

PSR-M-EF4-SDO4-DO4-SC - Extension module



1104856

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Safe extension module with 4 safe outputs (0.4 A), 4 reset inputs, 4 signal outputs, TBUS interface, up to SIL 3, cat. 4/PL e, 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 additional safe outputs as well as signal outputs.

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
- Narrow 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	1104856
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN02
Product key	DNA362
GTIN	4055626971056
Weight per piece (including packing)	192.2 g
Weight per piece (excluding packing)	159 g
Customs tariff number	85371098
Country of origin	IT

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Technical data

Notes

Note on application

Note on application	Only for industrial use
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Product properties

Product type	Safety device
Application	Safe shutdown

Data management status

Article revision	00
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Insulation characteristics

Protection class	III
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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	6.67 W (with max. permissible load)
Nominal operating mode	100% operating factor
Interfaces	DIN rail TBUS for connection to the master module, supplied as standard

Air clearances and creepage distances between the power circuits

Rated insulation voltage	250 V AC
Rated surge voltage/insulation	Basic insulation 4 kV between 24 V power supply and I/Os to the housing

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. 30 mA (Outputs inactive)
	typ. 55 mA (Outputs active, without load)
Power consumption at U_S	typ. 0.72 W (Outputs inactive)
Inrush current	< 10 A ($\Delta t = 1$ ms at U_S)
Filter time	typ. 5 ms (at A1 in the event of voltage dips at U_S)
Protective circuit	Serial protection against polarity reversal

Supply

Designation	24V/0V
Rated control circuit supply voltage U_S	24 V DC -20 % / +20 % (provide external protection, typically 5 A)

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Rated control supply current I_S	See supply A1/A2
Inrush current	10 A ($\Delta t = 1$ ms at U_S)
Filter time	typ. 1 ms (in the event of voltage dips)
Protective circuit	Serial protection against polarity reversal

Input data

Digital: Reset inputs (FBK1, FBK2, FBK3, FBK4)

Description of the input	IEC 61131-2 type 3
Number of inputs	4
Input voltage range "0" signal	0 V DC ... 5 V DC
Input voltage range "1" signal	11 V DC ... 28.8 V DC
Input current range "0" signal	< 1 mA
Filter time	250 ms $\pm$ 2 ms (Test pulse rate > 500 ms)
Cable length	max. 100 m (per input)
Max. permissible overall conductor resistance	1.2 k Ω (Input and reset circuit at U_S)
Current consumption	typ. 10 mA (typ. with U_S) max. 13 mA (at a control voltage of 28.8 V DC)

Output data

Digital: O1A, O1B, O2A, O2B, O3A, O3B, O4A, O4B

Output description	Safety-related digital outputs PNP, OSSD IEC 61131-2 type 0.5 (observe limiting continuous current)
Number of outputs	8 (can be used as 4 two-channel outputs)
Short-circuit protection	Yes (self-limitation at 1.1 A)
Leakage current	max. 500 μ A
Cable length	max. 100 m (per output)
Ohmic load	min. 50 Ω (Observe limiting continuous current)
Max. capacitive load	max. 680 nF
Max. inductive load	max. 1.4 mH
Limiting continuous current	400 mA (per channel) 3.2 A (Total current of all safe digital outputs)
Inrush current	max. 750 mA ($\Delta t \leq \text{⏏}$ s)
Nominal output voltage	24 V DC (Supply via A1)
Nominal output voltage range	18 V DC ... 27.6 V DC ($U_S - 1.2$ V)
Switching frequency	max. $1/4 \times t_{\text{Cycle}}$ [Hz]
Output voltage when switched off	< 0.1 V
Test pulses	< 80 μ s (Test pulse width of low test pulses) Test pulse rate for low test pulses > $2 \times T_{\text{Cycle}}$ < 20 μ s (Test pulse width, high test pulse) ≥ 1.5 s (Test pulse rate, high test pulse)
Discharging circuit	Yes, internal

Signal: MO1, MO2, MO3, MO4

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Output description	PNP, IEC 61131-2 Typ 0,1
	non-safety-related
	Reference ground A2/0V
Number of outputs	4
Output voltage when switched off	max. 0.1 V
Voltage	24 V DC (via A1)
Maximum inrush current	1.1 A ($\Delta t = 3 \text{ s}$ at U_s)
Limiting continuous current	100 mA (per channel)
	400 mA (Total current of all digital signal outputs)
Leakage current	max. 100 μA
Switching frequency	max. $1/4 \times t_{\text{Cycle}}$ [Hz]
Short-circuit protection	Yes (self-limitation at 1.1 A)
Cable length	max. 100 m (per output)

Connection data

Connection technology

pluggable	yes
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Conductor connection

Connection method	Screw 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 ... 12
Stripping length	7 mm
Screw thread	M3
Tightening torque	0.5 Nm ... 0.6 Nm

Signaling

Status display	1 x LED (green), 2 x LED (orange)
	8 x LED (yellow)
	4 x LED (green, red)
Operating voltage display	1 x green LED
Error indication	2 x LED (red)

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

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Safety data

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

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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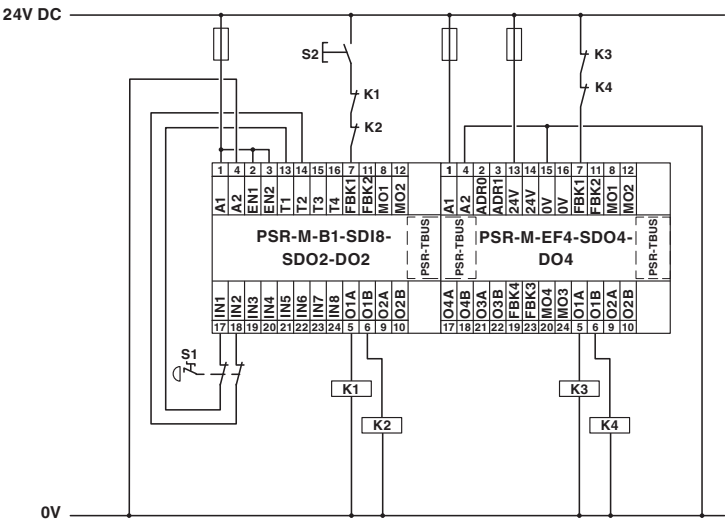
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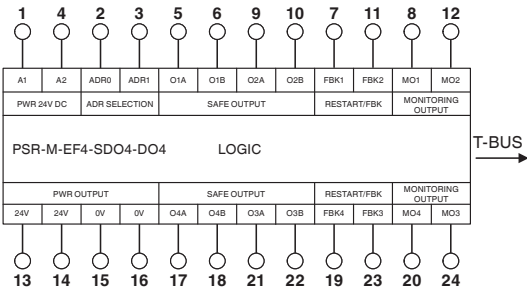


Drawings

Application drawing



Block diagram



Block diagram

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Approvals

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UL Listed
Approval ID: E238705



cUL Listed
Approval ID: E238705



Functional Safety
Approval ID: Z10 029429 0013

cULus Listed

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Classifications

ECLASS

ECLASS-11.0	27371819
ECLASS-13.0	27371819
ECLASS-12.0	27371819

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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Phoenix Contact USA
586 Fulling Mill Road
Middletown, PA 17057, United States
(+717) 944-1300
info@phoenixcon.com