# PSR-MS30-1NO-24DC-SC - Safety relays

2904952

https://www.phoenixcontact.com/us/products/2904952

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Safety relay for emergency stop and safety doors up to SILCLSIL 3, Cat. 4, PL e, 1 or 2-channel operation, automatic start, cross-circuit detection, 1 enabling current path, $U_S$ = 24 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
- 2 channel control
- 1 enabling current path
- Automatic activation
- Cross-circuit detection

ELEKTROGERÄTE RÜCKNAHME

## Commercial data

| | |
|---|---|
| Item number | 2904952 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | DN01 |
| Product key | DNA171 |
| GTIN | 4046356905008 |
| Weight per piece (including packing) | 78.2 g |
| Weight per piece (excluding packing) | 69 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 |
| 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 | < 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 S22.) |
| 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 A², $P_{Total\ max}$ = 1.2 W + 1.8 W) |
| Nominal operating mode | 100% operating factor |
| Rated insulation voltage | 250 V AC |
| Rated surge voltage/insulation | See data sheet, section “Insulation coordination”. |

### 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 (Δt < 120 µs 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 |

## Input data

Digital: Sensor circuit (S12, S22)

| | |
|---|---|
| Description of the input | safety-related sensor inputs |
| Number of inputs | 2 |
| 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 $U_S$ at S12) |
| | < 5 mA (typ. with $U_S$ at S22) |
| | > -15 mA (typ. with $U_S$ at S22/0 V) |
| 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 S22) |
| | > -5 mA (with $U_s/I_x$ to S22/0V) |

Digital: Start circuit (S35)

| | |
|---|---|
| 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 |
| 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 |
| | 4 A gL/gG (for low-demand applications) |

## Connection data

Connection technology

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

Conductor connection

| | |
|---|---|
| Connection method | Screw connection |
| Conductor cross-section rigid | 0.2 mm² ... 2.5 mm² |
| Conductor cross-section flexible | 0.2 mm² ... 2.5 mm² |
| 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

| | |
|---|---|
| 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, amplitude 0.15 mm, 2g |

## Approvals

CE

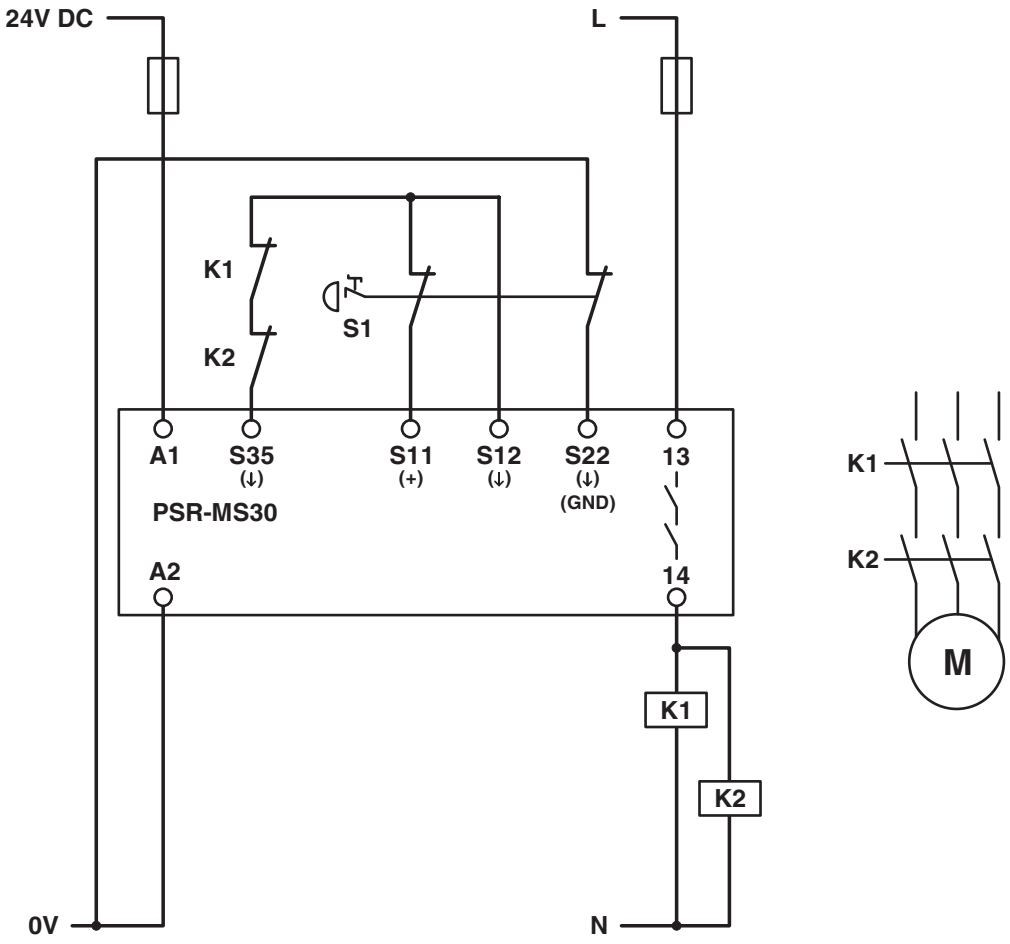
| | |
|---|---|
| Certificate | CE-compliant |

## Mounting

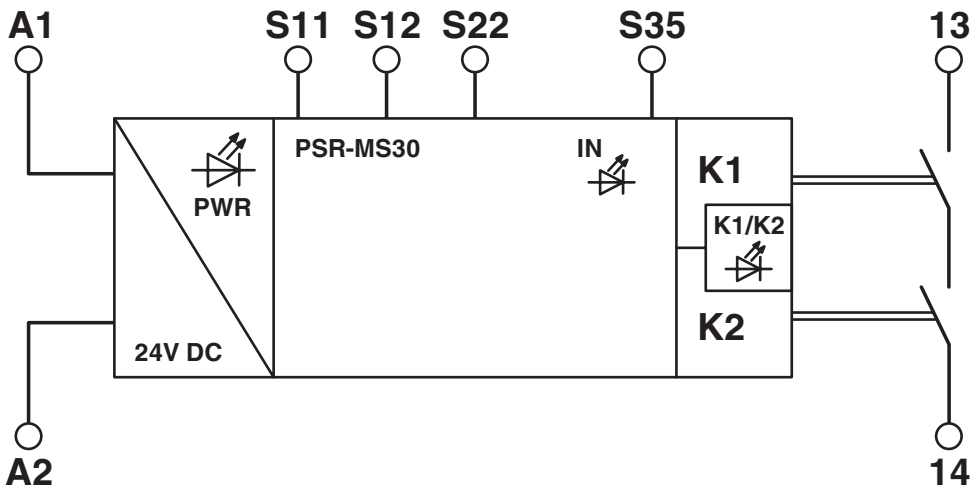
| | |
|---|---|
| Mounting type | DIN rail mounting |
| Assembly note | See derating curve |
| Mounting position | vertical or horizontal |

## Drawings

Application drawing

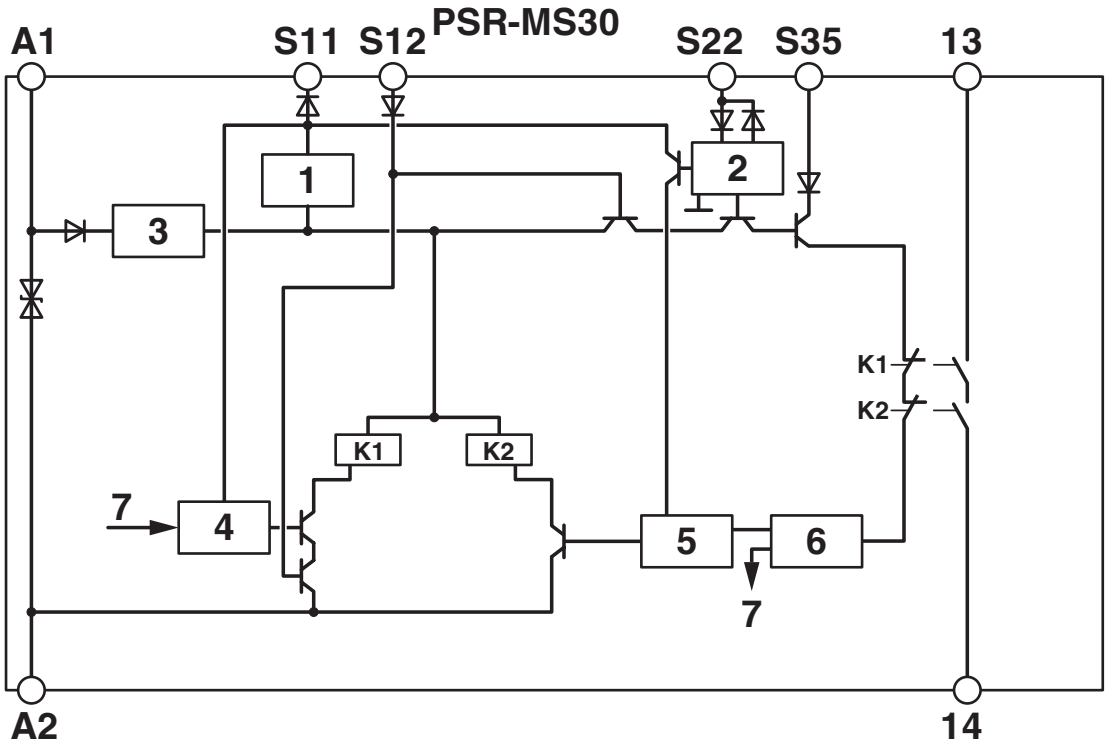



Block diagram




Block diagram

Block diagram




## Key:

1 = Current limitation
2 = Input circuit
3 = Voltage limitation
4 = Control circuit channel 1
5 = Control circuit channel 2
6 = Start channel 1 and 2
7 = Channel 1
K1, K2 = Force-guided elementary relays

## Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/2904952

**Functional Safety**
Approval ID: 44 205 13755202

**cULus Listed**
Approval ID: E140324

**Functional Safety**
Approval ID: 44 780 13755207

## 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 |

## Environmental product compliance

EU RoHS

| | |
|---|---|
| Fulfills EU RoHS substance requirements | Yes |
| Exemption | 7(a), 7(a)-I, 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 | 278151ed-422d-416c-a9c3-dc613dcbb002 |

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