

Safety relays - PSR-SPP- 24UC/ESAM4/2X1/1X2 - 2900526

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Safety relay for emergency stop and safety door monitoring up to SIL 3 or Cat. 4, PL e according to EN ISO 13849, 1 or 2-channel operation, 2 enabling current paths, nominal input voltage: 24 V AC/DC, plug-in spring-cage terminal block


The figure shows a version with a screw connection

Your advantages

- Up to Cat.4/PL e according to EN ISO 13849-1, SILCL 3 according to EN 62061, SIL 3 according to IEC 61508
- Manually monitored and automatic activation in a single device
- Single and two-channel control
- Reinforced insulation
- 2 enabling current paths, 1 signaling current path



Key Commercial Data

| | |
|--------------|---|
| Packing unit | 1 pc |
| GTIN |  4 046356 515665 |
| GTIN | 4046356515665 |

Technical data

Note

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

Dimensions

| | |
|--------|----------|
| Width | 22.5 mm |
| Height | 112 mm |
| Depth | 114.5 mm |

Ambient conditions

| | |
|---------------------------------|------------------|
| Ambient temperature (operation) | -20 °C ... 55 °C |
|---------------------------------|------------------|

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Ambient conditions

| | |
|--|---|
| 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) |

Input data

| | |
|---|---|
| Nominal input voltage U_N | 24 V AC/DC |
| Input voltage range in reference to U_N | 0.85 ... 1.1 |
| Typical input current at U_N | 140 mA AC |
| | 65 mA DC |
| Voltage at input/start and feedback circuit | approx. 24 V DC |
| Typical response time | 20 ms (manual start) |
| | 150 ms (automatic start) |
| Typical release time | 45 ms (single-channel) |
| | 10 ms (two-channel) |
| Concurrence input 1/2 | ∞ |
| Recovery time | 1 s |
| Operating voltage display | Green LED |
| Status display | Green LED |
| Protective circuit | Surge protection Suppressor diode |
| Max. permissible overall conductor resistance | approx. 50 Ω (Input and start circuits at U_N) |

Output data

| | |
|--|---|
| Contact type | 2 enabling current paths |
| | 1 signaling current path |
| Contact material | AgSnO ₂ , + 0.2 μm Au |
| Maximum switching voltage | 250 V AC/DC |
| Minimum switching voltage | 15 V AC/DC |
| Limiting continuous current | 6 A (N/O contact) |
| Maximum inrush current | 6 A |
| Inrush current, minimum | 25 mA |
| Sq. Total current | $72 \text{ A}^2 (I_{TH}^2 = I_1^2 + I_2^2)$ |
| Interrupting rating (ohmic load) max. | 144 W (24 V DC, τ = 0 ms) |
| | 288 W (48 V DC, τ = 0 ms) |
| | 77 W (110 V DC, τ = 0 ms) |
| | 88 W (220 V DC, τ = 0 ms) |
| | 1500 VA (250 V AC, τ = 0 ms) |
| Maximum interrupting rating (inductive load) | 48 W (24 V DC, τ = 40 ms) |
| | 40 W (48 V DC, τ = 40 ms) |
| | 35 W (110 V DC, τ = 40 ms) |
| | 35 W (220 V DC, τ = 40 ms) |

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Output data

| | |
|-----------------------------------|---------------------------------|
| Switching capacity min. | 0.4 W |
| Mechanical service life | approx. 10 ⁷ cycles |
| Switching capacity (360/h cycles) | 6 A (24 V DC) |
| | 5 A (230 V AC) |
| Output fuse | 10 A gL/gG NEOZED (N/O contact) |
| | 6 A gL/gG NEOZED (N/C contact) |

General

| | |
|---|---|
| Relay type | Electromechanical relay with forcibly guided contacts in accordance with EN 50205 |
| Nominal operating mode | 100% operating factor |
| Net weight | 222.2 g |
| Mounting position | any |
| Mounting type | DIN rail mounting |
| Degree of protection | IP20 |
| | IP54 |
| Min. degree of protection of inst. location | IP54 |
| Housing color | yellow |

Connection data

| | |
|---------------------------------------|------------------------|
| Connection method | Spring-cage connection |
| pluggable | Yes |
| Conductor cross section solid min. | 0.2 mm ² |
| Conductor cross section solid max. | 1.5 mm ² |
| Conductor cross section flexible min. | 0.2 mm ² |
| Conductor cross section flexible max. | 1.5 mm ² |
| Conductor cross section AWG min. | 24 |
| Conductor cross section AWG max. | 16 |
| Stripping length | 8 mm |

Safety-related characteristic data

| | |
|---|-------------------------|
| Stop category | 0 |
| Designation | IEC 61508 - High demand |
| Safety Integrity Level (SIL) | 3 |
| Designation | IEC 61508 - Low demand |
| Safety Integrity Level (SIL) | 3 |
| Designation | EN ISO 13849 |
| Performance level (PL) | e |
| Category | 4 |
| Designation | EN 62061 |
| Safety Integrity Level Claim Limit (SIL CL) | 3 |
| Designation | EN 50156 |

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Technical data

Safety-related characteristic data

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

Standards and Regulations

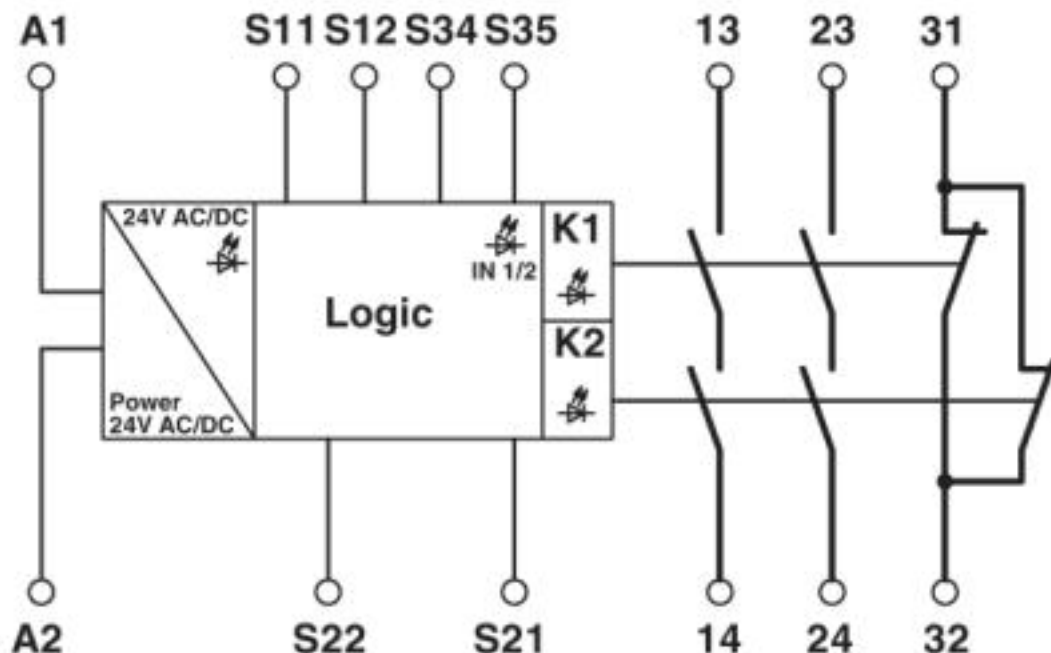
| | |
|--------------------------------|--|
| Designation | Air clearances and creepage distances between the power circuits |
| Standards/regulations | DIN EN 50178/VDE 0160 |
| Rated insulation voltage | 250 V |
| Rated surge voltage/insulation | 6 kV / Safe isolation, increased insulation |
| Degree of pollution | 2 |
| Overvoltage category | III |
| Shock | 15g |
| Vibration (operation) | 10 Hz ... 150 Hz, 2g |

Environmental Product Compliance

| | |
|------------|---|
| REACH SVHC | Lead 7439-92-1 |
| China RoHS | Environmentally friendly use period: unlimited = EFUP-e |
| | No hazardous substances above threshold values |

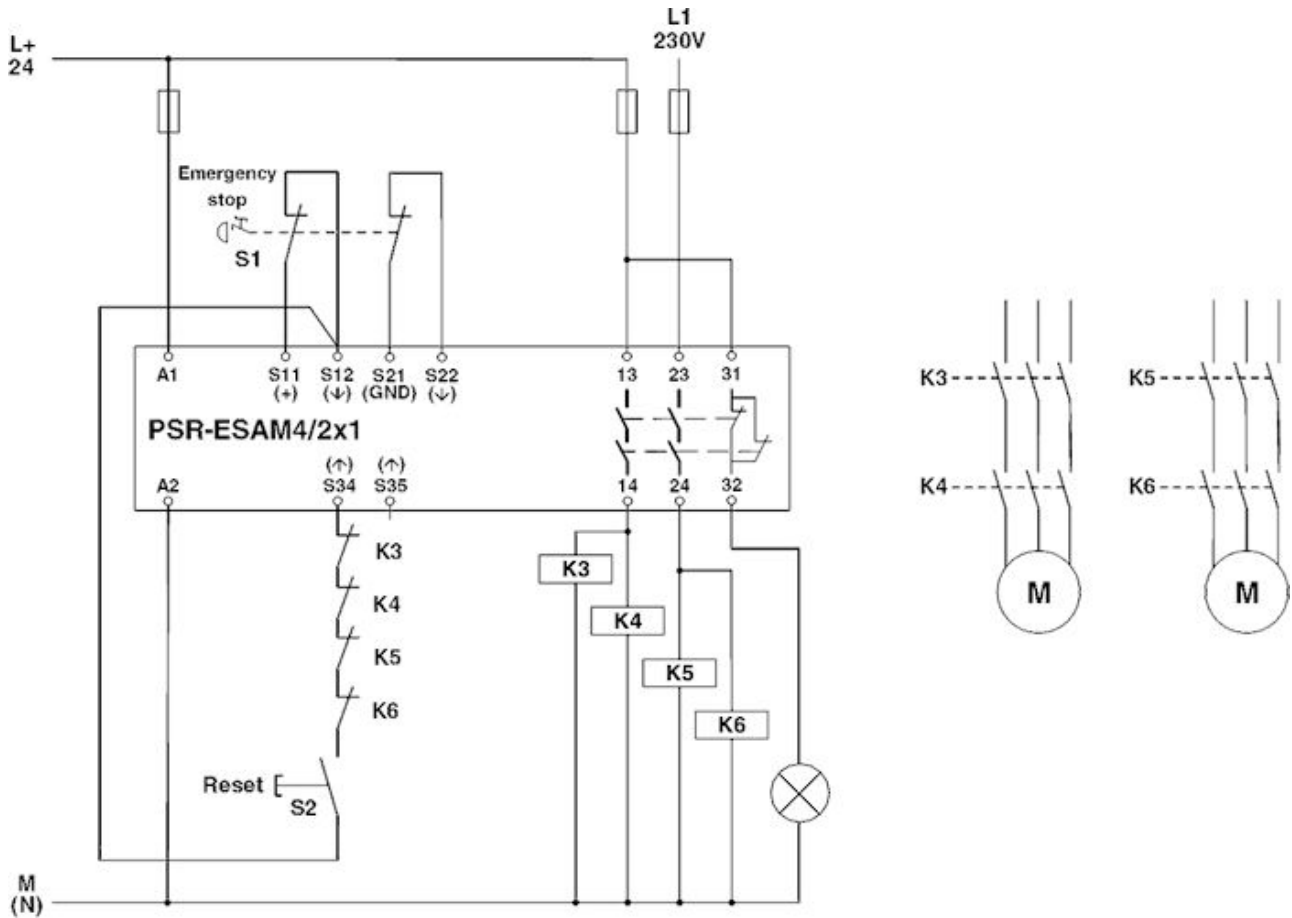
Drawings

Circuit diagram



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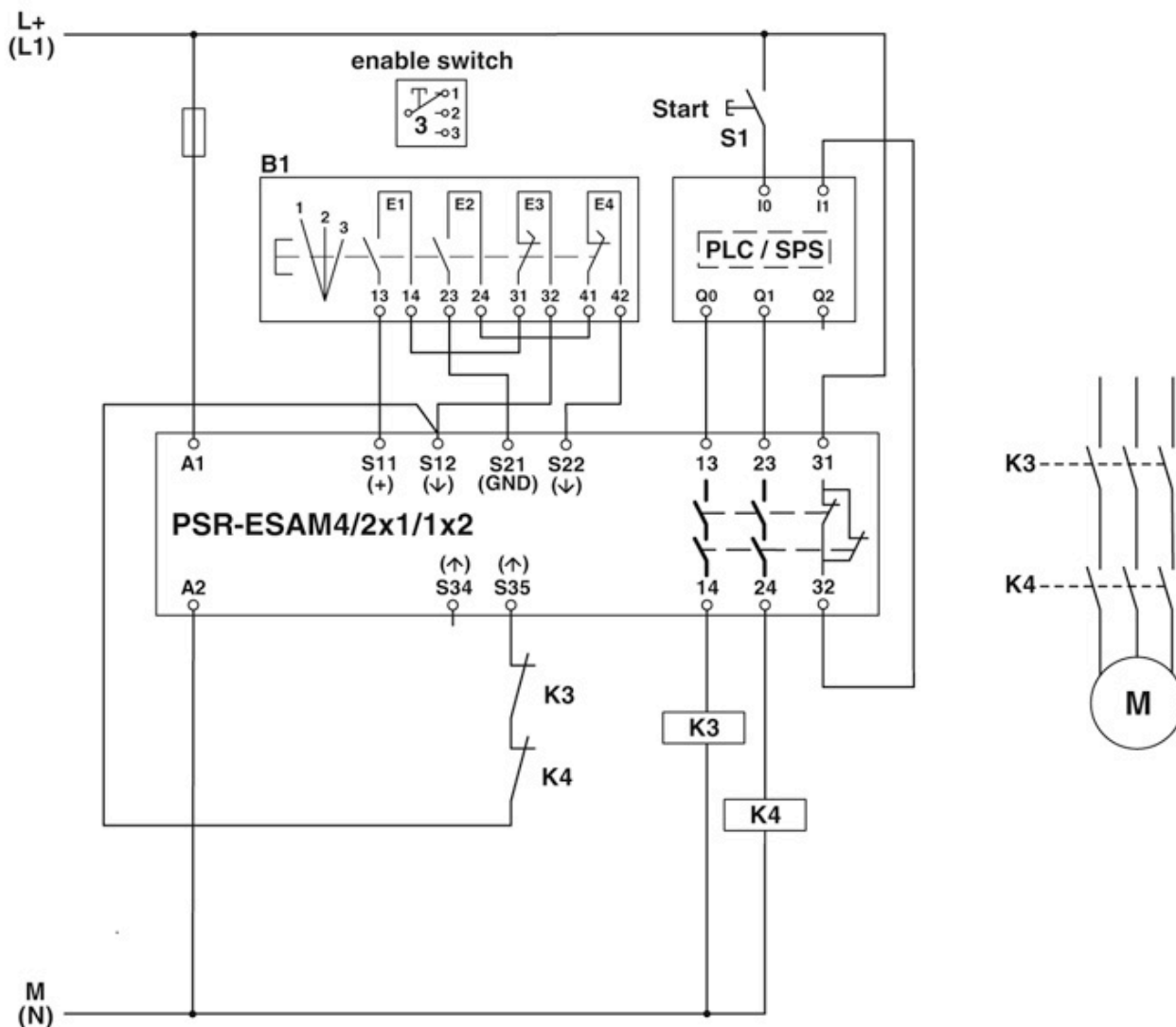
Circuit diagram



Two-channel emergency stop monitoring

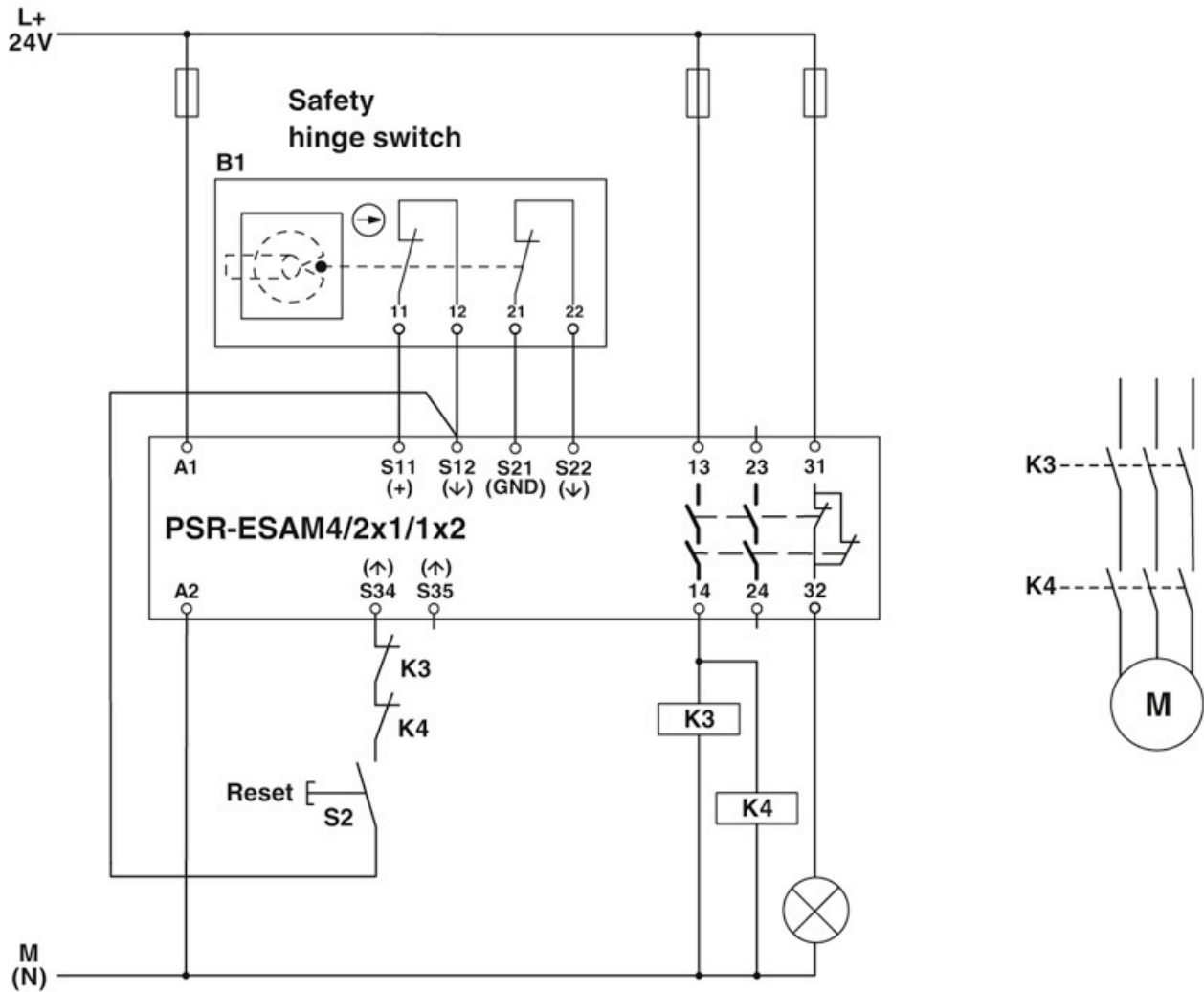
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Circuit diagram



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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 | | | 01/205/5117.01/16 |
|-------------------|--|--|-------------------|

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

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

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