

# PSR-SCP- 24DC/MXF1/4X1/2X2/B - Safety relays



2902725

<https://www.phoenixcontact.com/gb/products/2902725>

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Multifunctional safety relay for emergency stop and safety doors up to SIL 3, Cat. 4, PL e, automatically or manually monitored activation, 4 N/O contacts, 3 safety functions, 2 shutdown levels, 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
- 3 safety functions in one device
- Low housing width of only 22.5mm
- No software configuration required
- Also available with push-in connection

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 2902725       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | DNA191        |
| Product key                          | DNA191        |
| GTIN                                 | 4046356673006 |
| Weight per piece (including packing) | 286.6 g       |
| Weight per piece (excluding packing) | 221 g         |
| Customs tariff number                | 85371098      |
| Country of origin                    | DE            |

## Technical data

### Product properties

|                         |                                                                                      |
|-------------------------|--------------------------------------------------------------------------------------|
| Product type            | Safety relays                                                                        |
| Application             | Emergency stop                                                                       |
|                         | Safety door                                                                          |
| 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 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 | 4 kV/basic isolation (safe isolation, reinforced insulation and 6 kV between input circuit, enabling current paths and safety circuit 1 (13/14, 23/24) and safety circuit 2 (43/44, 53/54).) |

### Input data

#### General

|                                             |                                                                                                     |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------|
| Nominal input voltage $U_N$                 | 24 V DC                                                                                             |
| Input voltage range in reference to $U_N$   | 0.85 ... 1.1                                                                                        |
| Typical input current at $U_N$              | 125 mA (with actuated relays)                                                                       |
|                                             | 55 mA (Two-channel 24 V/0 V + max. 200 mA control (message outputs 32/62) with non-actuated relays) |
| Current consumption                         | typ. 5 mA ( $I_{max}/I_x$ inputs)                                                                   |
|                                             | 20 mA (in electric torque)                                                                          |
| Voltage at input/start and feedback circuit | 24 V -15 % / +10 % (first channel: 24 V; second channel: 0 V)                                       |
| Filter time                                 | max. 1.5 ms (Test pulse duration; for all equivalent inputs)                                        |
|                                             | min. 7.5 ms (Test pulse rate; for all equivalent inputs)                                            |
| Typical response time                       | 175 ms (monitored/manual start)                                                                     |
|                                             | 250 ms (automatic start)                                                                            |
| Typ. starting time with $U_s$               | 250 ms (when controlled via A1)                                                                     |
| Typical release time                        | 25 ms (when controlled via S11/I1,I3,I5 and S21/I2,I4,I6)                                           |
|                                             | 20 ms (when controlled via A1)                                                                      |
| Concurrence                                 | $\infty$                                                                                            |
| Recovery time                               | 1 s (Availability time after activation of sensor circuit: 100ms)                                   |
| Maximum switching frequency                 | 0.5 Hz                                                                                              |

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|                                               |                                    |
|-----------------------------------------------|------------------------------------|
| Protective circuit                            | Surge protection; Suppressor diode |
| Max. permissible overall conductor resistance | 100 Ω                              |
| Operating voltage display                     | 1 x LED (green)                    |
| Status display                                | 5 x LED (green)                    |

## Output data

|                                              |                                                                    |
|----------------------------------------------|--------------------------------------------------------------------|
| Contact switching type                       | 4 enabling current paths                                           |
|                                              | 2 semiconductor alarm outputs                                      |
| Contact material                             | AgCuNi, +0.2 ... 0.4 μm Au                                         |
| Maximum switching voltage                    | 250 V AC/DC                                                        |
| Minimum switching voltage                    | 10 V AC/DC                                                         |
| Limiting continuous current                  | 6 A (N/O contact)                                                  |
|                                              | max. 100 mA (Alarm output (24 V DC))                               |
| Maximum inrush current                       | 6 A                                                                |
| Inrush current, minimum                      | 10 mA                                                              |
| Sq. Total current                            | $72 \text{ A}^2 (I_{\text{TH}}^2 = I_1^2 + I_2^2 + I_3^2 + I_4^2)$ |
| Interrupting rating (ohmic load) max.        | 1500 VA (250 V AC, τ = 0 ms)                                       |
|                                              | 66 W (220 V DC, τ = 0 ms)                                          |
|                                              | 66 W (110 V DC, τ = 0 ms)                                          |
|                                              | 100 W (48 V DC, τ = 0 ms)                                          |
|                                              | 144 W (24 V DC, τ = 0 ms)                                          |
| Maximum interrupting rating (inductive load) | 48 W (24 V DC, τ = 40 ms)                                          |
|                                              | 43 W (48 V DC, τ = 40 ms)                                          |
| Switching capacity min.                      | 0.1 W                                                              |
| Switching capacity (360/h cycles)            | 5 A (0,1 Hz; DC13; 24 V)                                           |
| Switching capacity (3600/h cycles)           | 3 A (AC15; 230 V)                                                  |
| Output fuse                                  | 6 A gL/gG NEOZED (N/O contact)                                     |
|                                              | 4 A gL/gG NEOZED (for low-demand applications)                     |

## 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 | 112.2 mm |

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

## Material specifications

|       |        |
|-------|--------|
| Color | yellow |
|-------|--------|

## Characteristics

### Safety data

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

### Safety data: EN ISO 13849

|                        |                                          |
|------------------------|------------------------------------------|
| Category               | 4                                        |
| Performance level (PL) | e (5 A DC13; 3 A AC15; 8760 cycles/year) |

### Safety data: EN 50156

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

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

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|                              |   |
|------------------------------|---|
| 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 ... 45 °C (see derating curve)               |
| Ambient temperature (storage/transport)        | -25 °C ... 85 °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) |

## Standards and regulations

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

|                       |             |
|-----------------------|-------------|
| Standards/regulations | IEC 60664-1 |
|-----------------------|-------------|

## Mounting

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

Drawings

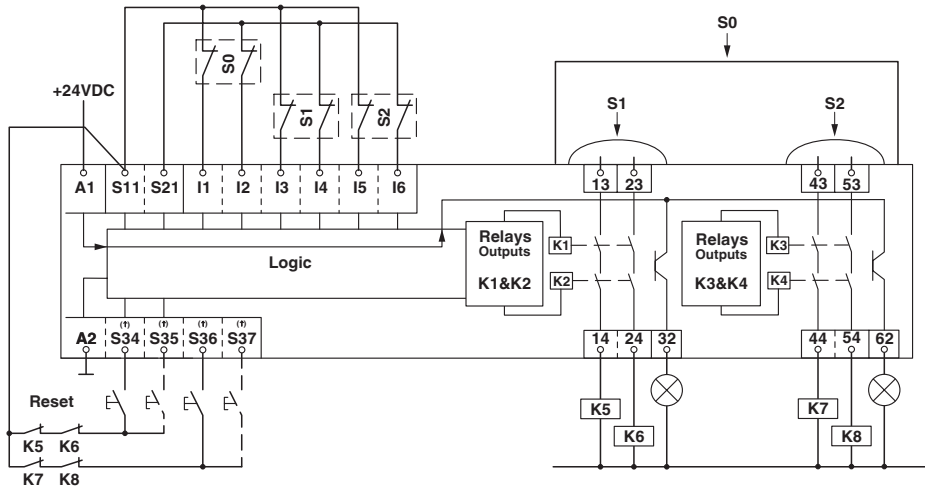
Application drawing



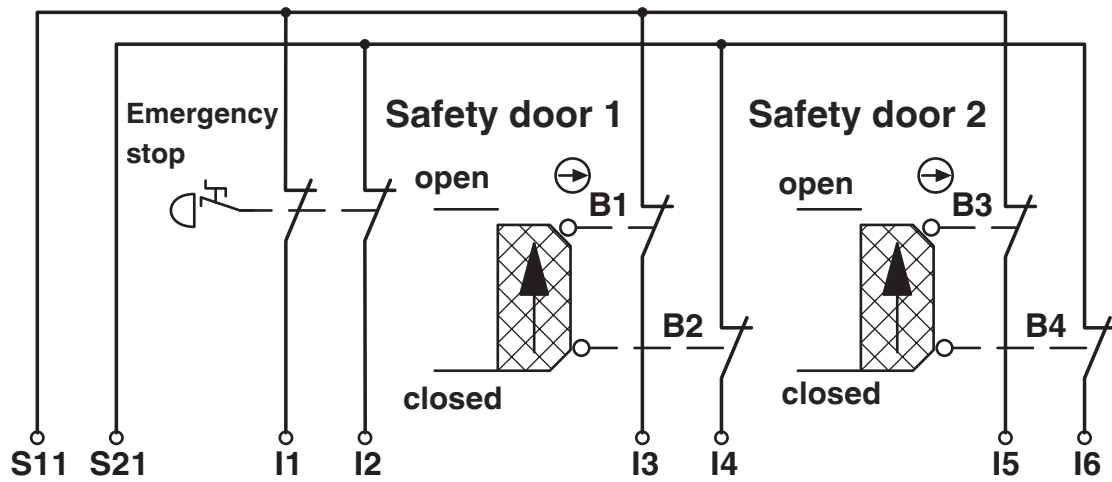
Circuit diagram



Circuit diagram



Circuit diagram



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## Classifications

### ETIM

|          |          |
|----------|----------|
| ETIM 8.0 | EC001449 |
|----------|----------|

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 21.0 | 39122200 |
|-------------|----------|

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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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