

## Extension module - PSR-M-EF3-SDI12-MAT-PI - 1104884

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Safe extension module with 12 safe inputs for monitoring safety shut-off mats and switching strips, TBUS interface, up to SILCL 3, Cat. 4/PL e, SIL 3, pluggable 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 inputs to monitor safety shut-off mats and switching capacity.

### 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
- ✓ Tool-free and time-saving installation with Push-in technology
- ✓ Narrow housing width of just 22.6 mm
- ✓ 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



### Key Commercial Data

|                                      |   |
|--------------------------------------|---|
| Packing unit                         | 1 pc  |
| GTIN                                 | <br>4 055626 973067 |
| GTIN                                 | 4055626973067   |
| Weight per Piece (excluding packing) | 180.000 g   |
| Custom tariff number                 | 85371098  |
| Country of origin                    | Italy   |

### Technical data

#### Dimensions

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### Technical data

#### Dimensions

|        |           |
|--------|-----------|
| Width  | 22.61 mm  |
| Height | 107.74 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 4 A)      |
|  | 19.2 V DC ... 28.8 V DC                                   |
| Rated control supply current $I_S$         | typ. 53 mA  |
| Power consumption at $U_S$                 | typ. 1.27 W   |
| Inrush current                             | < 2 A ( $\Delta t = 1.5$ ms at $U_S$ )                    |
| Filter time                                | typ. 10 ms (at A1 in the event of voltage dips at $U_S$ ) |
| Protective circuit                         | Serial protection against polarity reversal               |
|  | Suppressor diode  |

#### Digital inputs

|   |  |
|---|--|
| Input name                                    | IN1, IN2, IN3, IN4, IN5, IN6, IN7, IN8, IN9, IN10, IN11, IN12      |
| Description of the input                      | Safety-related digital inputs                                      |
|   | IEC 61131-2 Type 2   |
| Number of inputs                              | 12   |
| 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   |
| Current consumption                           | typ. 7.5 mA (typically with $U_S$ )                                |
|   | max. 9.5 mA (at a control voltage of 28.8 V DC)                    |
| Filter time                                   | min. 3 ms ±2 ms (adjustable)                                       |
|   | max. 250 ms ±2 ms (adjustable)                                     |
|   | Test pulse rate ≥ 2x set filter time, min. Test pulse rate = 10 ms |
| Max. permissible overall conductor resistance | max. 1.2 kΩ (Input and reset circuit at $U_S$ )                    |
| Cable length                                  | max. 100 m (per input)   |
| Protective circuit/component                  | Suppressor diode   |

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#### Clock outputs

|                                  |   |
|----------------------------------|---|
| Designation                      | T1, T2, T3, T4, T5, T6, T7, T8  |
| Output description               | PNP, IEC 61131-2 Typ 0,1  |
| Number of outputs                | 8   |
| Voltage                          | 24 V DC (via A1)  |
| Nominal voltage range            | 18.2 V DC ... 27.8 V DC ( $U_S - 1 V$ )   |
| Output voltage when switched off | max. 0.1 V  |
| Maximum inrush current           | 1.1 A ( $\Delta t = 3 s$ at $U_S$ )   |
| Limiting continuous current      | 100 mA (per channel)<br>800 mA (Total current of all outputs)                         |
| Leakage current                  | max. 100 $\mu A$  |
| Cable length                     | max. 100 m (per output)   |
| Max. capacitive load             | max. 470 nF   |
| Max. inductive load              | max. 2.4 mH   |
| Test pulses                      | $\leq 200 \mu s$ (Test pulse duration)<br>Test pulse rate = $8 \times t_{cycle}$ [ms] |
| Protective circuit/component     | Suppressor diode  |
| Short-circuit protection         | Yes (self-limitation at 1.1 A)  |
| Discharging circuit              | Yes, internal   |

#### Times

|               |   |
|---------------|---|
| Response time | see user manual                               |
| Restart time  | min. 5 s (Boot time)<br>max. 10 s (Boot time) |
| Cycle time    | see user manual                               |

#### General

|   |                                   |
|---|-----------------------------------|
| Nominal operating mode                      | 100% operating factor             |
| Net weight                                  | 141 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                            | PBT                               |
| Housing color                               | yellow                            |
| Operating voltage display                   | 1 x green LED                     |
| Status display                              | 1 x LED (green), 2 x LED (orange) |

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### Technical data

#### General

|            |                   |
|------------|-------------------|
|            | 12 x LED (yellow) |
| Indication | 2 x LED (red)     |

#### Connection data

|                                  |   |
|----------------------------------|---|
| Connection method                | Push-in connection                          |
| pluggable                        | Yes   |
| Conductor cross section solid    | 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 ... 16                                   |
| Stripping length                 | 10 mm                                       |

#### 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   |
| Rated surge voltage/insulation | Basic insulation 4 kV between 24 V power supply and I/Os to the housing            |
| Degree of pollution            | 2  |
| Overvoltage category           | II   |
| Shock                          | 10g for $\Delta t = 16$ ms (continuous shock, 1000 shocks in each space direction) |
| Vibration (operation)          | 10 Hz ... 150 Hz, 2g   |
| Conformance                    | CE-compliant   |

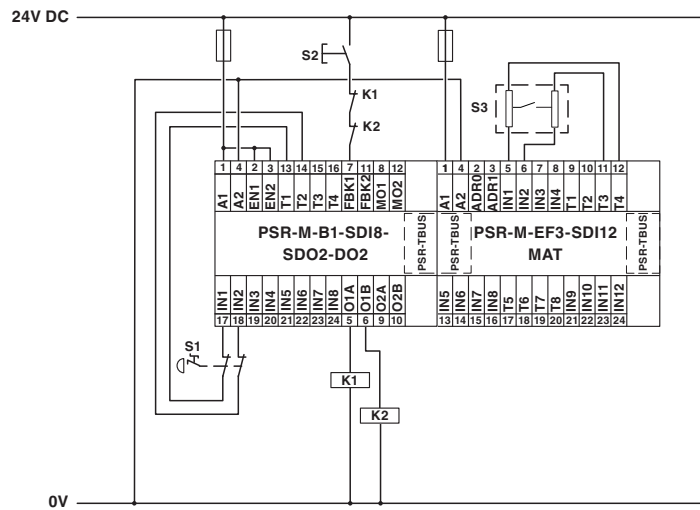
#### Environmental Product Compliance

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

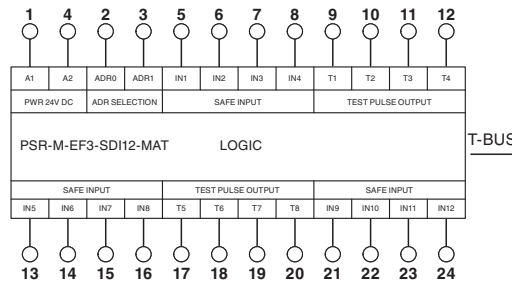
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## Drawings

Application drawing



Block diagram



## Classifications

eCl@ss

|               |          |
|---------------|----------|
| eCl@ss 10.0.1 | 27371819 |
| eCl@ss 11.0   | 27371819 |
| eCl@ss 9.0    | 27371819 |

## Approvals

Approvals

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## Approvals

Approvals

UL Listed / cUL Listed / cULus Listed

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Ex Approvals

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## Approval details

|              |  |   |               |
|--------------|--|---|---------------|
| UL Listed    |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 238705 |
| cUL Listed   |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 238705 |
| cULus Listed |  |   |               |

## 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



Coding section - CR-MSTB - 1734401

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



