

Safety relays - PSR-SCP- 24UC/ESA2/4X1/1X2/B - 2963802

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Safety relay for emergency stop and safety door up to SIL 1, SIL CL 1, Cat. 1, PL c, depending on the application up to SIL 3, SIL CL 3, Cat. 4, PL e, single-channel operation, 4 enabling current paths, $U_s = 24\text{ V AC/DC}$, plug-in screw terminal blocks

Your advantages

- Up to Cat. 1/PL c according to ISO 13849-1, SILCL 1 according to IEC 62061, SIL 1 according to IEC 61508
- Depending on the application, up to Cat. 4/PL e according to ISO 13849-1, SILCL 3 according to IEC 62061, SIL 3 according to IEC 61508
- Basic insulation
- Single-channel control



Key Commercial Data

| | |
|--------------|---|
| Packing unit | 1 pc |
| GTIN |  4 017918 892661 |
| GTIN | 4017918892661 |

Technical data

Note

| | |
|-------------------------|---|
| Utilization restriction | EMC: class A product, see manufacturer's declaration in the download area |
|-------------------------|---|

Dimensions

| | |
|--------|----------|
| Width | 22.5 mm |
| Height | 99 mm |
| Depth | 114.5 mm |

Ambient conditions

| | |
|--|---|
| Ambient temperature (operation) | -20 °C ... 65 °C (observe derating) |
| Ambient temperature (storage/transport) | -40 °C ... 70 °C |
| Max. permissible relative humidity (operation) | 75 % (on average, 85% infrequently, non-condensing) |
| Max. permissible humidity (storage/transport) | 75 % (on average, 85% infrequently, non-condensing) |
| Maximum altitude | ≤ 2000 m (Above sea level) |

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Technical data

Input data

| | |
|---|---|
| Rated control circuit supply voltage U_s | 24 V AC/DC -15 % / +10 % |
| Rated control supply current I_s | typ. 140 mA AC |
| | typ. 65 mA DC |
| Power consumption at U_s | typ. 3.36 W (AC) |
| | typ. 1.56 W (DC) |
| Inrush current | 2 A ($\Delta t = 10 \text{ ms}$ at U_s) |
| | < 40 mA (with U_s/I_x to S34) |
| Current consumption | < 50 mA (with U_s/I_x to S12) |
| | 0 mA (with U_s/I_x to S34) |
| Voltage at input/start and feedback circuit | 24 V DC -15 % / +10 % |
| Typical response time | < 65 ms (automatic start) |
| | < 40 ms (manual start) |
| Typ. starting time with U_s | < 65 ms (when controlled via A1) |
| Typical release time | < 45 ms (when controlled via S12) |
| | < 200 ms (when controlled via A1) |
| Recovery time | < 1 s |
| Operating voltage display | 1 x green LED |
| Status display | 2 x green LEDs |
| Protective circuit | Surge protection Suppressor diode |
| | Protection against polarity reversal for rated control circuit supply voltage |
| Maximum switching frequency | 1 Hz |
| Max. permissible overall conductor resistance | approx. 22 Ω (Input and start circuits at U_s) |
| Filter time | 2 ms (at A1 in the event of voltage dips at U_s) |
| | max. 1.5 ms (at S12; test pulse width) |
| | 7.5 ms (at S12; test pulse rate) |
| | Test pulse rate = 5 x Test pulse width |

Output data

| | |
|---------------------------------------|--|
| Contact type | 4 enabling current paths |
| | 1 signaling current path |
| Contact material | AgSnO ₂ |
| Maximum switching voltage | 250 V AC/DC (Observe the load curve) |
| Minimum switching voltage | 5 V AC/DC |
| Limiting continuous current | 6 A (N/O contact, pay attention to the derating) |
| | 6 A (N/C contact) |
| Maximum inrush current | 20 A ($\Delta t \neq 100 \text{ ms}$) |
| Inrush current, minimum | 10 mA |
| Sq. Total current | 72 A ² (observe derating) |
| Interrupting rating (ohmic load) max. | 144 W (24 V DC, $\tau = 0 \text{ ms}$) |
| | 288 W (48 V DC, $\tau = 0 \text{ ms}$) |

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Technical data

Output data

| | |
|--|-----------------------------------|
| | 110 W (110 V DC, $\tau = 0$ ms) |
| | 88 W (220 V DC, $\tau = 0$ ms) |
| | 1500 VA (250 V AC, $\tau = 0$ ms) |
| Maximum interrupting rating (inductive load) | 42 W (24 V DC, $\tau = 40$ ms) |
| | 42 W (48 V DC, $\tau = 40$ ms) |
| | 42 W (110 V DC, $\tau = 40$ ms) |
| | 42 W (220 V DC, $\tau = 40$ ms) |
| Switching capacity min. | 50 mW |
| Mechanical service life | 10x 10 ⁶ cycles |
| Switching capacity (360/h cycles) | 4 A (24 V DC) |
| | 4 A (230 V AC) |
| Output fuse | 10 A gL/gG (N/O contact) |
| | 6 A gL/gG (N/C contact) |

General

| | |
|---|--|
| Relay type | Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3 |
| Nominal operating mode | 100% operating factor |
| Net weight | 210.5 g |
| Mounting position | vertical or horizontal |
| Mounting type | DIN rail mounting |
| Assembly instructions | See derating curve |
| Degree of protection | IP20 |
| Min. degree of protection of inst. location | IP54 |
| Housing material | PBT |
| Housing color | yellow |

Connection data

| | |
|----------------------------------|---|
| Connection method | Screw connection |
| pluggable | Yes |
| Conductor cross section solid | 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 |

Safety-related characteristic data

| | |
|------------------------------|--|
| Stop category | 0 |
| Designation | IEC 61508 - High demand |
| Safety Integrity Level (SIL) | 1 (up to SIL 3 depending on the application) |
| Designation | IEC 61508 - Low demand |
| Safety Integrity Level (SIL) | 1 (up to SIL 3 depending on the application) |

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Technical data

Safety-related characteristic data

| | |
|---|--|
| Designation | EN ISO 13849 |
| Performance level (PL) | c (up to PL e depending on the application) |
| Category | 1 (up to Cat. 4 depending on the application) |
| Designation | EN 62061 |
| Safety Integrity Level Claim Limit (SIL CL) | 1 (up to SILCL 3 depending on the application) |

Standards and Regulations

| | |
|--------------------------------|--|
| Designation | Air clearances and creepage distances between the power circuits |
| Standards/regulations | DIN EN 50178/VDE 0160 |
| Rated insulation voltage | 250 V AC |
| Rated surge voltage/insulation | Basic insulation 4 kV: between all current paths and housing Safe isolation, reinforced insulation 6 kV: between A1/A2 and 13/14, 23/24, 33/34, 43/44 between S11/S12/S33/S34 and 13/14, 23/24, 33/34, 43/44 between 51/52 and 13/14, 23/24, 33/34, 43/44 |
| Degree of pollution | 2 |
| Overvoltage category | III |
| Shock | 15g |
| Vibration (operation) | 10 Hz ... 150 Hz, 2g |
| Conformance | CE-compliant |

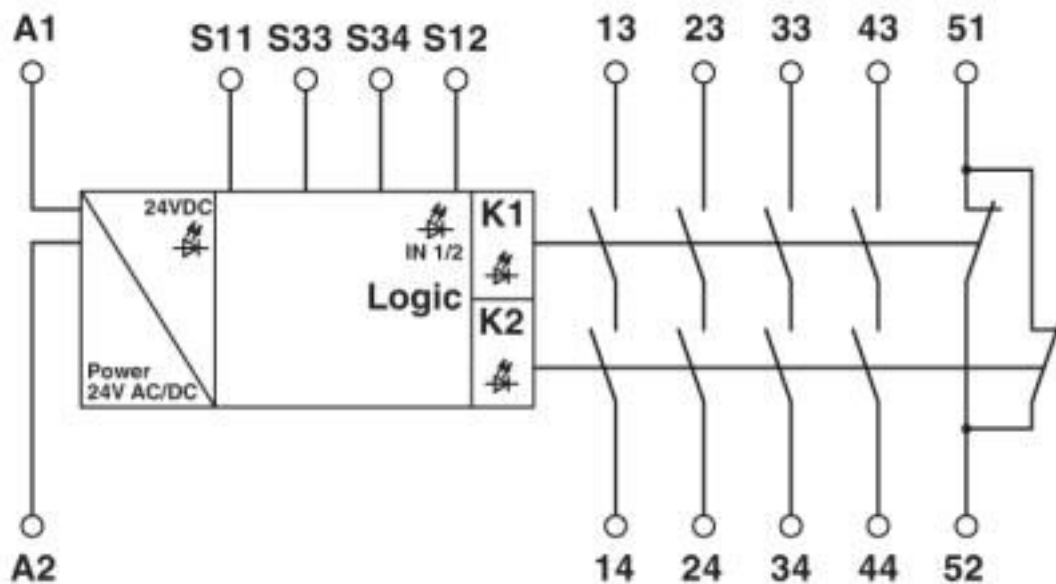
Environmental Product Compliance

| | |
|------------|---|
| REACH SVHC | Lead 7439-92-1 |
| China RoHS | Environmentally Friendly Use Period = 50 years |
| | For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration" |

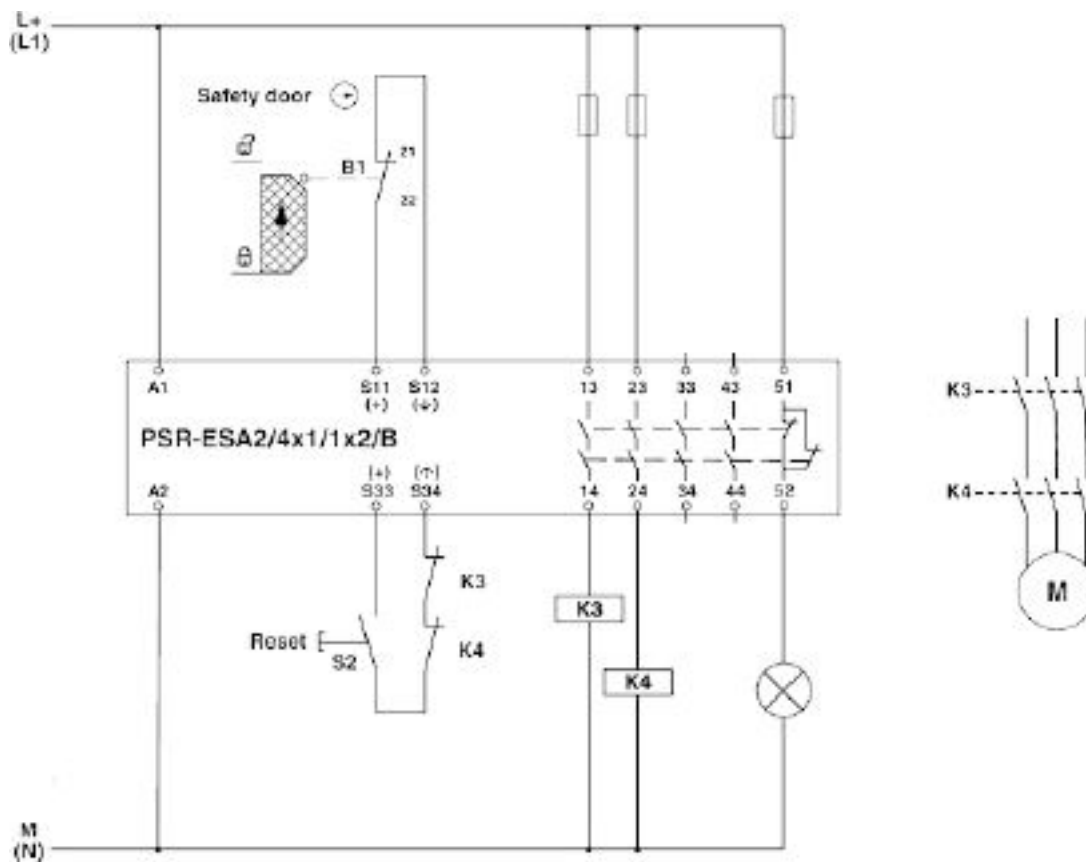
Drawings

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Circuit diagram



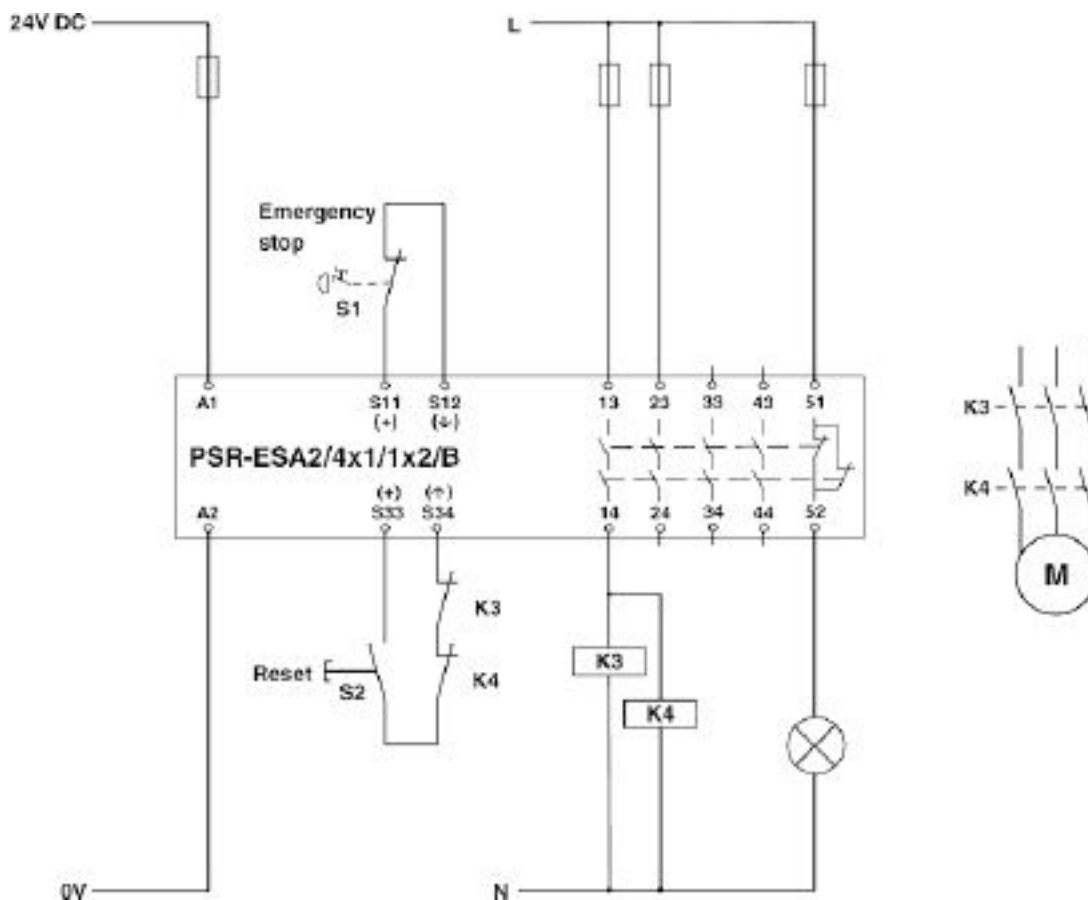
Circuit diagram



Single-channel safety door monitoring

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Circuit diagram



Single-channel emergency stop monitoring

Classifications

eCl@ss

| | |
|---------------|----------|
| eCl@ss 10.0.1 | 27371819 |
| eCl@ss 4.0 | 40020600 |
| eCl@ss 4.1 | 40020600 |
| eCl@ss 5.0 | 27371900 |
| eCl@ss 5.1 | 27371900 |
| eCl@ss 6.0 | 27371800 |
| eCl@ss 7.0 | 27371819 |
| eCl@ss 8.0 | 27371819 |
| eCl@ss 9.0 | 27371819 |

ETIM

| | |
|----------|----------|
| ETIM 2.0 | EC000196 |
| ETIM 3.0 | EC001449 |
| ETIM 4.0 | EC001449 |

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Classifications

ETIM

| | |
|----------|----------|
| ETIM 5.0 | EC001449 |
| ETIM 6.0 | EC001449 |
| ETIM 7.0 | EC001449 |

UNSPSC

| | |
|---------------|----------|
| UNSPSC 6.01 | 30211901 |
| UNSPSC 7.0901 | 39121501 |
| UNSPSC 11 | 39121501 |
| UNSPSC 12.01 | 39121501 |
| UNSPSC 13.2 | 39121501 |
| UNSPSC 18.0 | 39122205 |
| UNSPSC 19.0 | 39122205 |
| UNSPSC 20.0 | 39122205 |
| UNSPSC 21.0 | 39122205 |

Approvals

Approvals

Approvals

UL Listed / cUL Listed / Functional Safety / EAC / EAC / cULus Listed

Ex Approvals

Approval details

| | | | |
|-----------|--|---|---------------|
| UL Listed | | http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm | FILE E 140324 |
|-----------|--|---|---------------|

| | | | |
|------------|--|---|---------------|
| cUL Listed | | http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm | FILE E 140324 |
|------------|--|---|---------------|


| | | | |
|-------------------|--|--|-------------------|
| Functional Safety | | | 01/205/0653.01/15 |
|-------------------|--|--|-------------------|

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Approvals

| | | |
|-----|---|---------------|
| EAC |  | EAC-Zulassung |
|-----|---|---------------|

| | | |
|-----|---|--------------------------|
| EAC |  | RU C- DE.A*30.B.01082 |
|-----|---|--------------------------|

| | | |
|--------------|---|--|
| cULus Listed |  | |
|--------------|---|--|

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