

PSR-MC32-3NO-1NC-24-230UC-SP - Safety relays



2700525

<https://www.phoenixcontact.com/us/products/2700525>

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The figure shows a version with a screw connection

Safety relay for emergency stop, safety doors and light grids up to SIL 3, Cat. 4, PL e, 1 or 2-channel operation, automatic or manual, monitored start, 3 enabling current paths, 1 signaling current path, $U_S = 24 \dots 230 \text{ V AC/DC}$, pluggable Push-in terminal block

Product description

The safety relay PSR-MC32 enables the monitoring of various items of safety equipment, e.g., emergency stop, safety doors, or light grids. Thanks to the wide range input from 24 V AC/DC to 230 V AC/DC and the option of connecting antivalent or equivalent signal generators, the PSR-MC32 is ideal for both retrofit and new projects.

Your advantages

- Up to Cat. 4/PL e in accordance with EN ISO 13849-1, SIL 3 in accordance with EN IEC 62061
- Low housing width of only 22.5mm
- 1 or 2-channel control
- Wide range input 24 V AC/DC ... 230 V AC/DC
- Cross-circuit detection

Commercial data

| | |
|--------------------------------------|---------------|
| Item number | 2700525 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | DN01 |
| Product key | DNA181 |
| GTIN | 4046356912709 |
| Weight per piece (including packing) | 221 g |
| Weight per piece (excluding packing) | 235.4 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 | PSRmini |
| Application | Emergency stop |
| | Safety door |
| | Magnetic switch |
| | Transponder |
| | Light grid |
| Control | 1 and 2 channel |
| Relay type | Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3 |

Insulation characteristics

| | |
|----------------------|---|
| Overvoltage category | II, III (See the section "Insulation coordination") |
| Degree of pollution | 2 |

Times

| | |
|-------------------------------|---|
| Typical response time | < 150 ms (automatic start) |
| | < 100 ms (manual, monitored start) |
| Typ. starting time with U_s | < 200 ms (when controlled via A1) |
| Response time | < 200 ms (When requested via A1; applicative deactivation via A1/A2 is not permitted) |
| Typical release time | < 20 ms (on demand via the sensor circuit) |
| Restart time | < 1 s (Boot time) |
| Recovery time | < 500 ms (following demand of the safety function) |
| | 100 ms (Availability time after activating the sensor circuit during manual start) |
| Start pulse length | min. 500 ms (manual start) |

Electrical properties

| | |
|---|--|
| Maximum power dissipation for nominal condition | 17.3 W (at $I_L^2 = 72 \text{ A}^2$) |
| Nominal operating mode | 100% operating factor |
| Rated insulation voltage | 250 V AC |
| Rated surge voltage/insulation | See data sheet, section "Insulation coordination". |

Supply

| | |
|--|---|
| Designation | A1/A2 |
| Rated control circuit supply voltage U_s | 24 V AC/DC ... 230 V AC/DC -15 % / +10 % typ. 103 mA (24 V DC) |

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| | |
|------------------------------------|---|
| Rated control supply current I_S | typ. 47 mA (48 V DC) |
| | typ. 38 mA (110 V AC) |
| | typ. 21 mA (230 V AC) |
| Power consumption at U_S | 2.7 W (with DC) |
| | 2.9 W (with AC) |
| Apparent power | typ. 5 VA (at U_S) |
| Inrush current | < 80 A ($\Delta t = 50 \mu s$ at U_S) |
| Filter time | 2 ms (at A1 in the event of voltage dips at U_S) |
| Protective circuit | 275 V varistor / 411 V suppressor diode |

Input data

Digital: Sensor circuit (S10, S12, S13, S22)

| | |
|---|---|
| Description of the input | safety-related sensor inputs IEC 61131-2 Type 3 (S10, S12, S13) Current, inward (S10, S12, S13) Current, outward (S22) |
| Number of inputs | 4 |
| Input voltage range "0" signal | 0 V DC ... 5 V DC (for safe Off; at S10/S12/S13) |
| Input voltage range "1" signal | 11 V DC ... 30 V DC (at S10/S12/S13) |
| Input current range "0" signal | 0 mA ... 2 mA (for safe Off; at S10/S12/S13) |
| Inrush current | < 5 mA (typically with U_S at S10/S12/S13) |
| | > -5 mA (typ. with U_S at S22) |
| Filter time | max. 1.5 ms (Test pulse width of low test pulses) |
| | Test pulse rate = 5 x Test pulse width |
| Concurrence | ∞ |
| Max. permissible overall conductor resistance | 150 Ω |
| Protective circuit | Reverse polarity protection; 38.6 V suppressor diode |
| Current consumption | typ. 4 mA (typically with U_S at S10/S12/S13) |
| | typ. -2 mA (typ. with U_S at S22) |

Digital: Start circuit (S34, S35)

| | |
|---|--|
| Description of the input | non-safety-related |
| Number of inputs | 2 |
| Input voltage range "1" signal | 19.2 V DC ... 30 V DC |
| Inrush current | typ. 10 mA (typ. with U_S at S34/S35, $\Delta t = 330$ ms) |
| Max. permissible overall conductor resistance | 150 Ω |
| Protective circuit | Reverse polarity protection; 38.6 V suppressor diode |
| Current consumption | typ. 2.5 mA (typ. with U_S at S34) |
| | typ. 1 mA (typ. with U_S at S35) |

Output data

Relay: Enabling current paths (13/14, 23/24, 33/34)

| | |
|--------------------|---|
| Output description | 2 N/O contacts each in series, safety-related, floating |
| Number of outputs | 3 |

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| | |
|-----------------------------|---|
| Contact switching type | 3 enabling current paths |
| Contact material | AgSnO ₂ |
| Switching voltage | min. 5 V AC/DC |
| | max. 250 V AC/DC |
| Switching power | min. 50 mW |
| Inrush current | min. 10 mA |
| | max. 6 A |
| Switching capacity | 5 A (DC13) |
| | 5 A (AC15) |
| Limiting continuous current | 6 A |
| Sq. Total current | 72 A ² (observe derating) |
| Switching frequency | max. 1 Hz |
| Mechanical service life | 10x 10 ⁶ cycles |
| Output fuse | 6 A gL/gG |
| | 4 A gL/gG (for low-demand applications) |

Relay: Signaling current path (41/42)

| | |
|-----------------------------|---|
| Output description | 2 N/C contacts parallel, non-safety-related, floating |
| Number of outputs | 1 |
| Contact switching type | 1 signaling current path |
| Contact material | AgSnO ₂ |
| Switching voltage | min. 5 V AC/DC |
| | max. 250 V AC/DC |
| Switching power | min. 50 mW |
| Inrush current | min. 10 mA |
| | max. 6 A |
| Limiting continuous current | 6 A |
| Switching frequency | 1 Hz |
| Mechanical service life | 10x 10 ⁶ cycles |
| Output fuse | 6 A gL/gG |
| | 4 A gL/gG (for low-demand applications) |

Connection data

Connection technology

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

Conductor connection

| | |
|---|--|
| Connection method | Push-in connection |
| Conductor cross-section rigid | 0.2 mm ² ... 1.5 mm ² |
| Conductor cross-section flexible | 0.2 mm ² ... 1.5 mm ² |
| Conductor cross-section, flexible, with ferrule, with plastic sleeve | 0.25 mm ² ... 1.5 mm ² (only together with CRIMPFOX 6) |
| Conductor cross-section, flexible, with ferrule, without plastic sleeve | 0.25 mm ² ... 1.5 mm ² (only together with CRIMPFOX 6) |
| Conductor cross-section AWG | 24 ... 16 |
| Stripping length | 8 mm |

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Signaling

| | |
|---------------------------|-----------------|
| Status display | 3 x LED (green) |
| Operating voltage display | 1 x LED (green) |

Dimensions

| | |
|--------|----------|
| Width | 22.5 mm |
| Height | 117.4 mm |
| Depth | 114.5 mm |

Material specifications

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

Characteristics

Safety data

| | |
|----------------------------|---|
| Stop category (EN 60204-1) | 0 |
|----------------------------|---|

Safety data: EN ISO 13849

| | |
|------------------------|---|
| Performance level (PL) | e |
|------------------------|---|

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) | -40 °C ... 55 °C (observe derating) -40 °C ... 60 °C (mounted in the horizontal mounting position with ≥ 9 mm spacing) |
| Ambient temperature (storage/transport) | -40 °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) |
| Shock | 15g |
| Vibration (operation) | 10 Hz ... 150 Hz, 2g |

Mounting

| | |
|---------------|-------------------|
| Mounting type | DIN rail mounting |
|---------------|-------------------|

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| | |
|-------------------|------------------------|
| Assembly note | See derating curve |
| Mounting position | vertical or horizontal |

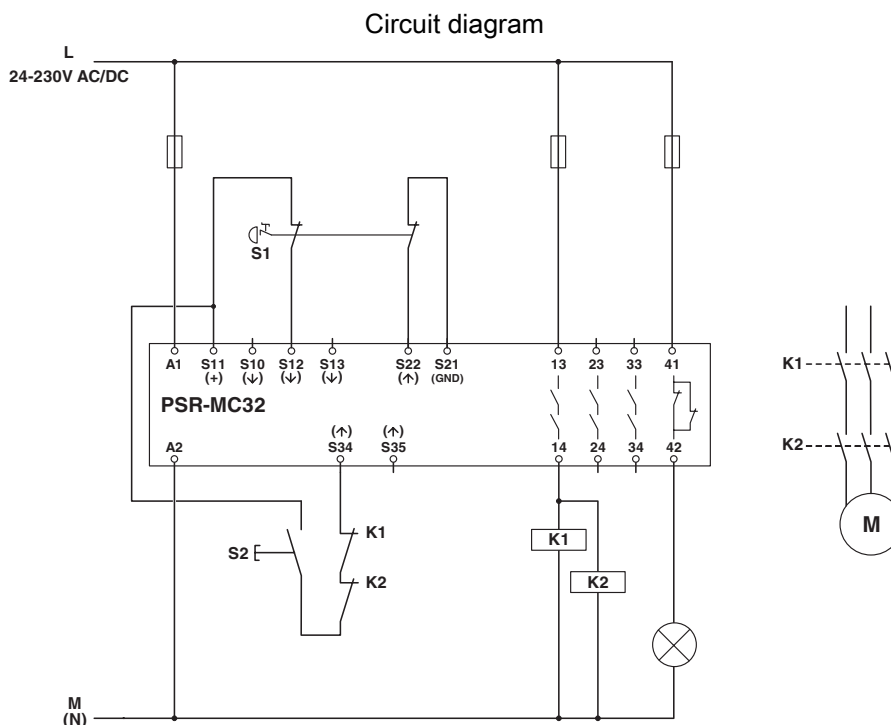
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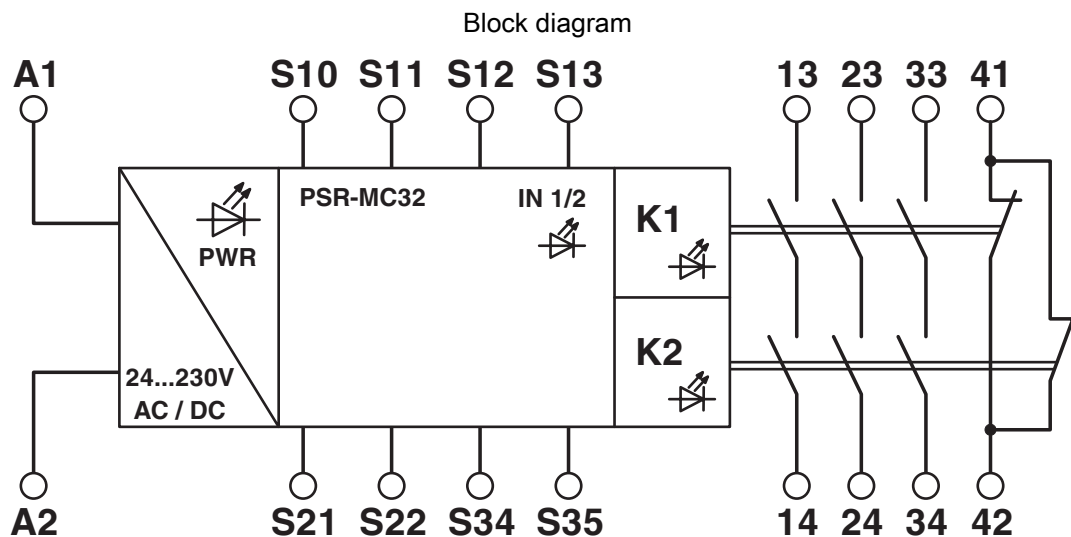
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Drawings



Example application



Block diagram

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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2700525>



Functional Safety

Approval ID: 44-205-15124310



cULus Listed

Approval ID: E140324

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Classifications

ECLASS

| | |
|-------------------|----------|
| ECLASS-13.0 | 27371819 |
| ECLASS-15.0 | 27371819 |
| ECLASS-15.0 ASSET | 27250101 |

ETIM

| | |
|-----------|----------|
| ETIM 10.0 | EC001449 |
|-----------|----------|

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

| | |
|--|---|
| 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 | 8edaa448-c590-4744-a82d-d79727381b2a |

EF3.1 Climate Change

| | |
|---------|--------------|
| CO2e kg | 5.05 kg CO2e |
|---------|--------------|

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