

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



2963750

<https://www.phoenixcontact.com/au/products/2963750>

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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, 2 enabling current paths, nominal input voltage: 24 V DC, plug-in screw terminal block

## Your advantages

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

## Commercial data

|                                      |                   |
|--------------------------------------|-------------------|
| Item number                          | 2963750           |
| Packing unit                         | 1 pc              |
| Minimum order quantity               | 1 pc              |
| Sales key                            | DNA113            |
| Product key                          | DNA113            |
| Catalog page                         | Page 20 (IF-2009) |
| GTIN                                 | 4017918823634     |
| Weight per piece (including packing) | 191.8 g           |
| Weight per piece (excluding packing) | 161 g             |
| Customs tariff number                | 85371098          |
| Country of origin                    | DE                |

## Technical data

### Notes

#### Note on application

|                     |                         |
|---------------------|-------------------------|
| Note on application | Only for industrial use |
|---------------------|-------------------------|

### Product properties

|                         |  |
|-------------------------|--|
| Product type            | Safety relays  |
| Product family          | PSRclassic   |
| Application             | Emergency stop<br>Safety door  |
| Control                 | 2-channel  |
| Mechanical service life | approx. $10^7$ cycles  |
| Relay type              | Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3 |

#### Insulation characteristics

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

### Electrical properties

|   |   |
|---|---|
| Maximum power dissipation for nominal condition | 16.44 W ( $U_S = 26.4$ V, $I_L^2 = 72$ A <sup>2</sup> , $P_{Total\ max} = 2.04$ W + 14.4 W) |
| Nominal operating mode                          | 100% operating factor   |
| Rated insulation voltage                        | 250 V   |
| Rated surge voltage/insulation                  | See section "Insulation coordination"   |

### Input data

#### General

|   |   |
|---|---|
| Rated control circuit supply voltage $U_S$  | 24 V DC -15 % / +10 %   |
| Power consumption at $U_S$                  | typ. 1.68 W (DC)  |
| Rated control supply current $I_S$          | typ. 70 mA  |
| Input voltage range in reference to $U_N$   | 0.85 ... 1.1  |
| Typical input current at $U_N$              | 70 mA DC (at $U_S$ )  |
| Inrush current                              | < 3.5 A ( $\Delta t = 3$ ms at $U_S$ )<br>< 100 mA ( $\Delta t = 500$ ms, with $U_S/I_x$ at S12)<br>> -100 mA ( $\Delta t = 300$ ms, with $U_S/I_x$ at S22)<br>< 6 mA (with $U_S/I_x$ to S34) |
| Current consumption                         | typ. 38 mA (S12)<br>typ. -38 mA (S22)<br>typ. 1 mA (with $U_S/I_x$ to S34)  |
| Voltage at input/start and feedback circuit | approx. 24 V DC   |
| Filter time                                 | 5 ms (at A1 in the event of voltage dips at $U_S$ )<br>No test pulses permitted   |

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|   |  |
|---|--|
| Typical response time                         | 150 ms (automatic start)                                 |
| Typ. starting time with $U_s$                 | 250 ms (with $U_s$ when controlled via A1)               |
| Typical release time                          | 20 ms (on demand via the sensor circuit)                 |
|   | 45 ms (on demand via A1)                                 |
| Concurrence                                   | $\infty$   |
| Recovery time                                 | 1 s (following demand of the safety function)            |
|   | < 1 s (Boot time)  |
| Protective circuit                            | Surge protection; Suppressor diode                       |
| Max. permissible overall conductor resistance | approx. 50 $\Omega$ (Input and start circuits at $U_s$ ) |
| Operating voltage display                     | Green LED  |
| Status display                                | LED (green)  |

## Output data

|                                       |  |
|---------------------------------------|--|
| Contact switching type                | 2 enabling current paths                         |
|                                       | 1 signaling current path                         |
| Contact material                      | AgSnO <sub>2</sub> , + 0.2 $\mu\text{m}$ Au      |
| Maximum switching voltage             | 250 V AC/DC                                      |
| Minimum switching voltage             | 10 V AC/DC                                       |
| Limiting continuous current           | 6 A (N/O contact)                                |
| Maximum inrush current                | 6 A  |
| Inrush current, minimum               | 10 mA  |
| Sq. Total current                     | 72 A <sup>2</sup> (Enabling current paths)       |
|                                       | 36 A <sup>2</sup> (Signaling current path 31/32) |
| Interrupting rating (ohmic load) max. | see load limit curve                             |
| Switching capacity min.               | 100 mW   |
| Output fuse                           | 10 A gL/gG (Enabling current paths)              |
|                                       | 4 A gL/gG (Low-demand enabling current paths)    |
|                                       | 6 A gL/gG (Signaling current path)               |

## Connection data

### Connection technology

|           |     |
|-----------|-----|
| pluggable | yes |
|-----------|-----|

### Conductor connection

|                                  |   |
|----------------------------------|---|
| Connection method                | Screw connection                            |
| Conductor cross section rigid    | 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 ... 12                                   |
| Stripping length                 | 7 mm  |
| Screw thread                     | M3  |

## Dimensions

|        |         |
|--------|---------|
| Width  | 22.5 mm |
| Height | 99 mm   |

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

## Material specifications

|                  |                   |
|------------------|-------------------|
| Color (Housing)  | yellow (RAL 1018) |
| Housing material | PA                |

## Characteristics

### Safety data

|               |   |
|---------------|---|
| Stop category | 0 |
|---------------|---|

### Safety data: EN ISO 13849

|                        |  |
|------------------------|--|
| Category               | 4  |
| Performance level (PL) | e (5 A DC13; 5 A AC15; 8760 switching cycles/year) |

### Safety data: IEC 61508 - High demand

|                              |   |
|------------------------------|---|
| Safety Integrity Level (SIL) | 3 |
|------------------------------|---|

### Safety data: IEC 61508 - Low demand

|                              |   |
|------------------------------|---|
| Safety Integrity Level (SIL) | 3 |
|------------------------------|---|

### Safety data: EN IEC 62061

|                              |   |
|------------------------------|---|
| Safety Integrity Level (SIL) | 3 |
|------------------------------|---|

## Environmental and real-life conditions

### Ambient conditions

|  |   |
|--|---|
| Degree of protection                           | IP20  |
| Min. degree of protection of inst. location    | IP54  |
| Ambient temperature (operation)                | -20 °C ... 55 °C (observe derating)                 |
| Ambient temperature (storage/transport)        | -40 °C ... 70 °C                                    |
| Maximum altitude                               | ≤ 2000 m (Above sea level)                          |
| Max. permissible humidity (storage/transport)  | 75 % (on average, 85% infrequently, non-condensing) |
| Max. permissible relative humidity (operation) | 75 % (on average, 85% infrequently, non-condensing) |
| Shock  | 15g   |
| Vibration (operation)                          | 10 Hz ... 150 Hz, 2g                                |

## Mounting

|                   |                        |
|-------------------|------------------------|
| Mounting type     | DIN rail mounting      |
| Assembly note     | See derating curve     |
| Mounting position | vertical or horizontal |

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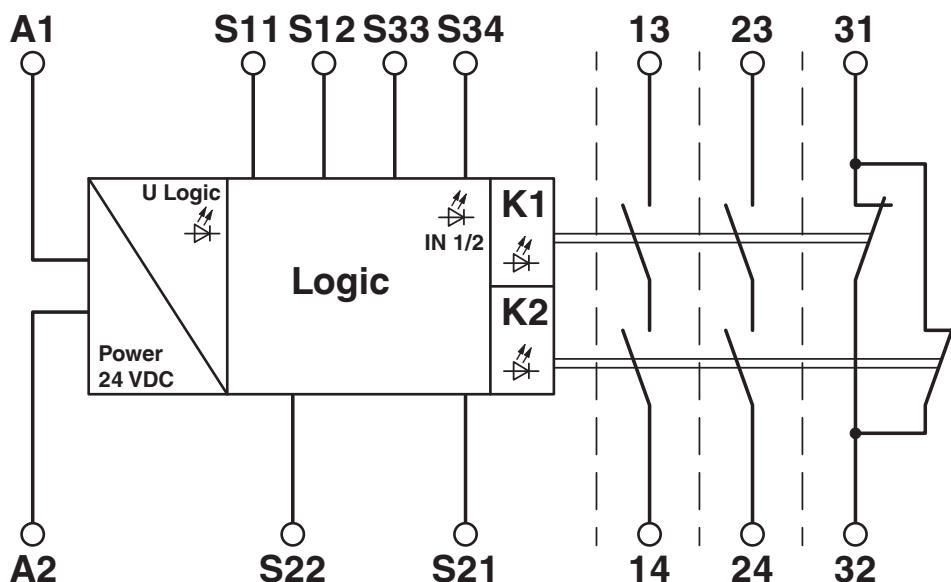


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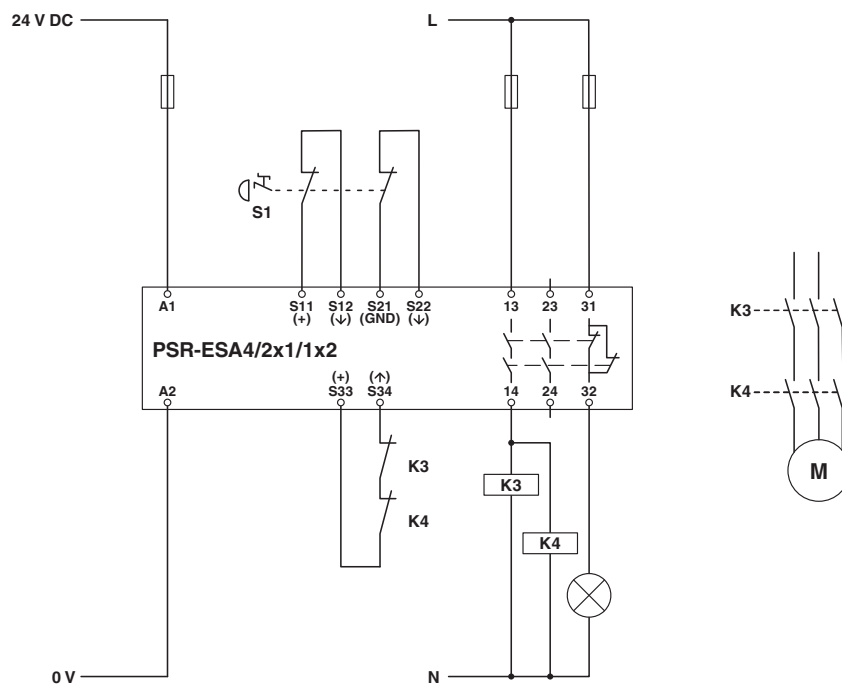
## Drawings

Circuit diagram



Block diagram

Circuit diagram



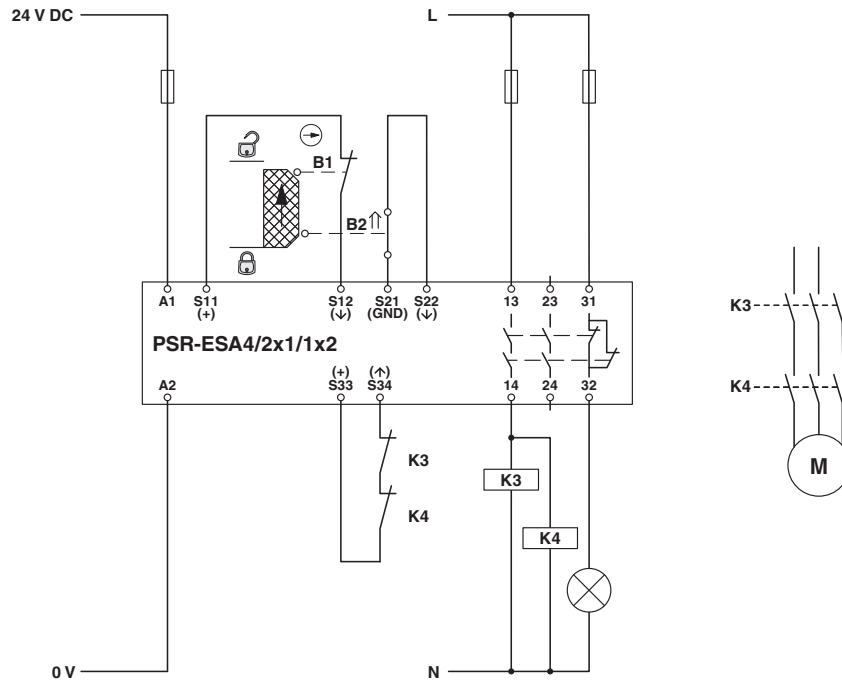
2-channel emergency stop monitoring

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Circuit diagram



Two-channel safety door monitoring

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/au/products/2963750>



**Functional Safety**

Approval ID: 01/205/0652.05/22

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## Classifications

### ECLASS

ECLASS-13.0

27371819

### ETIM

ETIM 9.0

EC001449

### UNSPSC

UNSPSC 21.0

39122205



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## Environmental product compliance

### EU RoHS

|   |              |
|---|--------------|
| Fulfills EU RoHS substance requirements | Yes          |
| Exemption                               | 7(a), 7(c)-I |

### China RoHS

|  |   |
|--|---|
| Environment friendly use period (EFUP) | EFUP-50   |
|  | An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required. |

### EU REACH SVHC

|                                     |                                      |
|-------------------------------------|--------------------------------------|
| REACH candidate substance (CAS No.) | Lead(CAS: 7439-92-1)                 |
| SCIP                                | 1416c32d-6324-49a2-9fdc-73de857d8f4a |

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