

## Safety relays - PSR-SPP- 24UC/ESA4/2X1/1X2 - 2963938

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Safety relay for emergency stop and safety door monitoring up to SIL 3 or Cat. 4, PL e according to EN ISO 13849, 1 or 2-channel operation, 2 enabling current paths, nominal input voltage: 24 V AC/DC, plug-in spring-cage terminal block


The figure shows a version with a screw connection

### Your advantages

- ✓ Up to Cat.4/PL e according to EN ISO 13849-1, SILCL 3 according to EN 62061, SIL 3 according to IEC 61508
- ✓ Single and two-channel control
- ✓ 2 enabling current paths, 1 signaling current path



### Key Commercial Data

|                                      |   |
|--------------------------------------|---|
| Packing unit                         | 1 pc  |
| GTIN                                 | <br>4 017918 904777 |
| GTIN                                 | 4017918904777   |
| Weight per Piece (excluding packing) | 253.600 g   |
| Custom tariff number                 | 85371098  |
| 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 | 112 mm  |

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## Technical data

### Dimensions

|       |          |
|-------|----------|
| Depth | 114.5 mm |
|-------|----------|

### 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 input 1/2                         | ∞   |
| 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                          | 2 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 A <sup>2</sup> ( $I_{TH}^2 = I_1^2 + I_2^2$ ) |
| Interrupting rating (ohmic load) max. | 144 W (24 V DC, τ = 0 ms)                        |
|                                       | 288 W (48 V DC, τ = 40 ms)                       |
|                                       | 77 W (110 V DC, τ = 0 ms)                        |

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### Technical data

#### Output data

|  |                                   |
|--|-----------------------------------|
|  | 88 W (220 V DC, $\tau = 0$ ms)    |
|  | 1500 VA (250 V AC, $\tau = 0$ ms) |
| Maximum interrupting rating (inductive load) | 48 W (24 V DC, $\tau = 40$ ms)    |
|  | 40 W (48 V DC, $\tau = 40$ ms)    |
|  | 35 W (110 V DC, $\tau = 40$ ms)   |
|  | 35 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 forcibly guided contacts in accordance with EN 50205 |
| Nominal operating mode                      | 100% operating factor   |
| Net weight                                  | 193.9 g   |
| Mounting position                           | any   |
| Mounting type                               | DIN rail mounting   |
| Degree of protection                        | IP20  |
|   | IP54  |
| Min. degree of protection of inst. location | IP54  |
| Housing color                               | yellow  |

#### Connection data

|                                       |                        |
|---------------------------------------|------------------------|
| Connection method                     | Spring-cage connection |
| pluggable                             | Yes                    |
| Conductor cross section solid min.    | 0.2 mm <sup>2</sup>    |
| Conductor cross section solid max.    | 1.5 mm <sup>2</sup>    |
| Conductor cross section flexible min. | 0.2 mm <sup>2</sup>    |
| Conductor cross section flexible max. | 1.5 mm <sup>2</sup>    |
| Conductor cross section AWG min.      | 24                     |
| Conductor cross section AWG max.      | 16                     |
| Stripping length                      | 8 mm                   |

#### Safety-related characteristic data

|               |                         |
|---------------|-------------------------|
| Stop category | 0                       |
| Designation   | IEC 61508 - High demand |

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### Technical data

#### Safety-related characteristic data

|   |                        |
|---|------------------------|
| 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                      |
| 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 | 6 kV / Safe isolation, increased insulation                      |
| Degree of pollution            | 2  |
| Overvoltage category           | III  |
| Shock                          | 15g  |
| Vibration (operation)          | 10 Hz ... 150 Hz, 2g   |

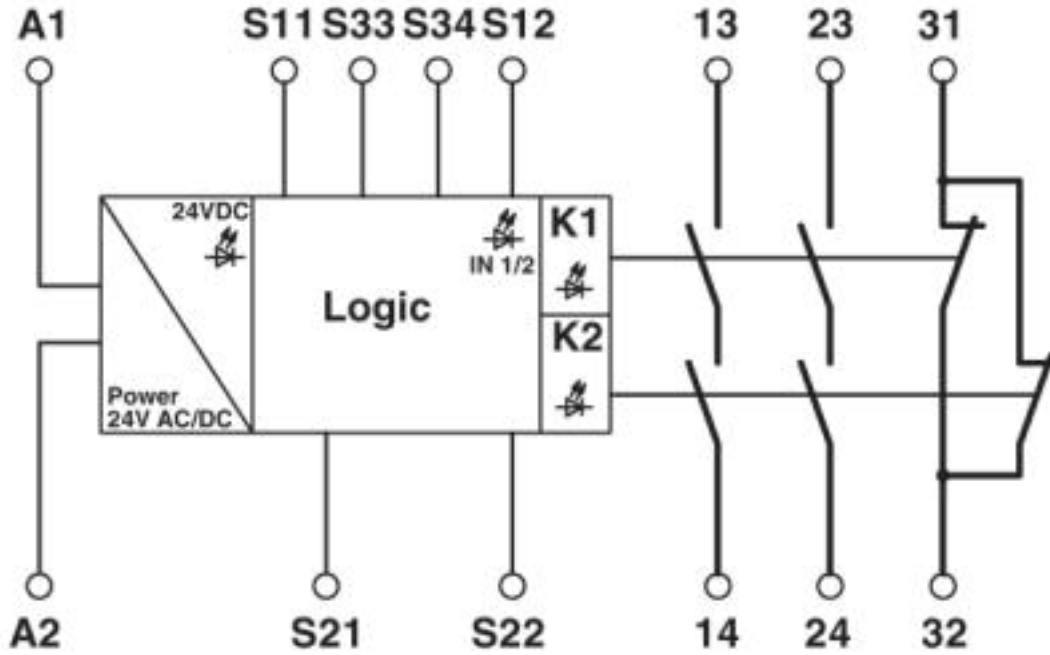
#### Environmental Product Compliance

|            |   |
|------------|---|
| REACH SVHC | Lead 7439-92-1  |
| China RoHS | Environmentally friendly use period: unlimited = EFUP-e |
|            | No hazardous substances above threshold values          |

### Drawings

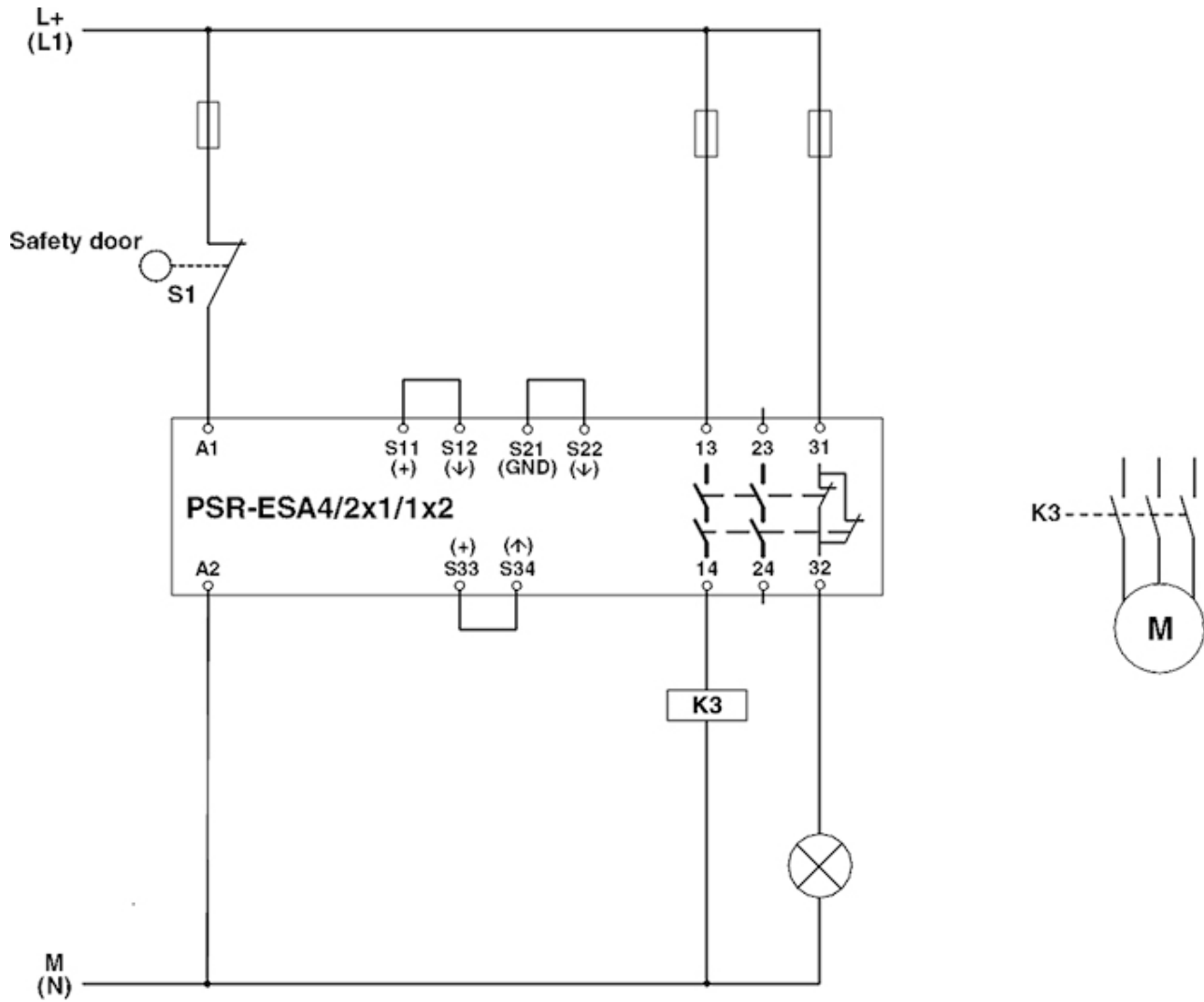
# Safety relays - PSR-SPP- 24UC/ESA4/2X1/1X2 - 2963938

Circuit diagram



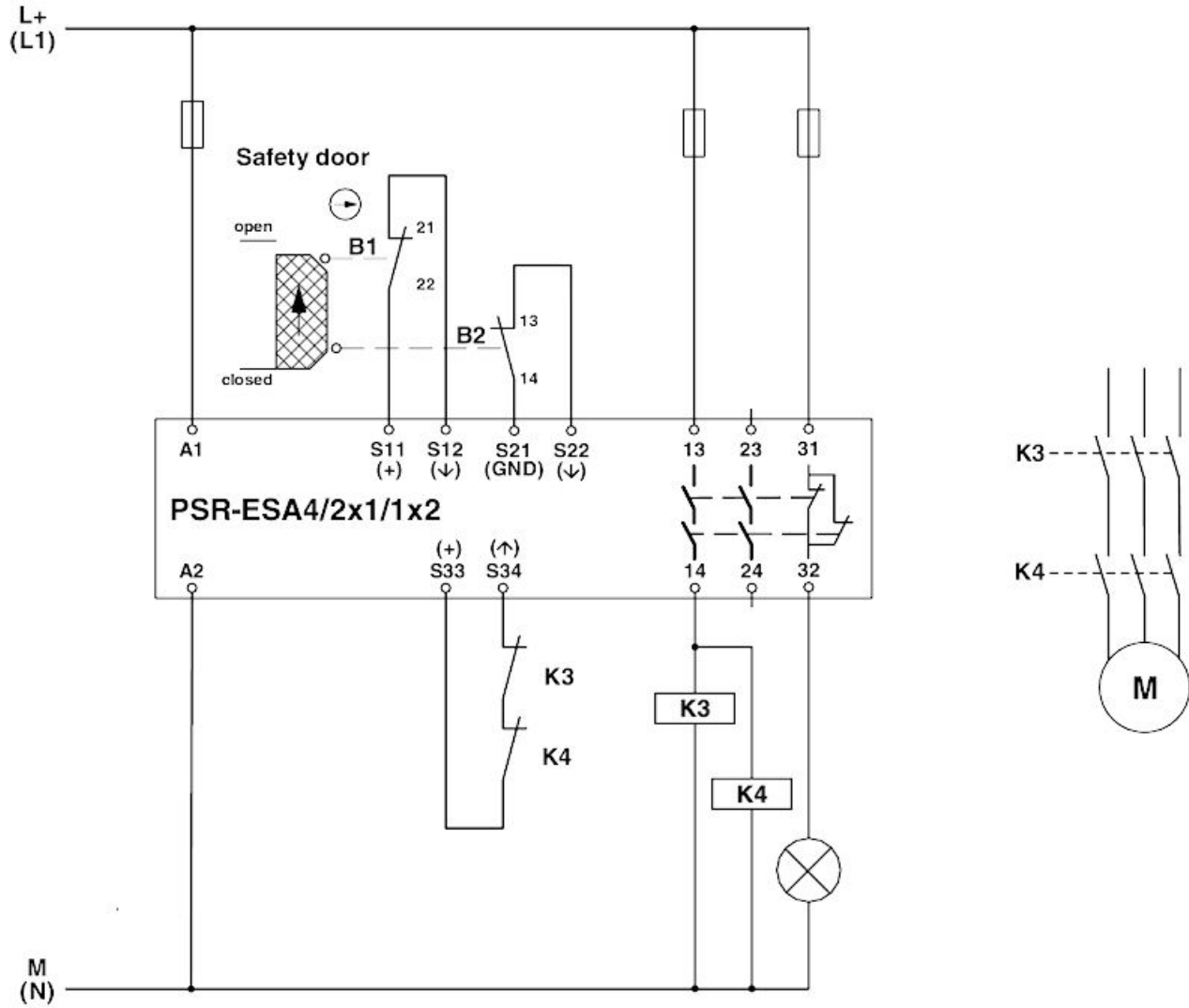
# Safety relays - PSR-SPP- 24UC/ESA4/2X1/1X2 - 2963938

Circuit diagram



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Circuit diagram



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### Classifications

#### eCl@ss

|            |          |
|------------|----------|
| 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 8.0 | 27371819 |
| eCl@ss 9.0 | 27371819 |

#### ETIM

|          |          |
|----------|----------|
| ETIM 2.0 | EC000196 |
| ETIM 3.0 | EC001449 |
| ETIM 4.0 | EC001449 |
| ETIM 5.0 | EC001449 |
| ETIM 6.0 | EC001449 |
| ETIM 7.0 | EC001449 |

#### UNSPSC

|               |          |
|---------------|----------|
| UNSPSC 6.01   | 30211901 |
| UNSPSC 7.0901 | 39121501 |
| UNSPSC 11     | 39121501 |
| UNSPSC 12.01  | 39121501 |
| UNSPSC 13.2   | 39121501 |

### Approvals

#### Approvals

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#### Approvals

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

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#### Ex Approvals

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#### Approval details



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### Approvals

|                   |  |   |                          |
|-------------------|--|---|--------------------------|
| Functional Safety |  |   | 968/EZ 404.02/15         |
| Functional Safety |  |   | 968/EZ 404.02/15         |
| 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 |  |   | 01/205/0652.01/15        |
| EAC               |  |   | RU C-<br>DE.A*30.B.01082 |
| cULus Listed      |  |   |                          |