN 60947-5-2
Sensor supply	16 V / 25 mA , short-circuit protected
External supply	≤ 32 V
Switching point	8 ... 10 V
Input impedance	4 kΩ
AC/DC voltage source	
Connection	terminals 7, 8
Signal	24 V AC/DC
Switching point	10 ... 15 V
Input impedance	> 680 kΩ
AC/DC voltage source	
Connection	terminals 7, 8
Signal	115 V AC/DC
Switching point	40 ... 60 V
Input impedance	> 680 kΩ
AC/DC voltage source	
Connection	terminals 7, 8
Signal	230 V AC/DC
Switching point	80 ... 115 V
Input impedance	> 680 kΩ
Output	
Connection side	control side
Connection	terminals 3, 4:
Output	signal, relay
Contact loading	253 V AC/2 A/cos φ > 0.7; 126.5 V AC/2 A/cos φ > 0.7; 30 V DC/2 A resistive load
Minimum switch current	2 mA / 24 V DC
Energized/De-energized delay	≤ 20 ms / ≤ 20 ms
Mechanical life	10 ⁷ switching cycles
Transfer characteristics	
Switching frequency	≤ 10 Hz
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
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)
Low voltage	
Directive 2014/35/EU	EN 61010-1:2010
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

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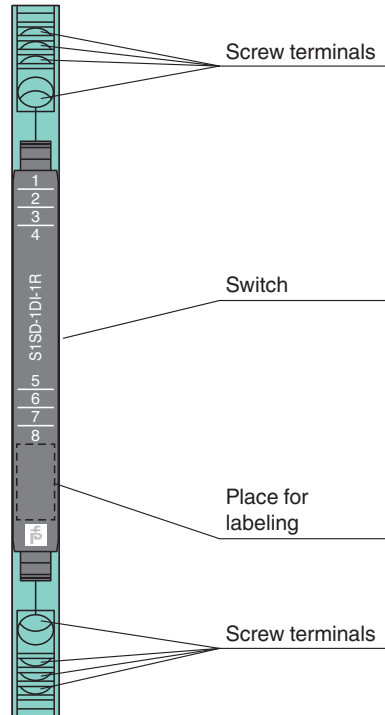

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Technical Data

Connection	screw terminals
Core cross section	0.5 ... 2.5 mm ² (20 ... 14 AWG)
Mass	approx. 60 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
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

Function	Switch									
	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
Sensor										
NAMUR/SN sensor										
PNP sensor/mechanical contact/push-pull	ON									
2-wire DC sensor		ON								
NPN sensor	ON	ON								
S0 sensor			ON							
AC sources										
24 V	ON		ON							
120 V		ON	ON							
230 V	ON	ON	ON							
Output										
Not inverted										
Inverted				ON						
Timer										
Timer off						ON				
On delay							ON			
Off delay					ON					
One-shot					ON	ON				
Time T										
0.5 s										






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Configuration

Function	Switch									
	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
1 s							ON			
5 s								ON		
10 s							ON	ON		

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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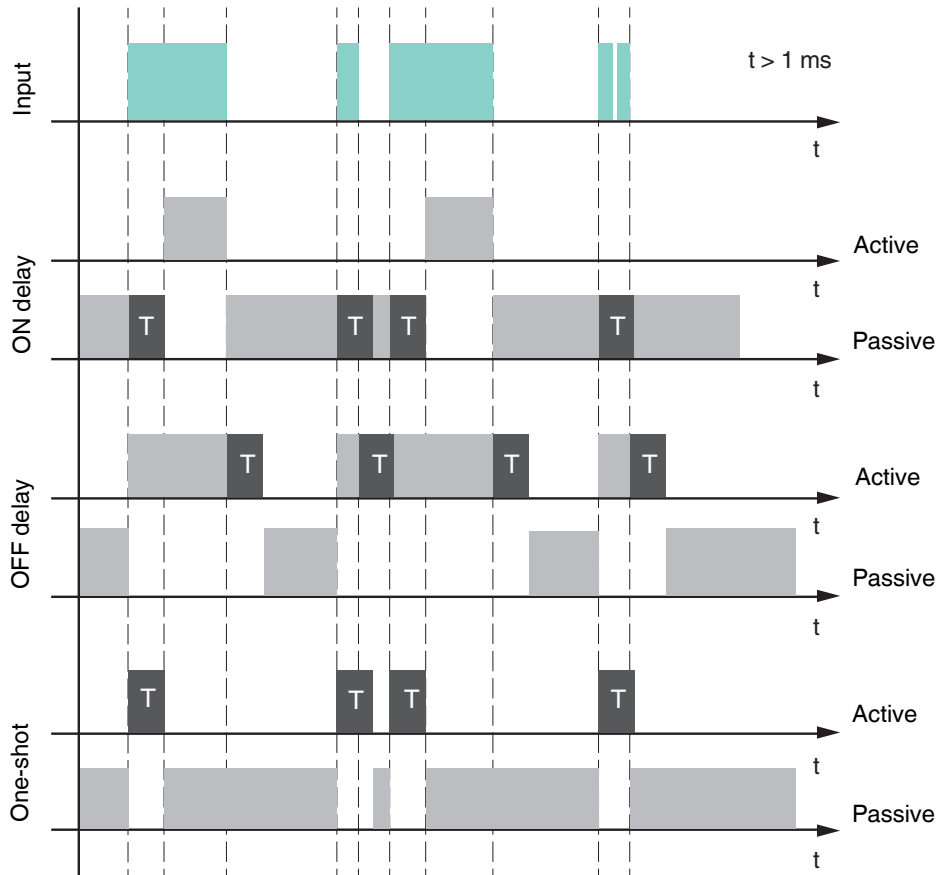
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Characteristic Curve

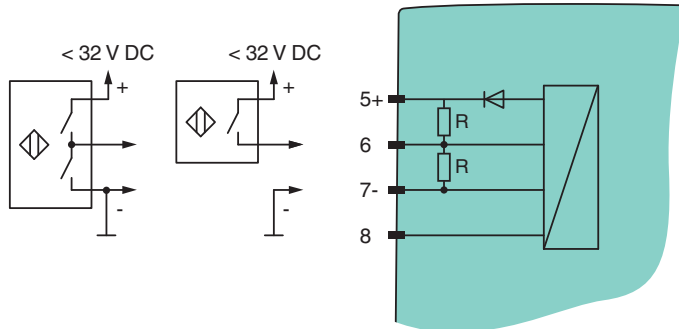
Timer Function



Connection

External Supply

For mechanical contacts, 2-wire DC sensors and 3-wire sensors



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