

## Safety relays - PSR-SPP- 24UC/ESA4/3X1/1X2/B - 2963941

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Safety relay for emergency stop and safety door monitoring up to SIL 3 or Cat. 4, PL e in accordance with EN ISO 13849, 2-channel operation, 3 enabling current paths, nominal input voltage: 24 V AC/DC, plug-in Push-in terminal block


The figure shows a version with a screw connection

### Your advantages

- Up to Cat. 4/PL e in accordance with EN ISO 13849-1, SIL 3 in accordance with IEC 62061, SIL 3 in accordance with IEC 61508
- 2 channel control
- 3 enabling current paths, 1 signaling current path
- Manually monitored and automatic activation in a single device



### Key Commercial Data

|                                      |   |
|--------------------------------------|---|
| Packing unit                         | 1 pc  |
| GTIN                                 | <br>4 017918 904784 |
| GTIN                                 | 4017918904784   |
| Weight per Piece (excluding packing) | 200.000 g   |
| Custom tariff number                 | 85371098  |
| Country of origin                    | Germany   |

### Technical data

#### Dimensions

|        |          |
|--------|----------|
| Width  | 22.5 mm  |
| Height | 112 mm   |
| Depth  | 114.5 mm |

#### Ambient conditions

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## 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 AC/DC  |
| Input voltage range in reference to $U_N$     | 0.85 ... 1.1                                      |
| Typical input current at $U_N$                | 140 mA AC   |
|   | 65 mA DC  |
| Voltage at input/start and feedback circuit   | approx. 24 V DC                                   |
| Typical response time                         | 100 ms (automatic start)                          |
| Typical release time                          | 45 ms (single-channel)                            |
|   | 10 ms (two-channel)                               |
| Concurrence                                   | ∞   |
| Recovery time                                 | 1 s   |
| Operating voltage display                     | Green LED   |
| Status display                                | Green LED   |
| Protective circuit                            | Surge protection Suppressor diode                 |
| Max. permissible overall conductor resistance | approx. 50 Ω (Input and start circuits at $U_N$ ) |

### Output data

|  |   |
|--|---|
| Contact type                                 | 3 enabling current paths                            |
|  | 1 signaling current path                            |
| Contact material                             | AgSnO <sub>2</sub> , + 0.2 μm Au                    |
| Maximum switching voltage                    | 250 V AC/DC   |
| Minimum switching voltage                    | 15 V AC/DC  |
| Limiting continuous current                  | 6 A (N/O contact)                                   |
| Maximum inrush current                       | 6 A   |
| Inrush current, minimum                      | 25 mA   |
| Sq. Total current                            | $72 \text{ A}^2 (I_{TH}^2 = I_1^2 + I_2^2 + I_3^2)$ |
| Interrupting rating (ohmic load) max.        | 144 W (24 V DC, τ = 0 ms)                           |
|  | 288 W (48 V DC, τ = 0 ms)                           |
|  | 77 W (110 V DC, τ = 0 ms)                           |
|  | 88 W (220 V DC, τ = 0 ms)                           |
|  | 1500 VA (250 V AC, τ = 0 ms)                        |
| Maximum interrupting rating (inductive load) | 48 W (24 V DC, τ = 40 ms)                           |

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### Technical data

#### Output data

|                                   |                                 |
|-----------------------------------|---------------------------------|
|                                   | 40 W (48 V DC, $\tau = 40$ ms)  |
|                                   | 35 W (110 V DC, $\tau = 40$ ms) |
|                                   | 33 W (220 V DC, $\tau = 40$ ms) |
| Switching capacity min.           | 0.4 W                           |
| Mechanical service life           | approx. $10^7$ cycles           |
| Switching capacity (360/h cycles) | 6 A (24 V DC)                   |
|                                   | 5 A (230 V AC)                  |
| Output fuse                       | 10 A gL/gG NEOZED (N/O contact) |
|                                   | 6 A gL/gG NEOZED (N/C contact)  |

#### General

|   |  |
|---|--|
| Relay type                                  | Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3 |
| Nominal operating mode                      | 100% operating factor  |
| Net weight                                  | 221.9 g  |
| Mounting position                           | any  |
| Mounting type                               | DIN rail mounting  |
| Degree of protection                        | IP20   |
| Min. degree of protection of inst. location | IP54   |
| Housing material                            | Polyamide  |
| Housing color                               | yellow   |

#### Connection data

|  |  |
|--|--|
| Connection method  | Push-in connection   |
| pluggable  | Yes  |
| Conductor cross section solid  | 0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>                                  |
| Conductor cross section flexible                                     | 0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>                                  |
| Conductor cross-section AWG  | 24 ... 16  |
| Conductor cross-section flexible with ferrule without plastic sleeve | 0.25 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> (only together with CRIMPFOX 6) |
| Conductor cross-section flexible with ferrule and plastic sleeve     | 0.25 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> (only together with CRIMPFOX 6) |
| Stripping length   | 8 mm   |

#### Safety-related characteristic data

|  |                         |
|--|-------------------------|
| Stop category in accordance with IEC 60204 | 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            |

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## Technical data

### Safety-related characteristic data

|                              |          |
|------------------------------|----------|
| Performance level (PL)       | e        |
| Category                     | 4        |
| Designation                  | EN 62061 |
| Safety Integrity Level (SIL) | 3        |

### Standards and Regulations

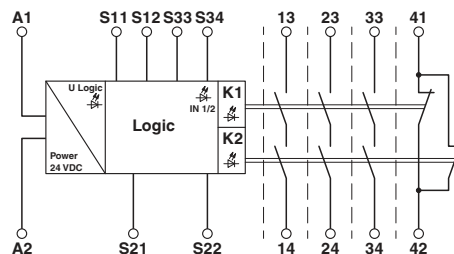
|                                |  |
|--------------------------------|--|
| Designation                    | Air clearances and creepage distances between the power circuits   |
| Standards/regulations          | DIN EN 50178/VDE 0160  |
| Rated insulation voltage       | 250 V  |
| Rated surge voltage/insulation | 4 kV / basic insulation (safe isolation, reinforced insulation, and 6 kV between A1-A2/logic/enabling and signaling current paths) |
| Degree of pollution            | 2  |
| Overvoltage category           | III  |
| Shock                          | 15g  |
| Vibration (operation)          | 10 Hz ... 150 Hz, 2g   |

### Environmental Product Compliance

|            |   |
|------------|---|
| REACH SVHC | Lead 7439-92-1  |
| China RoHS | Environmentally Friendly Use Period = 50 years  |
|            | For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration" |

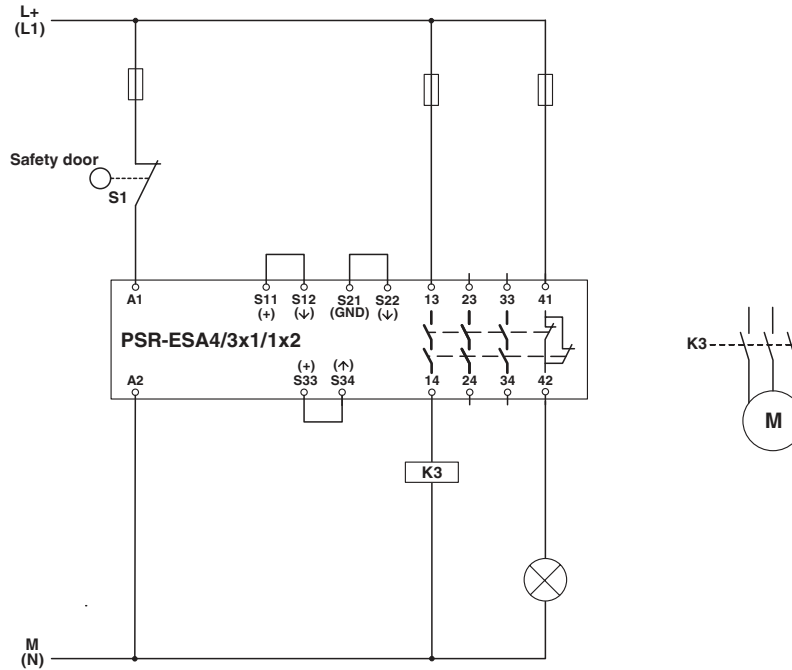
## Drawings

Circuit diagram



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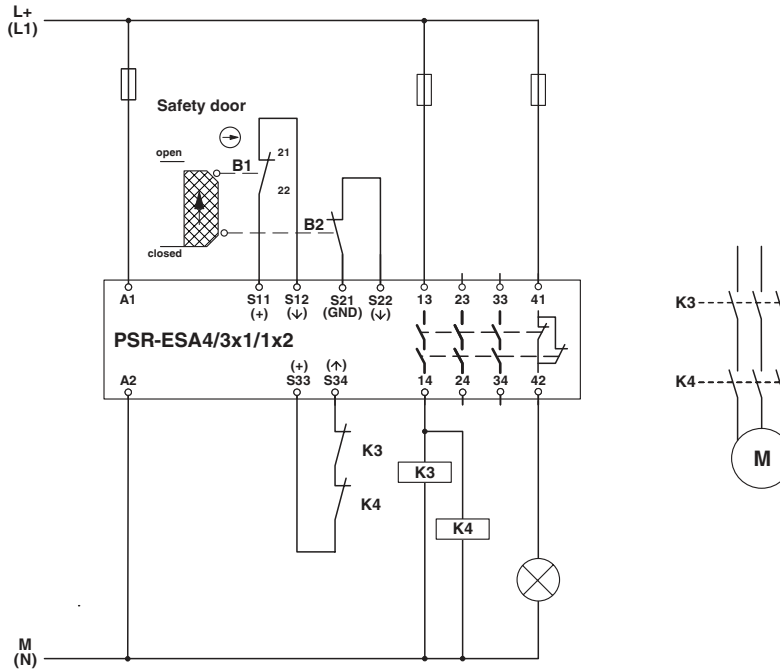
Circuit diagram



Single-channel safety door monitoring

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Circuit diagram



Two-channel safety door monitoring

## Classifications

eCl@ss

|               |          |
|---------------|----------|
| eCl@ss 10.0.1 | 27371819 |
| eCl@ss 11.0   | 27371819 |
| eCl@ss 4.0    | 40020600 |
| eCl@ss 4.1    | 40020600 |
| eCl@ss 5.0    | 27371900 |
| eCl@ss 5.1    | 27371900 |
| eCl@ss 6.0    | 27371800 |
| eCl@ss 7.0    | 27371819 |
| eCl@ss 9.0    | 27371819 |

ETIM

|          |          |
|----------|----------|
| ETIM 2.0 | EC000196 |
| ETIM 3.0 | EC001449 |
| ETIM 4.0 | EC001449 |
| ETIM 6.0 | EC001449 |
| ETIM 7.0 | EC001449 |

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## Classifications

### UNSPSC

|               |          |
|---------------|----------|
| UNSPSC 6.01   | 30211901 |
| UNSPSC 7.0901 | 39121501 |
| UNSPSC 11     | 39121501 |
| UNSPSC 12.01  | 39121501 |
| UNSPSC 13.2   | 39121501 |
| UNSPSC 18.0   | 39122205 |
| UNSPSC 19.0   | 39122205 |
| UNSPSC 20.0   | 39122205 |
| UNSPSC 21.0   | 39122205 |

## Approvals

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#### Approvals

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

#### 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 |
|------------|--|---|---------------|

|     |  |                          |
|-----|--|--------------------------|
| EAC |  | RU C-<br>DE.A*30.B.01082 |
|-----|--|--------------------------|

|                   |  |                   |
|-------------------|--|-------------------|
| Functional Safety |  | 01/205/0652.03/22 |
|-------------------|--|-------------------|

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|                   |  |                  |
|-------------------|--|------------------|
| Functional Safety |  | 968/EZ 404.05/22 |
|-------------------|--|------------------|

|                   |  |                  |
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|           |  |   |               |
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|-------------------|--|-------------------|
| Functional Safety |  | 01/205/0652.03/22 |
|-------------------|--|-------------------|

|     |  |               |
|-----|--|---------------|
| EAC |  | EAC-Zulassung |
|-----|--|---------------|

|     |  |               |
|-----|--|---------------|
| EAC |  | EAC-Zulassung |
|-----|--|---------------|