

PSR-MS55-1NO-1DO-24DC-SC - Safety relays



2904957

<https://www.phoenixcontact.com/us/products/2904957>

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Safety relay for monitoring non-equivalent signal generators up to SIL 3, Cat. 4, PL e, 2-channel, non-equivalent operation, manual, monitored start, 1 enabling current path, $U_S = 24 \text{ V DC}$, fixed 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
- Low housing width of just 6.8 mm
- Two-channel non-equivalent control
- 1 enabling current path, 1 digital signal output
- Manual and monitored activation

Commercial data

| | |
|--------------------------------------|---------------|
| Item number | 2904957 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | DN01 |
| Product key | DNA171 |
| GTIN | 4046356904872 |
| Weight per piece (including packing) | 77.45 g |
| Weight per piece (excluding packing) | 69.1 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 | PSRmini |
| Application | Antivalent signal generator Safety door Magnetic switch |
| Control | 2-channel |
| Relay type | Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3 |

Insulation characteristics

| | |
|----------------------|-----|
| Overvoltage category | III |
| Degree of pollution | 2 |

Times

| | |
|-------------------------------|--|
| Typical response time | < 175 ms |
| Typ. starting time with U_S | < 250 ms (when controlled via A1) |
| Typical release time | < 20 ms (when controlled via A1 or S12 and S13.) |
| Restart time | 1 s (Boot time, after switching on the supply voltage) |
| Recovery time | < 500 ms |

Electrical properties

| | |
|---|---|
| Maximum power dissipation for nominal condition | 3 W ($U_S = 26.4$ V, $I_L^2 = 36$ A ² , $P_{Total\ max} = 1.2$ W + 1.8 W) |
| Nominal operating mode | 100% operating factor |
| Rated insulation voltage | 250 V AC |
| Rated surge voltage/insulation | Safe isolation, reinforced insulation 6 kV between input circuit and enabling current path Basic insulation 4 kV between all current paths and housing |

Supply

| | |
|--|---|
| Designation | A1/A2 |
| Rated control circuit supply voltage U_S | 20.4 V DC ... 26.4 V DC |
| Rated control circuit supply voltage U_S | 24 V DC -15 % / +10 % |
| Rated control supply current I_S | typ. 42 mA |
| Power consumption at U_S | typ. 1 W |
| Inrush current | 4.5 A ($\Delta t < 120$ μ s at U_S) |
| Filter time | 1 ms (at A1 in the event of voltage dips at U_S) |
| Protective circuit | Surge protection; Suppressor diode Serial protection against polarity reversal |

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Input data

Digital: Sensor circuit (S12, S13)

| | |
|---|---|
| Description of the input | safety-related sensor inputs |
| Input voltage range "0" signal | 0 V DC ... 5 V DC (for safe Off; at S12) |
| Input voltage range "1" signal | 20.4 V DC ... 26.4 V DC |
| Input current range "0" signal | 0 mA ... 2 mA (for safe Off; at S12) |
| Inrush current | < 20 mA (typ. with U_S) |
| Filter time | max. 1.5 ms (Test pulse width of low test pulses) Test pulse rate = 5 x Test pulse width |
| Max. permissible overall conductor resistance | 150 Ω |
| Protective circuit | Suppressor diode |
| Current consumption | < 5 mA (with U_S/I_x to S12) < 5 mA (with U_S/I_x to S13) |

Digital: Start circuit (S34)

| | |
|---|-------------------------|
| Description of the input | non-safety-related |
| Number of inputs | 1 |
| Input voltage range "1" signal | 20.4 V DC ... 26.4 V DC |
| Inrush current | < 10 mA |
| Max. permissible overall conductor resistance | 150 Ω |
| Protective circuit | Suppressor diode |
| Current consumption | < 10 mA |

Output data

Relay: Enabling current path (13/14)

| | |
|-----------------------------|--|
| Output description | safety-related N/O contacts |
| Number of outputs | 1 (undelayed) |
| Contact switching type | 1 enabling current path |
| Contact material | AgSnO ₂ |
| Switching voltage | min. 12 V AC/DC max. 250 V AC/DC (Observe the load curve) |
| Switching power | min. 60 mW |
| Inrush current | min. 3 mA max. 6 A |
| Switching capacity | 5 A (AC15) 4 A (DC13) |
| Limiting continuous current | 6 A |
| Sq. Total current | 36 A ² (observe derating) |
| Switching frequency | max. 0.1 Hz |
| Mechanical service life | 10x 10 ⁶ cycles |
| Output fuse | 6 A gL/gG (N/O contact) 4 A gL/gG (for low-demand applications) |

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Signal: M1

| | |
|--------------------------|---|
| Output description | non-safety-related |
| Number of outputs | 1 (digital, PNP) |
| Voltage | 22 V DC ($U_s - 2 V$) |
| Current | max. 100 mA |
| Maximum inrush current | 500 mA ($\Delta t = 1 \text{ ms}$ at U_s) |
| Short-circuit protection | no |

Connection data

Connection technology

| | |
|-----------|----|
| pluggable | no |
|-----------|----|

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 | 26 ... 12 |
| Stripping length | 12 mm |
| Screw thread | M3 |
| Tightening torque | 0.5 Nm ... 0.6 Nm |

Signaling

| | |
|---------------------------|-----------------|
| Status display | 2 x LED (green) |
| Operating voltage display | 1 x LED (green) |

Dimensions

| | |
|--------|----------|
| Width | 6.8 mm |
| Height | 93.1 mm |
| Depth | 102.5 mm |

Material specifications

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

Characteristics

Safety data

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

Safety data: EN ISO 13849

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

Safety data: IEC 61508 - High demand

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

Safety data: IEC 61508 - Low demand

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| | |
|------------------------------|---|
| 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 ... 60 °C (observe derating) |
| 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 |

Approvals

CE

| | |
|-------------|--------------|
| Certificate | CE-compliant |
|-------------|--------------|

Mounting

| | |
|-------------------|------------------------|
| Mounting type | DIN rail mounting |
| Mounting position | vertical or horizontal |

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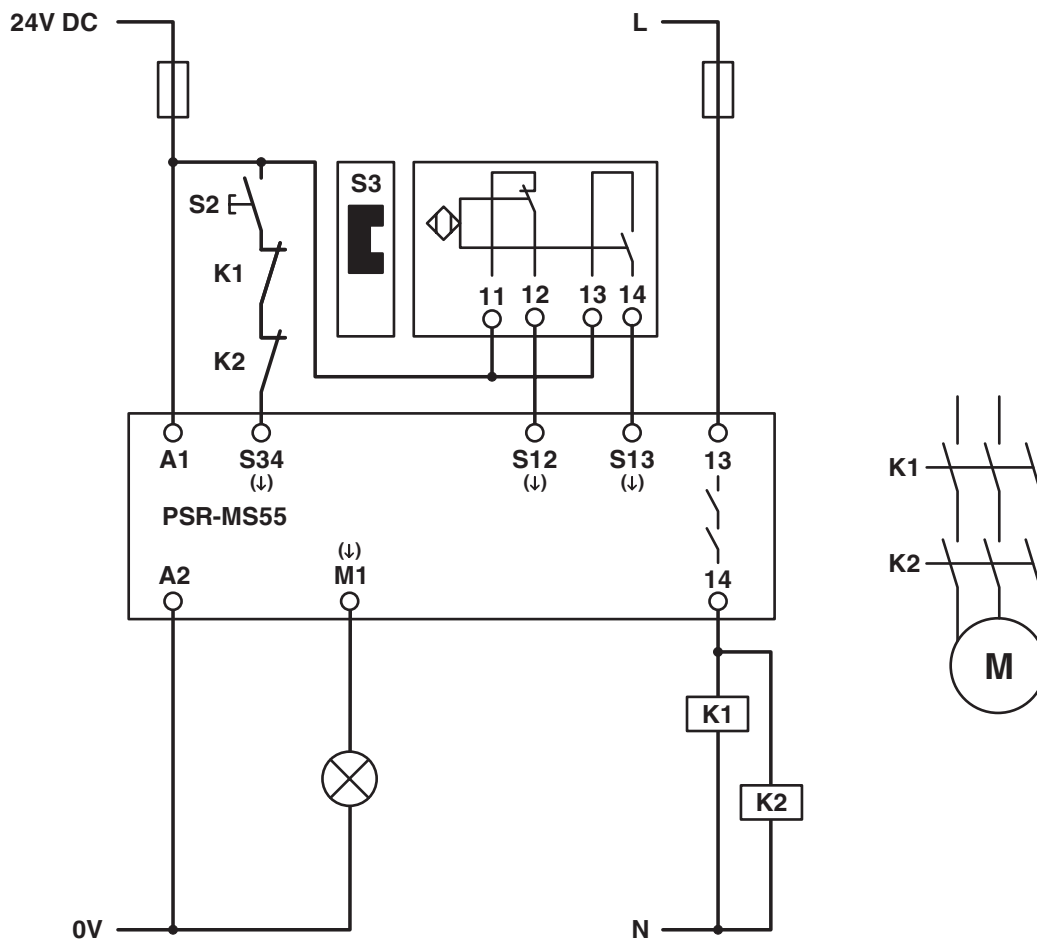


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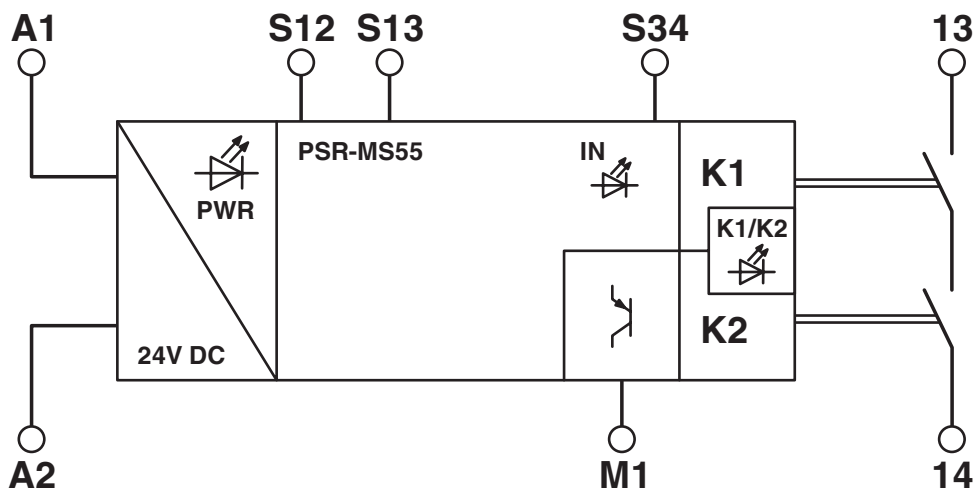
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Drawings

Circuit diagram



Block diagram



Block diagram

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Approvals

🔗 To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2904957>



Functional Safety

Approval ID: 44 205 13755202



cULus Listed

Approval ID: E140324



Functional Safety

Approval ID: 44 780 13755207

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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 | f7249ec2-a6de-4402-b581-a02f53725d95 |

EF3.1 Climate Change

| | |
|---------|----------------|
| CO2e kg | 12.075 kg CO2e |
|---------|----------------|

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