

PSR-M-EF7-SAI4-PI - Extension module



1104986

<https://www.phoenixcontact.com/us/products/1104986>

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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 Push-in 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
- Tool-free and time-saving installation thanks to Push-in technology
- 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	1104986
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN02
Product key	DNA362
GTIN	4055626974804
Weight per piece (including packing)	193.1 g
Weight per piece (excluding packing)	145 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

Overvoltage 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 \pm 25 % (incl. internal protective circuit)
Input resistance of voltage input	185 k Ω \pm 25 %
A/D converter resolution	16 bit
Resolution (current)	381 nA
Resolution (voltage)	152 μ V
Precision	typ. \pm 2 % (as current input, relative to the measuring range final value) max. \pm 2.5 % (as current input) typ. \pm 1 % (as voltage input, relative to the measuring range final value) max. \pm 1.5 % (as voltage input)
Temperature coefficients	typ. \pm 0.07 %/K max. \pm 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	12 Hz (max. recommended sensor signal frequency, as current input) 2 Hz (max. recommended sensor signal frequency, as voltage input)
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

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Description	Sensor supply voltage per analog input
Supply voltage	24 V DC $\pm 3\%$
Current	max. 30 mA (Sensor current recording per channel)
Short-circuit-proof	yes
Protective circuit	Overload protection Overload detection at ≥ 1.4 mA

Connection data

Connection technology

pluggable	yes
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Conductor connection

Connection method	Push-in connection
Conductor cross-section rigid	0.2 mm ² ... 2.5 mm ²
Conductor cross-section flexible	0.2 mm ² ... 2.5 mm ²
Conductor cross-section AWG	24 ... 14
Stripping length	10 mm

Signaling

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

Dimensions

Width	22.61 mm
Height	107.74 mm
Depth	113.6 mm

Material specifications

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

Characteristics

Safety data

Stop category	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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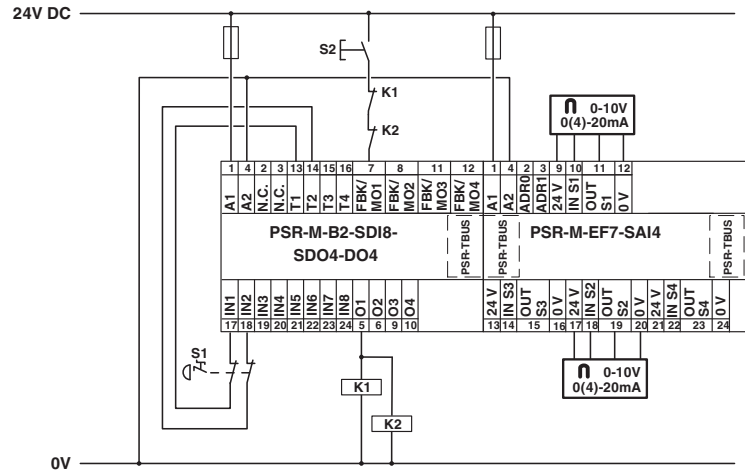
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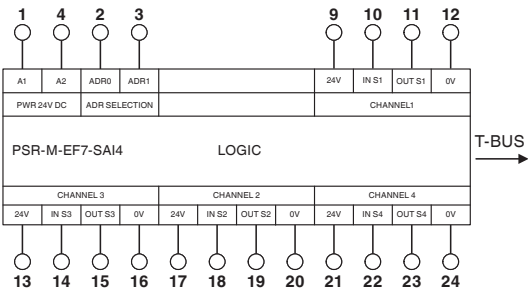
Drawings

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 9.0	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
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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