Extension module - PSR-M-EF7-SAI4-SC - 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 SILCL 3, 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

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

Key Commercial Data

Packing unit	1 pc
GTIN	4 055626 971063
GTIN	4055626971063
Weight per Piece (excluding packing)	200.000 g
Custom tariff number	85371098
Country of origin	Italy

Technical data

Dimensions

Width	22.61 mm

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Technical data

Dimensions

Height	112.58 mm
Depth	113.6 mm

Ambient conditions

Ambient temperature (operation)	-10 °C ... 55 °C (observe derating)
Ambient temperature (storage/transport)	-20 °C ... 85 °C
Max. permissible relative humidity (operation)	95 % (non-condensing)
Max. permissible humidity (storage/transport)	95 % (non-condensing)
Maximum altitude	≤ 2000 m (Above sea level)

Power supply

Designation	A1/A2
Rated control circuit supply voltage U_S	24 V DC -20 % / +20 % (external fuse, typically 6 A)
	19.2 V DC ... 28.8 V DC
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 (Δt = 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
	Suppressor diode

Analog inputs

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))

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Analog inputs

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 %
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	20 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	Suppressor diode
	Overload protection of the current inputs
	Overload protection of the voltage inputs

Sensor supply

Designation	OUT S1/0V ...OUT S4/0V
Description	Sensor supply voltage per analog input
Supply voltage	24 V DC ±3 %
Current	max. 30 mA (Sensor current recording per channel)
Short-circuit-proof	yes
Protective circuit	Overload protection Overload detection at # 38 mA

Times

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

General

Nominal operating mode	100% operating factor

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Technical data

General

Net weight	160 g
Mounting position	vertical or horizontal
Mounting type	DIN rail mounting
Assembly instructions	Observe derating
Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Protection class	III (EN 50178)
Housing material	Polyamide PA non-reinforced
Housing color	yellow
Operating voltage display	1 x green LED
Status display	4x LED (yellow, red)

Connection data

Connection method	Screw connection
pluggable	Yes
Conductor cross section solid	0.2 mm² ... 2.5 mm²
Conductor cross section flexible	0.2 mm² ... 2.5 mm²
Conductor cross-section AWG	24 ... 12
Stripping length	7 mm
Screw thread	M3
Torque	0.5 Nm ... 0.6 Nm

Safety-related characteristic data

Stop category	0
Designation	IEC 61508 - High-demand for 2-channel wiring
Safety Integrity Level (SIL)	3
Designation	IEC 61508 - High-demand for 1-channel wiring
Safety Integrity Level (SIL)	2
Designation	EN ISO 13849
Performance level (PL)	e (2-channel wiring)
	d (1-channel wiring)
Designation	EN 62061
Safety Integrity Level Claim Limit (SIL CL)	3 (2-channel wiring)
	2 (1-channel wiring)

Standards and Regulations

Designation	Air clearances and creepage distances between the power circuits
Standards/regulations	EN 50178
Rated insulation voltage	250 V AC

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Standards and Regulations

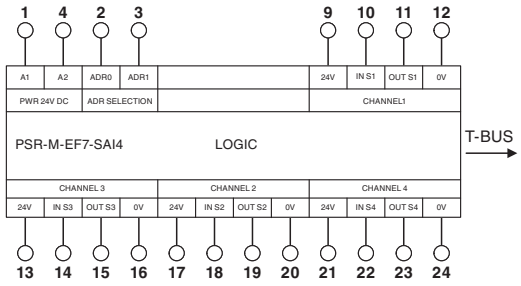
Rated surge voltage/insulation	Basic insulation 4 kV between all current paths and housing
	Electrical isolation, 0.5 kV functional insulation between logic and analog inputs and between the analog inputs
Degree of pollution	2
Overvoltage category	II
Shock	10g for Δt = 16 ms (continuous shock, 1000 shocks in each space direction)
Vibration (operation)	10 Hz ... 150 Hz, 2g
Conformance	CE-compliant

Environmental Product Compliance

China RoHS	Environmentally friendly use period: unlimited = EFUP-e
	No hazardous substances above threshold values

Drawings

Block diagram



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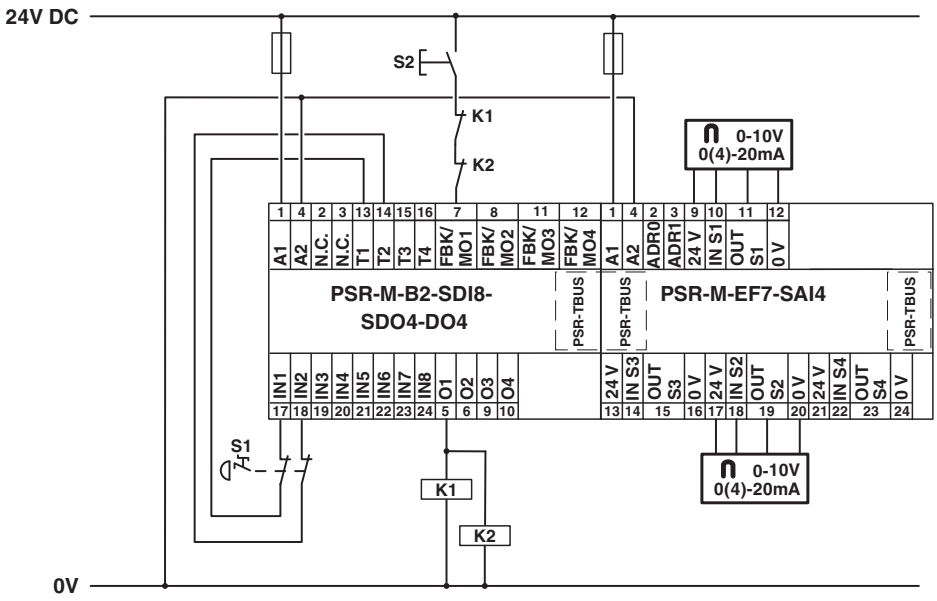
Application drawing



Classifications

eCl@ss

eCl@ss 10.0.1	27371819
eCl@ss 11.0	27371819
eCl@ss 9.0	27371819

Accessories

Accessories

Coding element

Coding profile - CP-MSTB - 1734634

Coding profile, is inserted into the slot on the plug or inverted header, red insulating material

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Accessories

Coding section - CR-MSTB - 1734401

Coding section, inserted into the recess in the header or the inverted plug, red insulating material