

## Safety relays - PSR-SPP-42-48UC/ESAM4/3X1/1X2B - 2901417

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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, single or two-channel operation, 3 enabling current paths, nominal input voltage of 42 ... 48 V AC/DC, pluggable Push-in terminal block


The figure shows 48 V AC/DC

### 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
- Manually monitored and automatic activation in a single device
- Basic insulation
- Single and two-channel control
- 3 enabling current paths, 1 signaling current path



### Key Commercial Data

|                                      |   |
|--------------------------------------|---|
| Packing unit                         | 1 pc  |
| GTIN                                 | <br>4 046356 592000 |
| GTIN                                 | 4046356592000   |
| Weight per Piece (excluding packing) | 240.000 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 |
|-------|---------|

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## Technical data

### Dimensions

|        |          |
|--------|----------|
| Height | 112 mm   |
| Depth  | 114.5 mm |

### Ambient conditions

|  |   |
|--|---|
| Ambient temperature (operation)                | -25 °C ... 55 °C                                    |
| Ambient temperature (storage/transport)        | -40 °C ... 85 °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

|   |  |
|---|--|
| Input voltage range                           | 42 V AC/DC ... 48 V AC/DC                              |
| Input voltage range in reference to $U_N$     | 0.85 ... 1.1   |
| Typical input current at $U_N$                | 95 mA  |
| Voltage at input/start and feedback circuit   | ~ 24 V DC  |
| Typical response time                         | 40 ms (man. start)                                     |
| Typ. starting time with $U_s$                 | 330 ms (when controlled via A1)                        |
| Typical release time                          | 90 ms (when controlled via A1)                         |
|   | 20 ms (when controlled via S11/S12 and S21/S22)        |
| Concurrence                                   | $\infty$   |
| Recovery time                                 | 1 s  |
| Operating voltage display                     | Green LED  |
| Status display                                | Green LED  |
| Protective circuit                            | Surge protection Varistor 275 V <sub>RMS</sub> (A1-A2) |
|   | Surge protection Varistor                              |
| Maximum switching frequency                   | 0.5 Hz   |
| Max. permissible overall conductor resistance | 50 Ω   |

### 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   | 10 V AC/DC                       |
| Limiting continuous current | 6 A (N/O contact)                |
|                             | 5 A (N/C contact)                |
| Maximum inrush current      | 6 A                              |
| Inrush current, minimum     | 10 mA                            |

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### Technical data

#### Output data

|  |                                 |
|--|---------------------------------|
| Sq. Total current                            | 72 A <sup>2</sup>               |
| Interrupting rating (ohmic load) max.        | 144 W (24 V DC, τ = 0 ms)       |
|  | 230 W (48 V DC, τ = 0 ms)       |
|  | 68 W (110 V DC, τ = 0 ms)       |
|  | 88 W (220 V DC, τ = 0 ms)       |
|  | 2000 VA (250 V AC, τ = 0 ms)    |
| Maximum interrupting rating (inductive load) | 48 W (24 V DC, τ = 40 ms)       |
|  | 40 W (48 V DC, τ = 40 ms)       |
|  | 35 W (110 V DC, τ = 40 ms)      |
|  | 33 W (220 V DC, τ = 40 ms)      |
| Switching capacity min.                      | 100 mW                          |
| Mechanical service life                      | approx. 10 <sup>7</sup> 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                                  | 175.34 g   |
| Mounting position                           | any  |
| Mounting type                               | DIN rail mounting  |
| Degree of protection                        | IP20   |
| Min. degree of protection of inst. location | IP54   |

#### 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 | 0 |
|---------------|---|

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### Technical data

#### Safety-related characteristic data

|   |                         |
|---|-------------------------|
| 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                       |
| Designation                                 | EN 62061                |
| Safety Integrity Level Claim Limit (SIL CL) | 3                       |
| Designation                                 | EN 50156                |
| 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 AC   |
| 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   |

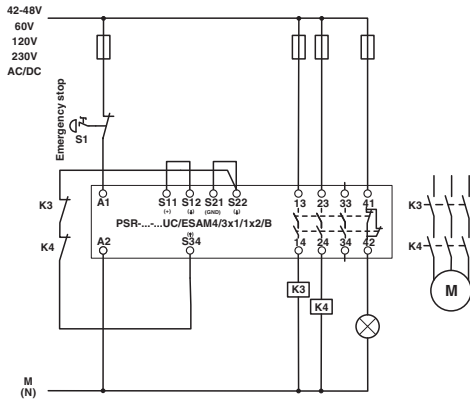
#### Environmental Product Compliance

|            |   |
|------------|---|
| 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

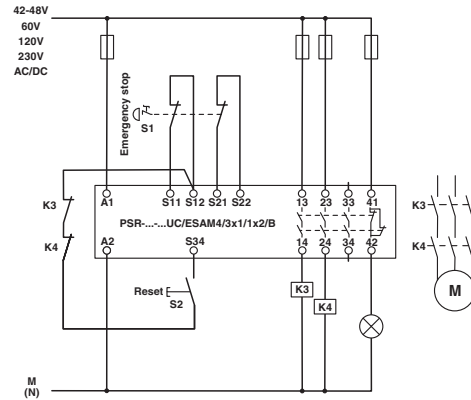
# Safety relays - PSR-SPP-42-48UC/ESAM4/3X1/1X2B - 2901417

Application drawing



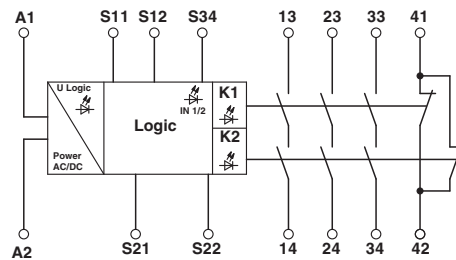
Single-channel emergency stop monitoring

Application drawing



Two-channel emergency stop monitoring

Circuit diagram



## 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 3.0 | EC001449 |
| ETIM 4.0 | EC001449 |
| ETIM 6.0 | EC001449 |

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## Classifications

### ETIM

|          |          |
|----------|----------|
| ETIM 7.0 | EC001449 |
|----------|----------|

### 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

### Approvals

#### Approvals

UL Listed / cUL Listed / Functional Safety / EAC / EAC / 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 |  | 01/205/5117.01/16 |
|-------------------|--|-------------------|

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### Approvals

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

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

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