

# PSR-SCP- 24DC/ESD/5X1/1X2/ T 2 - Safety relays



2981125

<https://www.phoenixcontact.com/us/products/2981125>

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The figure shows a version of the product

Safety relay for emergency stop and safety door monitoring up to SIL 3 or Cat. 4, PL e in accordance with EN ISO 13849, automatic or manual activation, 3 N/O contacts, 1 N/C contact, 2 N/O contacts with a fixed dropout delay of 2 s, plug-in screw connection terminal blocks

## Your advantages

- Fixed delay times of 2 s
- 1- and 2-channel control
- 3 undelayed and 2 dropout delay contacts

## Commercial data

|                                      |                                |
|--------------------------------------|--------------------------------|
| Item number                          | 2981125                        |
| Packing unit                         | 1 pc                           |
| Note                                 | Made to order (non-returnable) |
| Sales key                            | DN01                           |
| Product key                          | DNA132                         |
| GTIN                                 | 4017918956660                  |
| Weight per piece (including packing) | 417.2 g                        |
| Weight per piece (excluding packing) | 417.2 g                        |
| Customs tariff number                | 85371098                       |
| Country of origin                    | DE                             |

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## Technical data

### Notes

#### Utilization restriction

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

### Product properties

|                         |  |
|-------------------------|--|
| Product type            | Safety relays  |
| Application             | Emergency stop   |
|                         | Safety door  |
|                         | Light grid   |
| Control                 | 1 and 2 channel  |
| Mechanical service life | 10x 10 <sup>6</sup> cycles   |
| Relay type              | Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3 |

#### Insulation characteristics: Air clearances and creepage distances between the power circuits

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

### Electrical properties

|   |                       |
|---|-----------------------|
| Maximum power dissipation for nominal condition | 3.6 W                 |
| Nominal operating mode                          | 100% operating factor |

#### Air clearances and creepage distances between the power circuits

|                                |   |
|--------------------------------|---|
| Rated insulation voltage       | 250 V AC  |
| Rated surge voltage/insulation | Basic insulation 4 kV:<br>between all current paths and housing<br>Safe isolation, reinforced insulation 6 kV:<br>between 13/14, 23/24, 33/34, and the remaining current paths<br>between 13/14, 23/24, 33/34 among one another |

### Input data

#### General

|  |                                  |
|--|----------------------------------|
| Rated control circuit supply voltage $U_S$ | 24 V DC -15 % / +10 %            |
| Power consumption at $U_S$                 | typ. 3.6 W                       |
| Rated control supply current $I_S$         | typ. 150 mA                      |
| Inrush current                             | 200 mA (at $U_S$ )               |
|  | < 40 mA (with $U_S/I_x$ to S10)  |
|  | < 150 mA (with $U_S/I_x$ to S12) |
|  | > -60 mA (with $U_S/I_x$ to S22) |
|  | < 40 mA (with $U_S/I_x$ to S34)  |
|  | < 40 mA (with $U_S/I_x$ to S35)  |
|  | < 40 mA (with $U_S/I_x$ to S10)  |

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|   |  |
|---|--|
| Current consumption                           | < 40 mA (with $U_s/I_x$ to S12)                          |
|   | > -40 mA (with $U_s/I_x$ to S22)                         |
|   | 0 mA (with $U_s/I_x$ to S34)                             |
|   | < 5 mA (with $U_s/I_x$ to S35)                           |
| Voltage at input/start and feedback circuit   | 24 V DC -15 % / +10 %                                    |
| Filter time                                   | 1 ms (at A1 in the event of voltage dips at $U_s$ )      |
|   | max. 1.5 ms (at S10, S12; test pulse width)              |
|   | 7.5 ms (at S10, S12; test pulse rate)                    |
|   | Test pulse rate = 5 x Test pulse width                   |
| Typical response time                         | < 600 ms (automatic start)                               |
|   | < 70 ms (manual start)                                   |
| Typ. starting time with $U_s$                 | < 600 ms (when controlled via A1)                        |
| Typical release time                          | < 20 ms (when controlled via S11/S12 and S21/S22)        |
|   | < 20 ms (when controlled via A1)                         |
| Concurrency                                   | $\infty$   |
| Recovery time                                 | < 1 s  |
| Delay time                                    | K3(t), K4(t) fixed depending on model                    |
| Maximum switching frequency                   | 0.5 Hz   |
| Protective circuit                            | Surge protection; Suppressor diode                       |
| Max. permissible overall conductor resistance | approx. 11 $\Omega$ (Input and start circuits at $U_s$ ) |
| Operating voltage display                     | 1 x LED (green)  |
| Status display                                | 4 x LED (green)  |

## Output data

|  |   |
|--|---|
| Contact switching type                       | 5 enabling current paths  |
|  | 1 signaling current path  |
| Contact material                             | AgSnO <sub>2</sub>  |
| Maximum switching voltage                    | 250 V AC/DC (Observe the load curve)  |
| Minimum switching voltage                    | 5 V AC/DC   |
| Limiting continuous current                  | 6 A (N/O contact, pay attention to the derating)  |
|  | 6 A (N/C contact)   |
| Maximum inrush current                       | 20 A ( $\Delta t \leq \text{[trapezoidal pulse symbol]} \text{ ms}$ , undelayed contacts) |
|  | 8 A (delayed contacts)  |
| Inrush current, minimum                      | 10 mA   |
| Sq. Total current                            | 55 A <sup>2</sup> (observe derating)  |
| Interrupting rating (ohmic load) max.        | 144 W (24 V DC, $\tau = 0$ ms)  |
|  | 288 W (48 V DC, $\tau = 0$ ms)  |
|  | 110 W (110 V DC, $\tau = 0$ ms, delayed contacts: 77 W)                                   |
|  | 88 W (220 V DC, $\tau = 0$ ms)  |
|  | 1500 VA (250 V AC, $\tau = 0$ ms, delayed contacts: 2000 VA)                              |
| Maximum interrupting rating (inductive load) | 42 W (24 V DC, $\tau = 40$ ms, delayed contacts: 48 W)                                    |
|  | 42 W (48 V DC, $\tau = 40$ ms, delayed contacts: 40 W)                                    |
|  | 42 W (110 V DC, $\tau = 40$ ms, delayed contacts: 35 W)                                   |
|  | 42 W (220 V DC, $\tau = 40$ ms, delayed contacts: 33 W)                                   |

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|                                    |                          |
|------------------------------------|--------------------------|
| Switching power min.               | 50 mW                    |
| Switching capacity (360/h cycles)  | 4 A (24 V DC)            |
|                                    | 4 A (230 V AC)           |
| Switching capacity (3600/h cycles) | 2.5 A (24 V (DC13))      |
|                                    | 3 A (230 V (AC15))       |
| Output fuse                        | 10 A gL/gG (N/O contact) |
|                                    | 6 A gL/gG (N/C contact)  |

## 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  | 45 mm    |
| Height | 99 mm    |
| Depth  | 114.5 mm |

## Material specifications

|                  |        |
|------------------|--------|
| Color            | yellow |
| Housing material | PBT    |

## Characteristics

### Safety data

|                            |                        |
|----------------------------|------------------------|
| Stop category (EN 60204-1) | 0 (Undelayed contacts) |
|                            | 1 (delayed contacts)   |

### Safety data: EN ISO 13849

|                        |                               |
|------------------------|-------------------------------|
| Performance level (PL) | e (for delayed contacts PL d) |
|------------------------|-------------------------------|

### Safety data: IEC 61508 - High demand

|                              |                                |
|------------------------------|--------------------------------|
| Safety Integrity Level (SIL) | 3 (for delayed contacts SIL 2) |
|------------------------------|--------------------------------|

### Safety data: IEC 61508 - Low demand

|                              |                                |
|------------------------------|--------------------------------|
| Safety Integrity Level (SIL) | 3 (for delayed contacts SIL 2) |
|------------------------------|--------------------------------|

### Safety data: EN IEC 62061

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

## Environmental and real-life conditions

### Ambient conditions

|  |   |
|--|---|
| Degree of protection                           | IP54  |
|  | 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                                |

## Approvals

### CE

|             |              |
|-------------|--------------|
| Certificate | CE-compliant |
|-------------|--------------|

## Standards and regulations

### Air clearances and creepage distances between the power circuits

|                       |                       |
|-----------------------|-----------------------|
| Standards/regulations | DIN EN 50178/VDE 0160 |
|-----------------------|-----------------------|

## Mounting

|                   |                   |
|-------------------|-------------------|
| Mounting type     | DIN rail mounting |
| Mounting position | any               |

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## Drawings

Circuit diagram



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## Environmental product compliance

### 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.) | No substance above 0.1 wt% |
|-------------------------------------|----------------------------|

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Phoenix Contact USA  
586 Fulling Mill Road  
Middletown, PA 17057, United States  
(+717) 944-1300  
[info@phoenixcon.com](mailto:info@phoenixcon.com)