

# PSR-SPP-24DC/MXF4/4X1/2X2/B - Safety relays



2903261  
<https://www.phoenixcontact.com/us/products/2903261>

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Multifunctional safety relay for emergency stop, safety doors, and light grid 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 spring-cage 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                          | 2903261                        |
| Packing unit                         | 1 pc                           |
| Note                                 | Made to order (non-returnable) |
| Sales key                            | DN01                           |
| Product key                          | DNA191                         |
| Catalog page                         | Page 234 (C-6-2019)            |
| GTIN                                 | 4046356729253                  |
| Weight per piece (including packing) | 290.5 g                        |
| Weight per piece (excluding packing) | 26.1 g                         |
| Customs tariff number                | 85371098                       |
| Country of origin                    | DE                             |

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## Technical data

### Product properties

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

### 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/S12 and S21/S22)                                                     |
|                                               | 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                                                                                              |
| Protective circuit                            | Surge protection; Suppressor diode                                                                  |
| Max. permissible overall conductor resistance | 100 $\Omega$                                                                                        |

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|                           |               |
|---------------------------|---------------|
| Operating voltage display | 1 x green LED |
| Status display            | 5x 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                            | $72 A^2 (I_{TH}^2 = I_1^2 + I_2^2 + I_3^2 + I_4^2 \text{ (note derating)})$ |
| Interrupting rating (ohmic load) max.        | 1500 VA (250 V AC, $\tau = 0$ ms)                                           |
|                                              | 66 W (220 V DC, $\tau = 0$ ms)                                              |
|                                              | 66 W (110 V DC, $\tau = 0$ ms)                                              |
|                                              | 100 W (48 V DC, $\tau = 0$ ms)                                              |
|                                              | 144 W (24 V DC, $\tau = 0$ ms)                                              |
| Maximum interrupting rating (inductive load) | 48 W (24 V DC, $\tau = 40$ ms)                                              |
|                                              | 43 W (48 V DC, $\tau = 40$ 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                                                     | Push-in connection                                   |
| Conductor cross section rigid                                         | 0.2 mm² ... 1.5 mm²                                  |
| Conductor cross section flexible                                      | 0.2 mm² ... 1.5 mm²                                  |
| Conductor cross section, flexible, with ferrule, with plastic sleeve  | 0.25 mm² ... 1.5 mm² (only together with CRIMPFOX 6) |
| Conductor cross section flexible, with ferrule without plastic sleeve | 0.25 mm² ... 1.5 mm² (only together with CRIMPFOX 6) |
| Conductor cross-section AWG                                           | 24 ... 16                                            |
| Stripping length                                                      | 8 mm                                                 |

## Dimensions

|        |          |
|--------|----------|
| Width  | 22.5 mm  |
| Height | 117.4 mm |

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

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

## Mounting

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

# PSR-SPP-24DC/MXF4/4X1/2X2/B - Safety relays

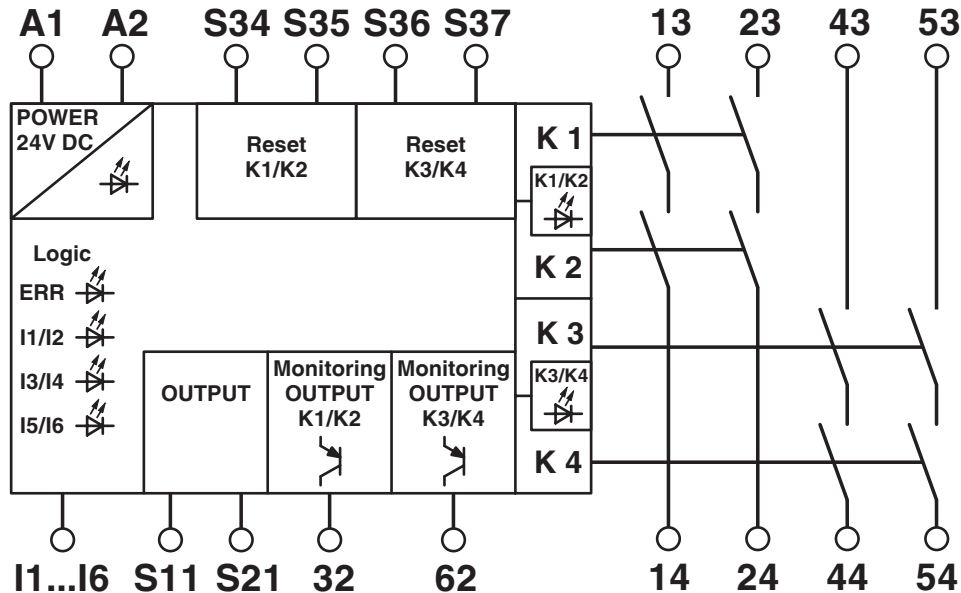


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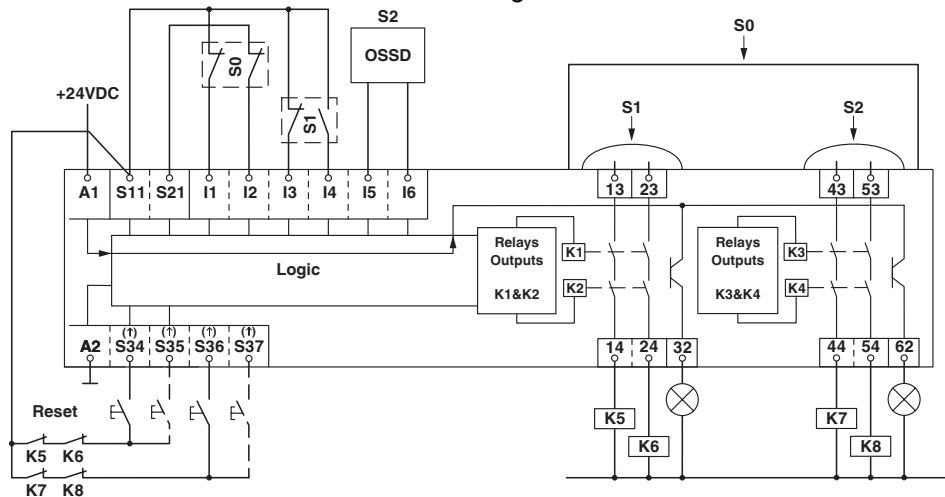
<https://www.phoenixcontact.com/us/products/2903261>

## Drawings

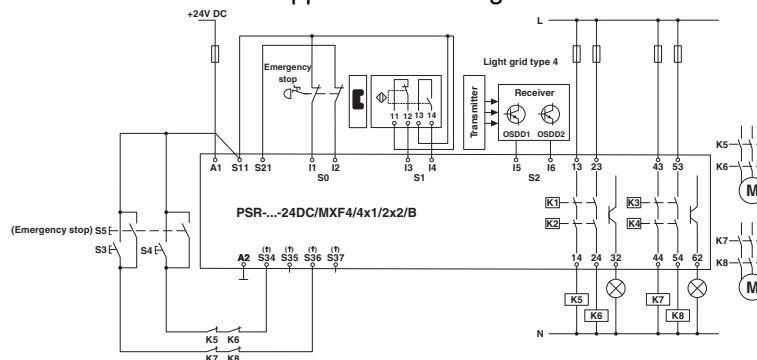
Circuit diagram



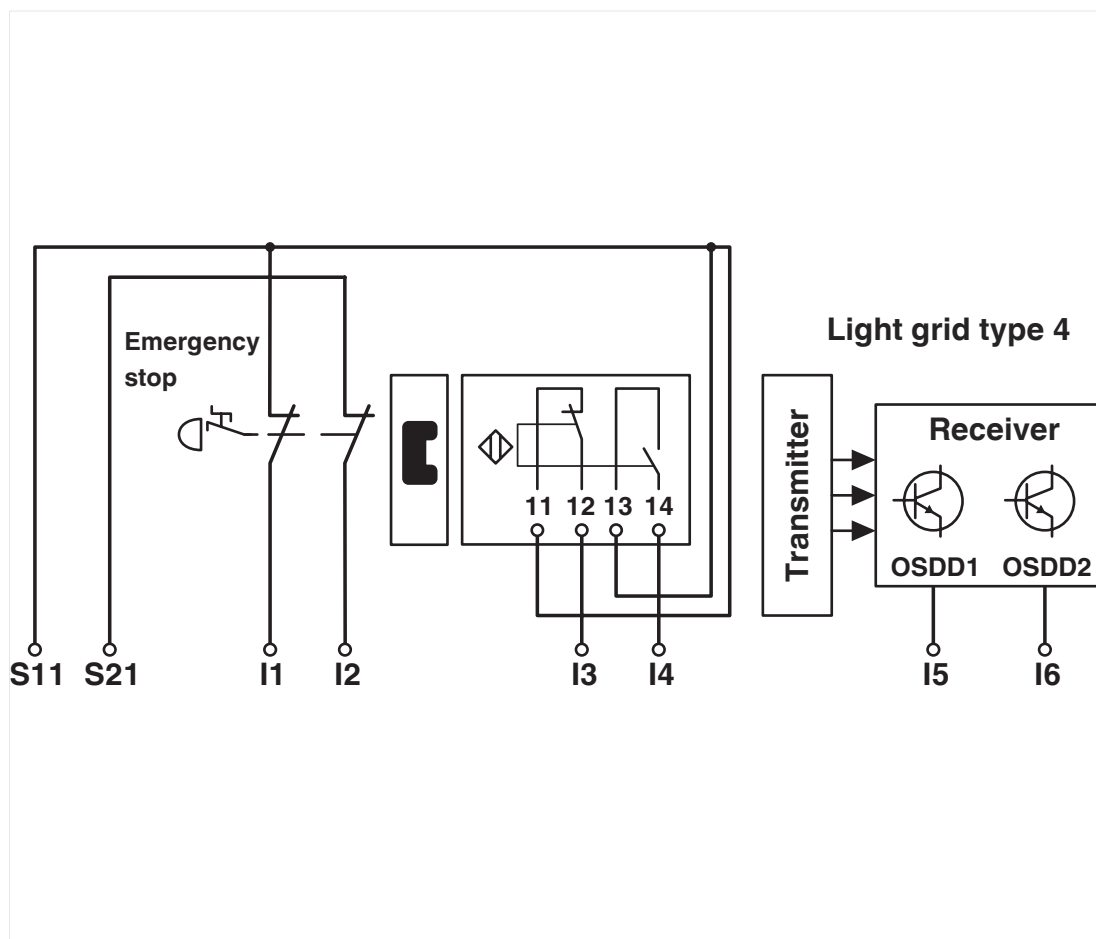
Circuit diagram



Application drawing



Circuit diagram



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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-11.0 | 27371819 |
|-------------|----------|

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 21.0 | 39122205 |
|-------------|----------|

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## Environmental product compliance

|            |                                                                                                              |
|------------|--------------------------------------------------------------------------------------------------------------|
| China RoHS | Environmentally Friendly Use Period = 50 years                                                               |
|            | For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads" |

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