

PSR-ME20-3NO-1NC-24DC-SC - Safety relays



1301402

<https://www.phoenixcontact.com/in/products/1301402>

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Safety relay for emergency stops, safety doors, and light grids up to SIL 2, Cat. 3, PL d, 1- or 2-channel operation, automatic or manual, monitored start, 3 enabling current paths, 1 signaling current path, $U_S = 24\text{ V DC}$, plug-in screw terminal block

Your advantages

- Up to Cat. 3/PL d in acc. with EN ISO 13849-1, SIL 2 in acc. with EN IEC 62061, SIL 2 in acc. with IEC 61508
- 3 enabling current paths, 1 signaling current path
- 1- and 2-channel control
- Manually monitored and automatic activation

Commercial data

| | |
|--------------------------------------|---------------|
| Item number | 1301402 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | DNA |
| Product key | DNA121 |
| GTIN | 4063151545338 |
| Weight per piece (including packing) | 187.5 g |
| Weight per piece (excluding packing) | 156.22 g |
| Customs tariff number | 85371098 |
| Country of origin | DE |

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Technical data

Notes

Note on application

| | |
|---------------------|-------------------------|
| Note on application | Only for industrial use |
|---------------------|-------------------------|

Product properties

| | |
|-------------------------|--|
| Product type | Safety relays |
| Product family | PSRclassic |
| Application | Emergency stop |
| | Safety door |
| | Light grid |
| Set comprises | 1301404 PSR-ME20-3NO-1NC-24DC-SC-SET35 |
| Control | 1 and 2 channel |
| Mechanical service life | approx. 10^7 cycles |
| Relay type | Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3 |

Times

| | |
|-------------------------------|--|
| Typical response time | 200 ms (automatic start) |
| | 200 ms (manual, monitored start) |
| Typ. starting time with U_S | 200 ms (when controlled via A1) |
| Typical release time | 25 ms (on demand via the sensor circuit) |
| | 60 ms (on demand via A1) |
| Restart time | < 1 s (Boot time) |
| Recovery time | < 500 ms (following demand of the safety function) |

Electrical properties

| | |
|---|---|
| Maximum power dissipation for nominal condition | 16.6 W ($U_S = 26.4$ V, $I_L^2 = 72$ A ² , $P_{\text{Total max}} = 2.2$ W + 14.4 W) |
| Nominal operating mode | 100% operating factor |

Air clearances and creepage distances between the power circuits

| | |
|--------------------------------|--|
| Rated insulation voltage | 250 V |
| Rated surge voltage/insulation | Basic insulation 4 kV between all output current paths |
| | Basic insulation 4 kV between all output current paths/logic paths and housing |
| | Safe isolation, reinforced insulation 6 kV between 250 V load current paths and 24 V logic paths |

Supply

| | |
|--|---|
| Designation | A1/A2 |
| Rated control circuit supply voltage U_S | 24 V DC -15 % / +10 % |
| Rated control supply current I_S | typ. 70 mA (at U_S) |
| Power consumption at U_S | typ. 1.68 W |
| Inrush current | < 5.2 A (typ. with U_S , $\Delta t = 2$ ms) |

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| | |
|--------------------|---|
| Filter time | 5 ms (in the event of voltage dips at U_S) |
| Protective circuit | Serial protection against polarity reversal; Suppressor diode |

Input data

General

| | |
|------------------------------------|------------------------|
| Rated control supply current I_S | typ. 70 mA (at U_S) |
|------------------------------------|------------------------|

Digital: Sensor circuit (S10, S12, S22)

| | |
|---|---|
| Description of the input | safety-related sensor inputs |
| Number of inputs | 3 |
| Input voltage range "0" signal | 0 V DC ... 5 V DC (S10, S12) |
| Input voltage range "1" signal | 20.4 V ... 26.4 V |
| Input current range "0" signal | 0 mA ... 2 mA |
| Inrush current | < 100 mA (typ. with U_S at S10/S12) > -100 mA (typ. with U_S at S22) |
| Filter time | 1 ms (Test pulse width of low test pulses) 1 s (Test pulse rate for low test pulse) No brightness test pulses / high test pulses permitted. |
| Concurrence | ∞ |
| Max. permissible overall conductor resistance | 50 Ω |
| Protective circuit | Suppressor diode |
| Current consumption | 38 mA (typ. with U_S at S10/S12) -38 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 | 20.4 V ... 26.4 V |
| Inrush current | < 7 mA (typ. with U_S at S34) < 8 mA (typ. with U_S at S35) |
| Filter time | No test pulses permitted |
| Max. permissible overall conductor resistance | 50 Ω |
| Protective circuit | Suppressor diode |
| Current consumption | 2 mA (typ. with U_S at S34) 3 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 |
| Contact switching type | 3 enabling current paths |
| Contact material | AgSnO ₂ |
| Switching voltage | min. 10 V AC/DC max. 250 V AC/DC |

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| | |
|---|---|
| Switching capacity | min. 100 mW |
| Inrush current | min. 10 mA |
| | max. 6 A |
| Switching capacity in accordance with IEC 60947-5-1 | 5 A (AC15) |
| | 6 A (DC13) |
| Limiting continuous current | 6 A (Observe derating and load limit curve) |
| Sq. Total current | 72 A ² (observe derating) |
| Switching frequency | max. 0.5 Hz |
| Mechanical service life | 10x 10 ⁶ cycles |
| Output fuse | 10 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 | 2 NC parallel |
| Contact material | AgSnO ₂ |
| Switching voltage | min. 10 V AC/DC |
| | max. 250 V AC/DC |
| Switching capacity | min. 100 mW |
| Inrush current | min. 10 mA |
| | max. 6 A |
| Switching capacity in accordance with IEC 60947-5-1 | 3 A (AC15) |
| | 2 A (DC13) |
| Limiting continuous current | 6 A |
| Sq. Total current | 36 A ² |
| Switching frequency | max. 0.5 Hz |
| Mechanical service life | 10x 10 ⁶ cycles |
| Output fuse | 6 A gL/gG |

Connection data

Connection technology

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

Conductor connection

| | |
|----------------------------------|---|
| Connection method | Screw 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 ... 12 |
| Stripping length | 7 mm |
| Screw thread | M3 |
| Tightening torque | 0.5 Nm ... 0.6 Nm |

Signaling

| | |
|----------------|-----------------|
| Status display | 2 x LED (green) |
|----------------|-----------------|

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

Dimensions

| | |
|--------|----------|
| Width | 22.5 mm |
| Height | 112.2 mm |
| Depth | 114.5 mm |

Material specifications

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|------------------|---------------------------|
| Color (Housing) | traffic grey B (RAL 7043) |
| Housing material | PA |

Characteristics

Safety data

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

Safety data: EN ISO 13849

| | |
|------------------------|---|
| Category | 3 |
| Performance level (PL) | d |

Safety data: IEC 61508 - High demand

| | |
|------------------------------|---|
| Safety Integrity Level (SIL) | 2 |
|------------------------------|---|

Safety data: IEC 61508 - Low demand

| | |
|------------------------------|---|
| Safety Integrity Level (SIL) | 2 |
|------------------------------|---|

Safety data: EN IEC 62061

| | |
|------------------------------|---|
| Safety Integrity Level (SIL) | 2 |
|------------------------------|---|

Environmental and real-life conditions

Ambient conditions

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

| | |
|----------------|--------------|
| Identification | CE-compliant |
|----------------|--------------|

Standards and regulations

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Air clearances and creepage distances between the power circuits

| | |
|-----------------------|----------------|
| Standards/regulations | DIN EN 60947-1 |
|-----------------------|----------------|

Mounting

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

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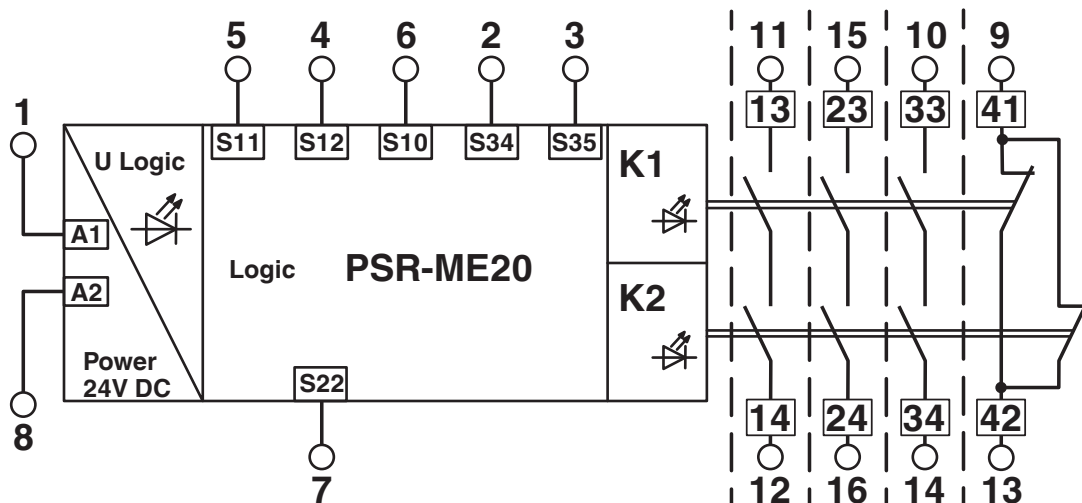


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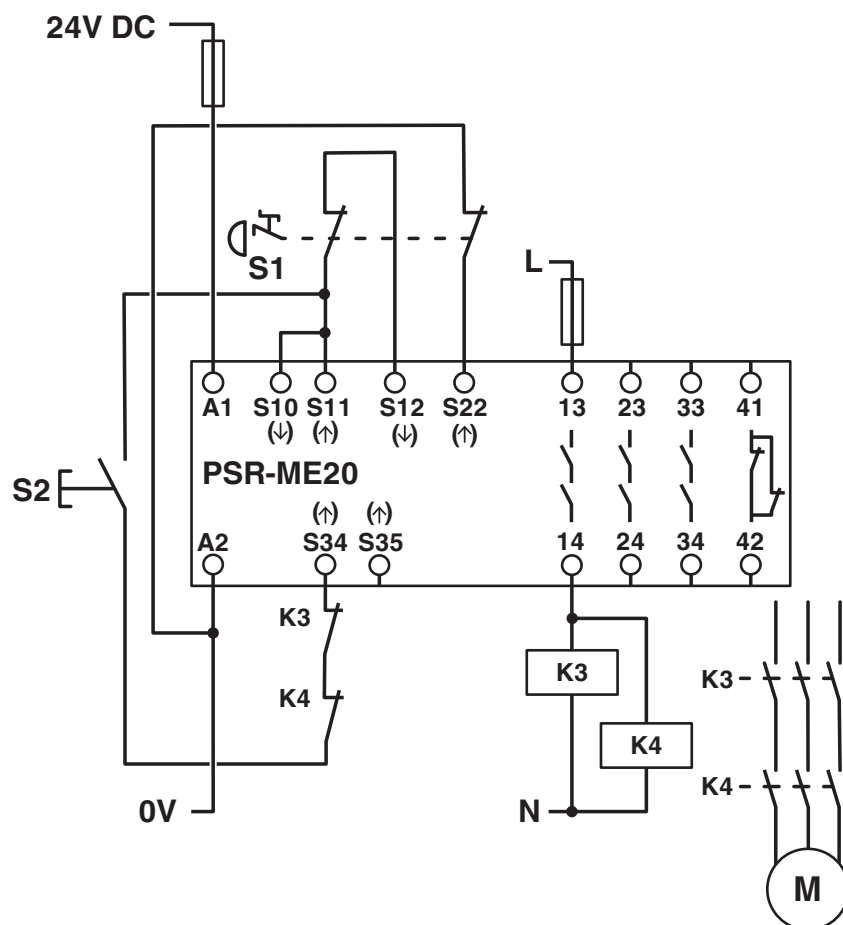
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Drawings

Block diagram



Circuit diagram




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Approvals

 To download certificates, visit the product detail page: <https://www.phoenixcontact.com/in/products/1301402>



Functional Safety

Approval ID: 44-780-15124324



Functional Safety

Approval ID: 44-205-15124324



cULus Listed

Approval ID: E140324

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Classifications

ECLASS

| | |
|-------------|----------|
| ECLASS-11.0 | 27371819 |
| ECLASS-13.0 | 27371819 |
| ECLASS-12.0 | 27371819 |

ETIM

| | |
|----------|----------|
| ETIM 9.0 | EC001449 |
|----------|----------|

UNSPSC

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

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 | ed7cf660-2f07-41f2-8289-b4b32d3a7e05 |

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Accessories

CP-MSTB - Coding profile

1734634

<https://www.phoenixcontact.com/in/products/1734634>

Coding profile, is inserted into the slot on the plug or inverted header, red insulating material



CR-MSTB - Coding section

1734401

<https://www.phoenixcontact.com/in/products/1734401>

Coding section, inserted into the recess in the header or the inverted plug, red insulating material



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PSR-ESS-M0-H110 - Actuator

1221757

<https://www.phoenixcontact.com/in/products/1221757>



Actuator with anti-lock collar for modular emergency stop switches, for combination with module holder and contact module as a functional unit, panel installation, bayonet lock

PSR-ESS-ACC-CB1-C3 - Module holder

1221747

<https://www.phoenixcontact.com/in/products/1221747>



Module holder for modular emergency stop switches, connects the contact block and actuator with bayonet lock, suitable for 3 elements

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PSR-ESS-ACC-CB1-NC-SC - Contact module

1221752

<https://www.phoenixcontact.com/in/products/1221752>



Contact module for modular emergency stop switches with force-guided N/C contact for safety-related shutdown, in conjunction with appropriate evaluation unit suitable for use up to PL e (EN ISO 13849-1), SIL 3 (EN IEC 62061)

CRIMPFOX 6 - Crimping pliers

1212034

<https://www.phoenixcontact.com/in/products/1212034>



Crimping pliers, for ferrules without insulating collar according to DIN 46228 Part 1 and ferrules with insulating collar according to DIN 46228 Part 4, 0.25 mm² ... 6.0 mm², lateral entry, trapezoidal crimp

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