

PSR-PIP-24DC/MXF2/4X1/2X2/B - Safety relays



2903256

<https://www.phoenixcontact.com/us/products/2903256>

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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, pluggable Push-in terminal block (tool-free actuation)

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 | 2903256 |
| Packing unit | 1 pc |
| Sales key | DN01 |
| Product key | DNA191 |
| GTIN | 4046356729802 |
| Weight per piece (including packing) | 280.2 g |
| Weight per piece (excluding packing) | 204.9 g |
| Customs tariff number | 85371098 |
| Country of origin | DE |

Technical data

Product properties

| | |
|-------------------------|--|
| Product type | Safety relays |
| Application | Emergency stop |
| | Safety door |
| | Magnetic switch |
| Control | 1 and 2 channel |
| Mechanical service life | 10x 10 ⁶ 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

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|---|-----------------------|
| 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 | ∞ |
| Recovery time | 1 s (Availability time after activation of sensor circuit: 100ms) |

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|---|------------------------------------|
| Maximum switching frequency | 0.5 Hz |
| 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

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|--|---|
| 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 | $72 \text{ A}^2 (I_{TH}^2 = I_1^2 + I_2^2 + I_3^2 + I_4^2)$ |
| 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 power 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 | no |
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Conductor connection

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|----------------------------------|---|
| Connection method | Push-in connection |
| Conductor cross-section rigid | 0.2 mm ² ... 2.5 mm ² |
| Conductor cross-section flexible | 0.2 mm ² ... 2.5 mm ² |
| Conductor cross-section AWG | 24 ... 16 |
| Stripping length | 10 mm |

Dimensions

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|--------|----------|
| Width | 22.5 mm |
| Height | 106.4 mm |

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

Material specifications

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

Characteristics

Safety data

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| Stop category (EN 60204-1) | 0 (acc. to EN 60204-1) |
|----------------------------|------------------------|

Safety data: EN ISO 13849

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

Safety data: EN 50156

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

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Safety data

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Safety data

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| Safety Integrity Level (SIL) | 3 |
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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

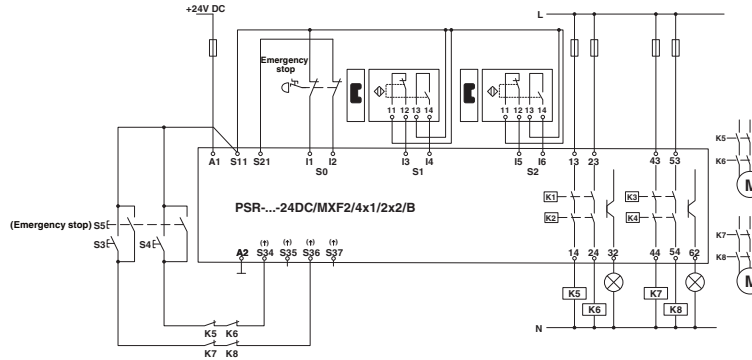
| | |
|-----------------------|-----------------------|
| Standards/regulations | DIN EN 50178/VDE 0160 |
|-----------------------|-----------------------|

Mounting

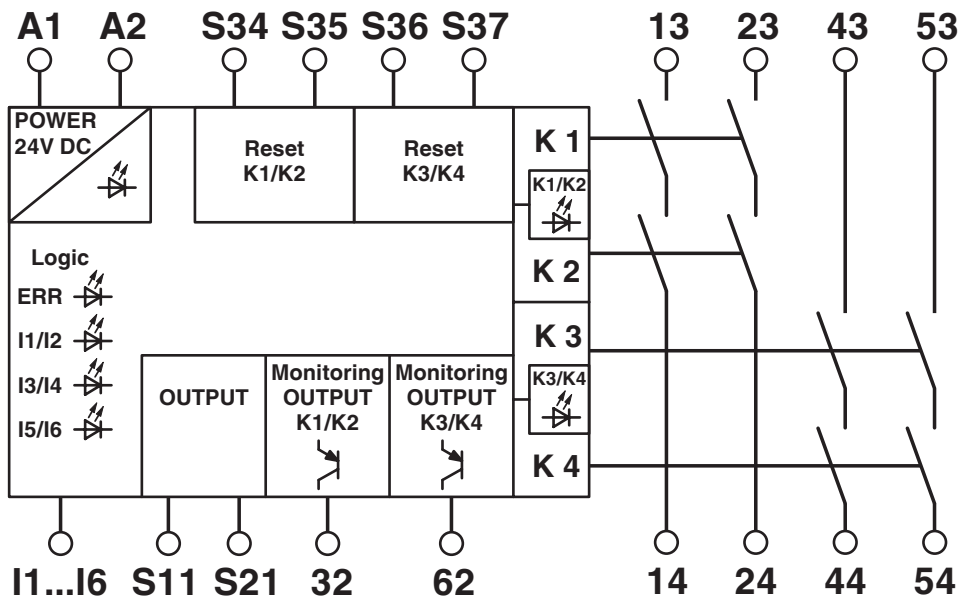
| | |
|-------------------|------------------------|
| Mounting type | DIN rail mounting |
| Assembly note | See derating curve |
| Mounting position | vertical or horizontal |

Drawings

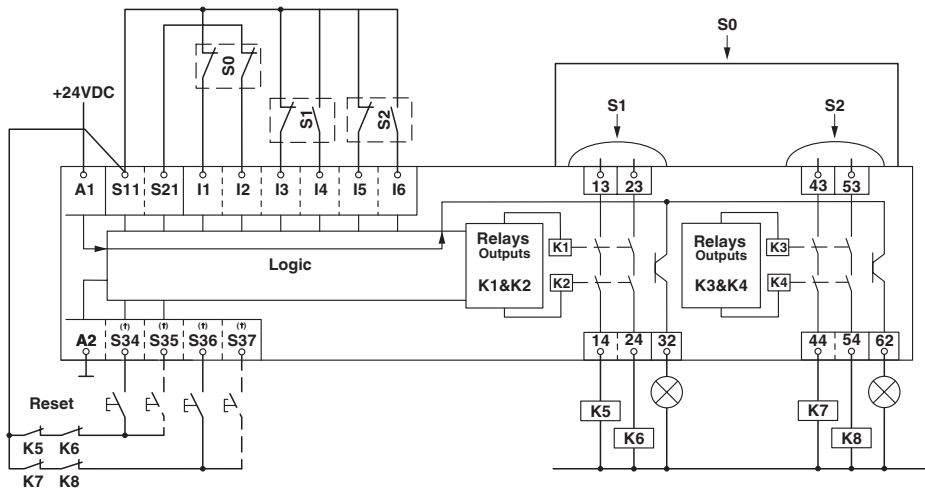
Circuit diagram



Circuit diagram



Circuit diagram



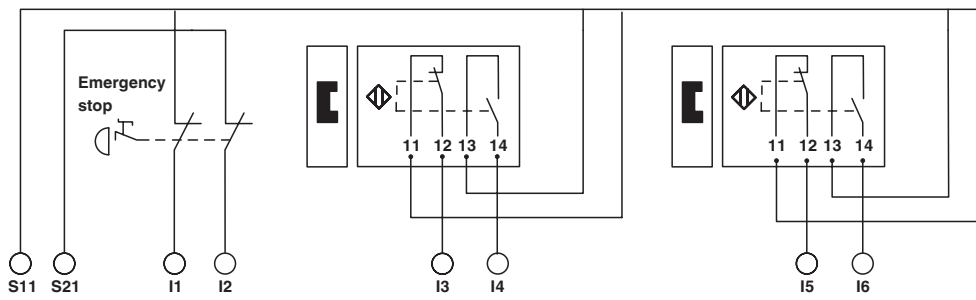
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Circuit diagram



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Classifications

UNSPSC

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

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Environmental product compliance

EU RoHS

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

China RoHS

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|--|---|
| 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

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|-------------------------------------|----------------------|
| REACH candidate substance (CAS No.) | Lead(CAS: 7439-92-1) |
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