

# PSR-M-EF7-SAI4-SC - Extension module



1104985

<https://www.phoenixcontact.com/us/products/1104985>

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Safe extension module with 4 safe analog inputs, 0 V ... 10 V; 0 mA or 4 mA ... 20 mA; TBUS interface, up to Cat. 4/PL e, SIL 3, plug-in screw terminal block, TBUS connector included

## Product description

The configurable and individually scalable PSRmodular safety system is a flexible safety solution for monitoring your machine or system. The safe extension module provides the system with additional safe analog inputs.

## Your advantages

- Cost-effective safety solution with a high level of adaptability to individual requirements
- Fast startup, thanks to easy hardware and software configuration
- Machine downtimes minimized with comprehensive, easy-to-understand diagnostics
- Low housing width of just 22.6 mm
- Up to Cat. 4/PL e in accordance with ISO 13849-1, SIL 3 in accordance with EN IEC 62061, SIL 3 in accordance with IEC 61508
- Suitable for elevator applications in accordance with EN 81-20

## Commercial data

Item number	1104985
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN02
Product key	DNA362
GTIN	4055626971063
Weight per piece (including packing)	208 g
Weight per piece (excluding packing)	160 g
Customs tariff number	85371098
Country of origin	IT

## Technical data

### Notes

#### Note on application

Note on application	Only for industrial use
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### Product properties

Product type	Safety device
Application	Analog IN
Control	1 and 2 channel

#### Insulation characteristics

Protection class	III
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#### Insulation characteristics

Overtoltage category	II
Degree of pollution	2

#### Times

Response time	see user manual
Restart time	min. 5 s (Boot time)
	max. 10 s (Boot time)

### Electrical properties

Maximum power dissipation for nominal condition	2.76 W (with max. permissible load)
Nominal operating mode	100% operating factor
Interfaces	DIN rail TBUS for connection to the master module, supplied as standard
Rated surge voltage/insulation	Basic insulation 4 kV between all current paths and housing
	Electrical isolation, 0.5 kV functional insulation between logic and analog inputs and between the analog inputs

### Supply

Designation	A1/A2
Rated control circuit supply voltage $U_S$	19.2 V DC ... 28.8 V DC
Rated control circuit supply voltage $U_S$	24 V DC -20 % / +20 % (external fuse, typically 6 A)
Rated control supply current $I_S$	typ. 82 mA (without sensor supply)
	typ. 212 mA (with sensor supply)
Power consumption at $U_S$	typ. 1.96 W (without sensor supply)
	typ. 5.08 W (with sensor supply)
Inrush current	max. 14 A ( $\Delta t = 1$ ms at $U_S$ )
Filter time	typ. 5 ms (in the event of voltage dips at $U_S$ )
Protective circuit	Serial protection against polarity reversal

### Input data

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## Analog

Input name	IN S1, IN S2, IN S3, IN S4
Description of the input	Safety-oriented analog inputs, configurable as current or voltage inputs, galvanically isolated
Number of inputs	4
Connection technology	2-conductor, 3-conductor or 4-conductor (2-conductor sensor signal + 2-conductor sensor supply)
Note regarding the connection technology	shielded
Scanning rate	2.5/5/10/16.6/20/50/60/100/200/400/800/1000/2000/4000 Hz
Current input signal	0 mA ... 25 mA (Measuring range) 0 mA ... 20 mA (Configurable measuring range with diagnostics range 20.1 mA ... 23 mA) 4 mA ... 20 mA (Configurable measuring range with diagnostics range 20.1 mA ... 23 mA (upper limit), 2.5 mA ... 3.8 mA (lower limit))
Voltage input signal	0 V ... 12 V (Measuring range) 0 V ... 10 V (Configurable measuring range with diagnostics range 10.05 V ... 11.5 V (upper limit), 0.1 V (lower limit))
Max. permissible current	max. 35 mA (as current input)
Permissible voltage	max. 24 V (as current input) max. 14 V (as voltage input)
Input resistance current input	290 Ω ±25 % (incl. internal protective circuit)
Input resistance of voltage input	185 kΩ ±25 %
A/D converter resolution	16 bit
Resolution (current)	381 nA
Resolution (voltage)	152 μV
Precision	typ. ± 2 % (as current input, relative to the measuring range final value) max. ± 2.5 % (as current input) typ. ± 1 % (as voltage input, relative to the measuring range final value) max. ± 1.5 % (as voltage input)
Temperature coefficients	typ. ± 0.07 %/K max. ± 0.07 %/K
Limit frequency (3 dB)	160 Hz (RC low pass, 1st order, as current input) 4 Hz (RC low pass, as voltage input)
Frequency	see user manual
Permissible cable length	max. 100 m (per input)
Protective circuit	Overload protection of the current inputs Overload protection of the voltage inputs

## Output data

Sensor supply: OUT S1/0V ...OUT S4/0V

Description	Sensor supply voltage per analog input
Supply voltage	24 V DC ±3 %

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Current	max. 30 mA (Sensor current recording per channel)
Short-circuit-proof	yes
Protective circuit	Overload protection Overload detection at $\geq 14$ mA

## Connection data

### Connection technology

pluggable	yes
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### Conductor connection

Connection method	Screw connection
Conductor cross-section rigid	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross-section flexible	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross-section AWG	24 ... 12
Stripping length	7 mm
Screw thread	M3
Tightening torque	0.5 Nm ... 0.6 Nm

## Signaling

Status display	4 x LED (yellow, red)
Operating voltage display	1 x LED (green)

## Dimensions

Width	22.61 mm
Height	112.58 mm
Depth	113.6 mm

## Material specifications

Color (Housing)	yellow (RAL 1018)
Housing material	Polyamide PA non-reinforced

## Characteristics

### Safety data

Stop category (EN 60204-1)	0
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### Safety data: EN ISO 13849

Performance level (PL)	e (2-channel wiring) d (1-channel wiring)
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### Safety data: IEC 61508 - High-demand for 2-channel wiring

Safety Integrity Level (SIL)	3
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### Safety data: IEC 61508 - High-demand for 1-channel wiring

Safety Integrity Level (SIL)	2
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### Safety data: EN IEC 62061

Safety Integrity Level (SIL)	3 (2-channel wiring)
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	2 (1-channel wiring)
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## Environmental and real-life conditions

### Ambient conditions

Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Ambient temperature (operation)	-10 °C ... 55 °C (observe derating)
Ambient temperature (storage/transport)	-20 °C ... 85 °C
Maximum altitude	≤ 2000 m (Above sea level)
Max. permissible humidity (storage/transport)	95 % (non-condensing)
Max. permissible relative humidity (operation)	95 % (non-condensing)
Shock	10g for $\Delta t = 16$ ms (continuous shock, 1000 shocks in each space direction)
Vibration (operation)	10 Hz ... 150 Hz, 2g

## Approvals

### CE

Identification	CE-compliant
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## Mounting

Mounting type	DIN rail mounting
Assembly note	Observe derating
Mounting position	vertical or horizontal

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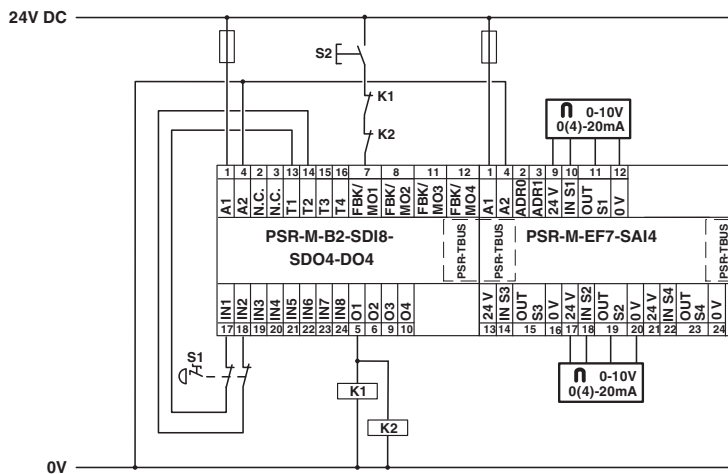


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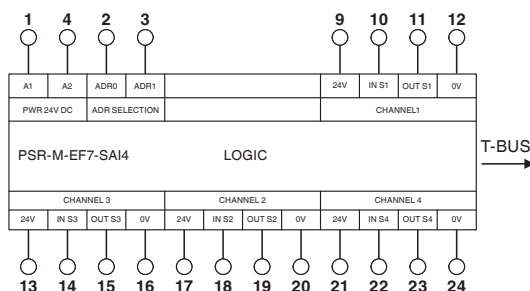
## Drawings

Application drawing



Example application

Block diagram



Block diagram

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## Approvals

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### Functional Safety

Approval ID: Z10029429 0013Rev.02

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## Classifications

### ECLASS

ECLASS-13.0	27371819
ECLASS-15.0	27371819
ECLASS-15.0 ASSET	27250101

### ETIM

ETIM 10.0	EC001449
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### UNSPSC

UNSPSC 21.0	39122200
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## Environmental product compliance

### EU RoHS

Fulfills EU RoHS substance requirements	Yes, No exemptions
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### China RoHS

Environment friendly use period (EFUP)	EFUP-E
	No hazardous substances above the limits

### EU REACH SVHC

REACH candidate substance (CAS No.)	No substance above 0.1 wt%
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Phoenix Contact USA  
586 Fulling Mill Road  
Middletown, PA 17057, United States  
(+717) 944-1300  
[info@phoenixcon.com](mailto:info@phoenixcon.com)