

## Safety relays - PSR-SCP- 24DC/SDC4/2X1/B - 2981486

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Safety relay for emergency stop, safety door, and magnetic switches, as well as light grid, up to SIL 3 or Cat. 4, PL e according to EN ISO 13849, 2 N/O contacts, TBUS interface, automatic or manual activation, plug-in screw connection terminal blocks

### Why buy this product

- Up to Cat. 4/PL e according to ISO 13849-1, SILCL 3 according to IEC 62061, SIL 3 according to IEC 61508
- Single and two-channel control
- 2 enabling current paths, 1 signaling current path
- For emergency stop and safety door monitoring, plus evaluation of light grids
- Modular system with TBUS extension



### Key Commercial Data

|                                      |   |
|--------------------------------------|---|
| Packing unit                         | 1 STK   |
| GTIN                                 | <br>4 046356 051682 |
| GTIN                                 | 4046356051682   |
| Weight per Piece (excluding packing) | 196.900 g   |
| Custom tariff number                 | 85371099  |
| Country of origin                    | Germany   |

### Technical data

#### Note

|                         |   |
|-------------------------|---|
| Utilization restriction | EMC: class A product, see manufacturer's declaration in the download area |
|-------------------------|---|

#### Dimensions

|        |          |
|--------|----------|
| Width  | 22.5 mm  |
| Height | 99 mm    |
| Depth  | 114.5 mm |

#### Ambient conditions

# Safety relays - PSR-SCP- 24DC/SDC4/2X1/B - 2981486

## Technical data

### Ambient conditions

|  |   |
|--|---|
| Ambient temperature (operation)                | -20 °C ... 55 °C                                    |
| Ambient temperature (storage/transport)        | -40 °C ... 70 °C                                    |
| Max. permissible relative humidity (operation) | 75 % (on average, 85% infrequently, non-condensing) |
| Max. permissible humidity (storage/transport)  | 75 % (on average, 85% infrequently, non-condensing) |
| Maximum altitude                               | ≤ 2000 m (Above sea level)                          |

### Input data

|   |  |
|---|--|
| Nominal input voltage $U_N$                   | 24 V DC  |
| Input voltage range in reference to $U_N$     | 0.85 ... 1.1                                     |
| Typical input current at $U_N$                | 70 mA  |
| Voltage at input/start and feedback circuit   | approx. 24 V DC                                  |
| Typical response time                         | 20 ms (manual start)<br>150 ms (automatic start) |
| Typical release time                          | 10 ms  |
| Recovery time                                 | 1 s  |
| Max. permissible overall conductor resistance | 50 Ω (Input and start circuits at $U_N$ )        |

### Output data

|  |   |
|--|---|
| Contact type                                 | 2 enabling current paths<br>1 semiconductor signaling output  |
| Contact material                             | AgSnO <sub>2</sub>  |
| Minimum switching voltage                    | 15 V AC/DC  |
| Maximum switching voltage                    | 250 V AC/DC   |
| Limiting continuous current                  | 6 A (N/O contact)<br>100 mA (signal output)   |
| Inrush current, minimum                      | 25 mA   |
| Maximum inrush current                       | 6 A   |
| Sq. Total current                            | $72 A^2 (I_{TH}^2 = I_1^2 + I_2^2)$   |
| Interrupting rating (ohmic load) max.        | 144 W (24 V DC, $\tau = 0$ ms)<br>288 W (48 V DC, $\tau = 0$ ms)<br>77 W (110 V DC, $\tau = 0$ ms)<br>88 W (220 V DC, $\tau = 0$ ms)<br>1500 VA (250 V AC, $\tau = 0$ ms) |
| Maximum interrupting rating (inductive load) | 48 W (24 V DC, $\tau = 40$ ms)<br>40 W (48 V DC, $\tau = 40$ ms)<br>35 W (110 V DC, $\tau = 40$ ms)<br>33 W (220 V DC, $\tau = 40$ ms)                                    |
| Switching capacity min.                      | 0.4 W   |
| Output fuse                                  | 10 A gL/gG NEOZED (N/O contact)<br>Miniature circuit breaker C6 (24 V / 20 A power supply unit)   |

### General

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### Technical data

#### General

|   |   |
|---|---|
| Relay type                                  | Electromechanical relay with forcibly guided contacts in accordance with EN 50205 |
| Mechanical service life                     | Approx. 10 <sup>7</sup> cycles  |
| Nominal operating mode                      | 100% operating factor   |
| Net weight                                  | 196.9 g   |
| Mounting type                               | DIN rail mounting   |
| Mounting position                           | any   |
| Degree of protection                        | IP54  |
|   | IP20  |
| Min. degree of protection of inst. location | IP54  |
| Control                                     | one and two channel   |
| Housing color                               | yellow  |

#### Connection data

|                                       |                     |
|---------------------------------------|---------------------|
| Connection method                     | Screw connection    |
| pluggable                             | Yes                 |
| Conductor cross section solid min.    | 0.2 mm <sup>2</sup> |
| Conductor cross section solid max.    | 2.5 mm <sup>2</sup> |
| Conductor cross section flexible min. | 0.2 mm <sup>2</sup> |
| Conductor cross section flexible max. | 2.5 mm <sup>2</sup> |
| Conductor cross section AWG min.      | 24                  |
| Conductor cross section AWG max.      | 12                  |
| Stripping length                      | 7 mm                |
| Screw thread                          | M3                  |

#### Safety-related characteristic data

|   |                         |
|---|-------------------------|
| Stop category                               | 0                       |
| Designation                                 | IEC 61508 - High demand |
| Safety Integrity Level (SIL)                | 3                       |
| Designation                                 | IEC 61508 - Low demand  |
| Safety Integrity Level (SIL)                | 3                       |
| Designation                                 | EN ISO 13849            |
| Performance level (PL)                      | e                       |
| Category                                    | 4 (Undelayed contacts)  |
| Designation                                 | EN 62061                |
| Safety Integrity Level Claim Limit (SIL CL) | 3                       |

#### Standards and Regulations

|                                |  |
|--------------------------------|--|
| Designation                    | Air clearances and creepage distances between the power circuits   |
| Standards/regulations          | DIN EN 50178/VDE 0160  |
| Rated insulation voltage       | 250 V  |
| Rated surge voltage/insulation | 4 kV / Basic isolation, (safe isolation, reinforced insulation and 6 kV between input circuit and enabling current paths.) |

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## Technical data

### Standards and Regulations

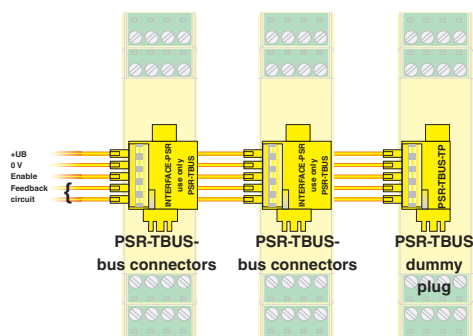
|                      |     |
|----------------------|-----|
| Degree of pollution  | 2   |
| Overvoltage category | III |

### Environmental Product Compliance

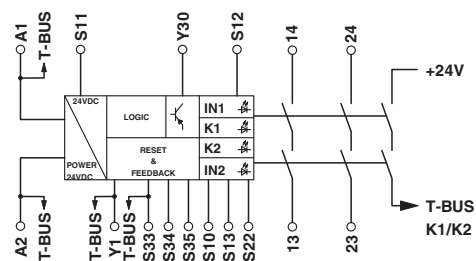
|            |   |
|------------|---|
| China RoHS | Environmentally Friendly Use Period = 50  |
|            | For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration" |

## Drawings

Connection diagram



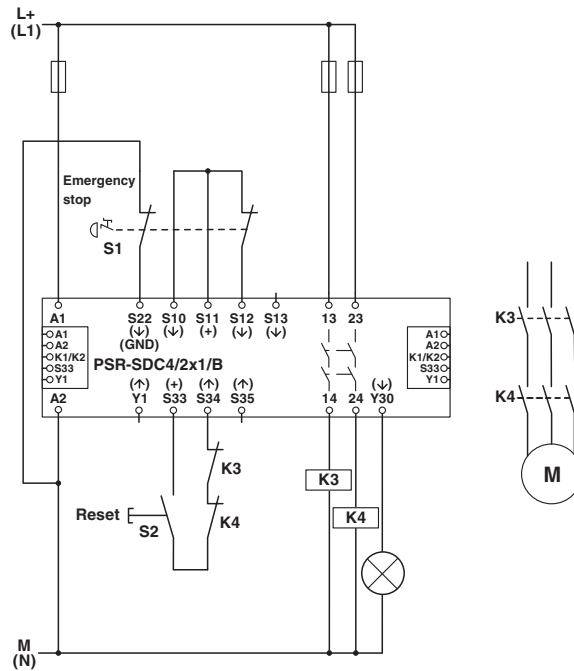
Circuit diagram



PSR-TBUS DIN rail connectors are used for cross-wiring between the modules.

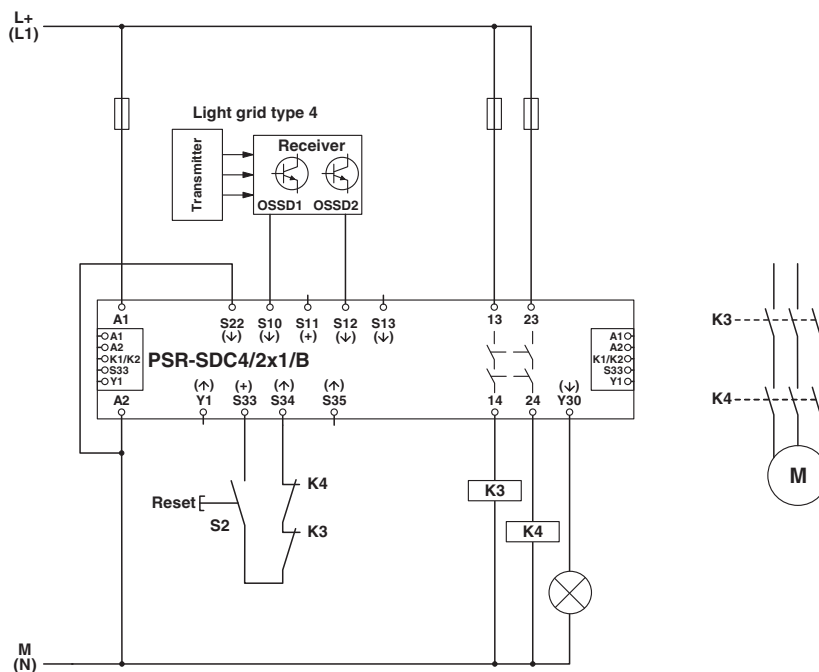
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Circuit diagram



Two-channel emergency stop monitoring

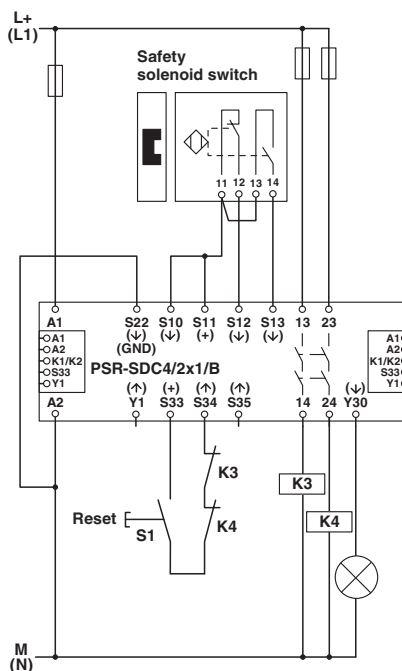
Circuit diagram



Light grid monitoring

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Circuit diagram



Two-channel magnetic switch monitoring

## Classifications

eCl@ss

|            |          |
|------------|----------|
| eCl@ss 4.0 | 27371102 |
| eCl@ss 4.1 | 27371102 |
| eCl@ss 5.0 | 27371901 |
| eCl@ss 5.1 | 27371901 |
| eCl@ss 6.0 | 27371819 |
| eCl@ss 7.0 | 27371819 |
| eCl@ss 8.0 | 27371819 |
| eCl@ss 9.0 | 27371819 |

ETIM

|          |          |
|----------|----------|
| ETIM 2.0 | EC001449 |
| ETIM 3.0 | EC001449 |
| ETIM 4.0 | EC001449 |
| ETIM 5.0 | EC001449 |
| ETIM 6.0 | EC001449 |

UNSPSC

|               |          |
|---------------|----------|
| UNSPSC 6.01   | 30211901 |
| UNSPSC 7.0901 | 39121501 |
| UNSPSC 11     | 39121501 |

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## Classifications

### UNSPSC

|              |          |
|--------------|----------|
| UNSPSC 12.01 | 39121501 |
| UNSPSC 13.2  | 39121501 |

## Approvals

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#### Approvals

UL Listed / cUL Listed / Functional Safety / EAC / Functional Safety / EAC / Functional Safety / cULus Listed

#### Ex Approvals

### 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 140324       |
| 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 140324       |
| Functional Safety |  |   | 968/EZ 369.02/15    |
| EAC               |  |   | EAC-Zulassung       |
| Functional Safety |  |   | 01/205/0660.01/15   |
| EAC               |  |   | 7500651.22.01.00244 |

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## Approvals

|                   |  |                  |
|-------------------|--|------------------|
| Functional Safety |  | 968/EZ 369.02/15 |
|-------------------|--|------------------|

|              |  |
|--------------|--|
| cULus Listed |  |
|--------------|--|

## Accessories

### Accessories

#### DIN rail connector

DIN rail bus connectors - PSR-TBUS - 2890425



DIN rail connector for safety switching devices, for supplying/controlling/monitoring (depending on the module)

DIN rail bus connectors - PSR-TBUS-TP - 2981716



Blind plug for the PSR-TBUS DIN rail connector used with the modular safety relay system (PSR-SDC4)