

Safety relays - PSR-MC60-2NO-1DO-24DC-SC - 2700571

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Safety relay for two-hand control devices according to EN 574 type IIIA, up to SILCL 1, Cat. 1, PL c, synchronous activation monitoring < 0.5 s, 2 enabling current paths, $U_S = 24 \text{ V DC}$, plug-in screw terminal block

Your advantages

- Up to Cat. 1/PL c according to ISO 13849-1, SILCL 1 according to IEC 62061
- Type IIIA according to EN 574
- Low housing width of just 12.5 mm
- 2 enabling current paths, 1 digital signal output
- Automatic activation



Key Commercial Data

| | |
|--------------|---|
| Packing unit | 1 pc |
| GTIN |  4 046356 988353 |
| GTIN | 4046356988353 |

Technical data

Note

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

Dimensions

| | |
|--------|----------|
| Width | 12.5 mm |
| Height | 112.2 mm |
| Depth | 114.5 mm |

Ambient conditions

| | |
|--|---|
| Ambient temperature (operation) | -35 °C ... 60 °C (observe derating) |
| Ambient temperature (storage/transport) | -40 °C ... 85 °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) |

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Ambient conditions

| | |
|------------------|----------------------------|
| Maximum altitude | ≤ 2000 m (Above sea level) |
|------------------|----------------------------|

Power supply

| | |
|--|---|
| Designation | A1/A2 |
| Rated control circuit supply voltage U_s | 24 V DC -20 % / +25 % |
| | 19.2 V DC ... 30 V DC |
| Rated control supply current I_s | typ. 35 mA |
| Power consumption at U_s | typ. 0.9 W |
| Inrush current | typ. 20 A ($\Delta t = 10 \mu s$ at U_s) |
| Filter time | 10 ms (For the logic. At A1 in the event of voltage dips at U_s) |
| Protective circuit | Surge protection Suppressor diode |
| | Protection against polarity reversal for rated control circuit supply voltage |

Digital inputs

| | |
|---|-----------------------------------|
| Input name | Sensor circuit |
| | S12, S22 |
| Description of the input | safety-related sensor inputs |
| Number of inputs | 2 |
| Inrush current | < 5.5 mA (with U_s/I_x to S12) |
| | > -5.5 mA (with U_s/I_x to S22) |
| Current consumption | < 5.1 mA (with U_s/I_x to S12) |
| | > -5.1 mA (with U_s/I_x to S22) |
| Max. permissible overall conductor resistance | 150 Ω |
| Concurrence input 1/2 | < 0.5 s |
| Input name | Feedback circuit |
| | S35 |
| Description of the input | non-safety-related |
| Number of inputs | 1 |
| Inrush current | < 5.5 mA (typically with U_s) |
| Current consumption | < 5.1 mA (typically with U_s) |
| Max. permissible overall conductor resistance | 150 Ω |

Relay outputs: enabling current path

| | |
|-----------------------------|--|
| Output name | Enabling current paths |
| | 13/14, 23/24 |
| Output description | safety-related N/O contacts |
| Number of outputs | 2 (undelayed) |
| Contact type | 2 enabling current paths |
| Contact material | AgSnO ₂ (enabling current path) |
| Switching voltage | min. 12 V AC/DC |
| | max. 250 V AC/DC (Observe the load curve) |
| Limiting continuous current | 6 A (observe derating) |

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Relay outputs: enabling current path

| | |
|-------------------------|--------------------------------------|
| Inrush current | min. 3 mA |
| | max. 6 A |
| Sq. Total current | 72 A ² (observe derating) |
| Switching capacity | min. 60 mW |
| Switching frequency | 1 Hz |
| Mechanical service life | 10x 10 ⁶ cycles |
| Output fuse | 6 A gL/gG (N/O contact) |

Alarm outputs

| | |
|--------------------------|---------------------------------------|
| Designation | M1 |
| Output description | PNP |
| | 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 (Δt = 1 ms at U _s) |
| Short-circuit protection | Yes |

Times

| | |
|-----------------------------|---|
| Typical response time at US | < 40 ms |
| Typical release time at US | < 10 ms (when controlled via S12/S22) |
| | < 5 ms (when interrupted via A1; applicative deactivation via A1/A2 is not permitted) |
| Restart time | < 2 s (Boot time) |
| Recovery time | < 500 ms |

General

| | |
|---|--|
| Relay type | Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3 |
| Nominal operating mode | 100% operating factor |
| Net weight | 147.3 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 |
| Status display | 5 x bi-color LED |

Connection data

| | |
|-------------------|------------------|
| Connection method | Screw connection |
| pluggable | Yes |

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Connection data

| | |
|----------------------------------|---|
| 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 |
| Type class | IIIA |
| Designation | IEC 61508 - High demand |
| Safety Integrity Level (SIL) | 1 (4 A DC13; 5 A AC15; 8760 switching cycles/year) |
| Designation | EN ISO 13849 |
| Performance level (PL) | c (4 A DC13; 5 A AC15; 8760 switching cycles/year) |
| Category | 1 (4 A DC13; 5 A AC15; 8760 switching cycles/year) |
| Designation | EN 62061 |
| Safety Integrity Level Claim Limit (SIL CL) | 1 (4 A DC13; 5 A AC15; 8760 switching cycles/year) |

Standards and Regulations

| | |
|--------------------------------|---|
| Designation | Air clearances and creepage distances between the power circuits |
| Standards/regulations | DIN EN 50178 |
| Rated insulation voltage | 250 V AC |
| | 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, S11, S12, S21, S22, S35, M1) and enabling current path (13/14) between (A1, A2, S11, S12, S21, S22, S35, M1) and enabling current path (23/24) between enabling current paths |
| Degree of pollution | 2 |
| Overvoltage category | III |
| Shock | 15g |
| Vibration (operation) | 10 Hz ... 150 Hz, 2g |
| Conformance | CE-compliant |

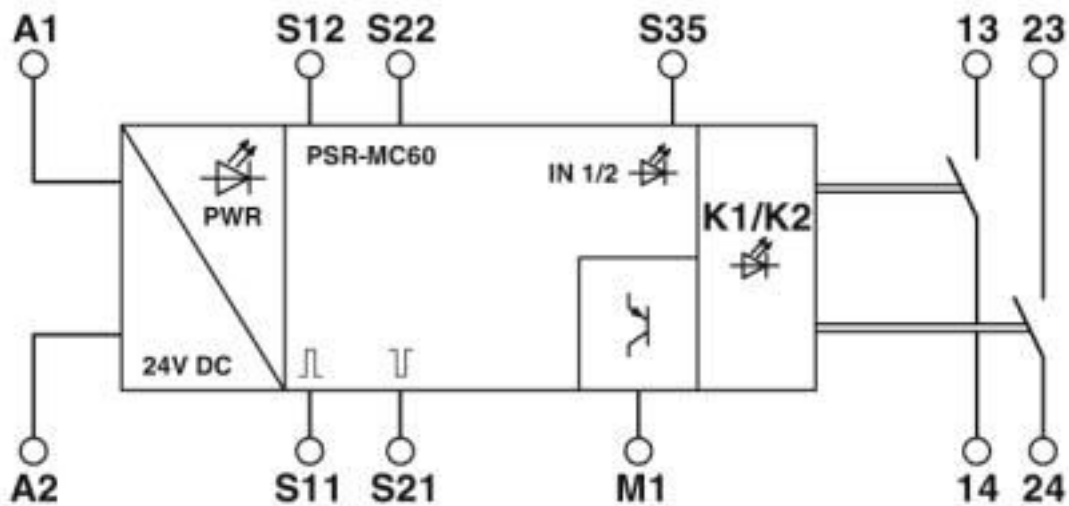
Environmental Product Compliance

| | |
|------------|---|
| 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" |

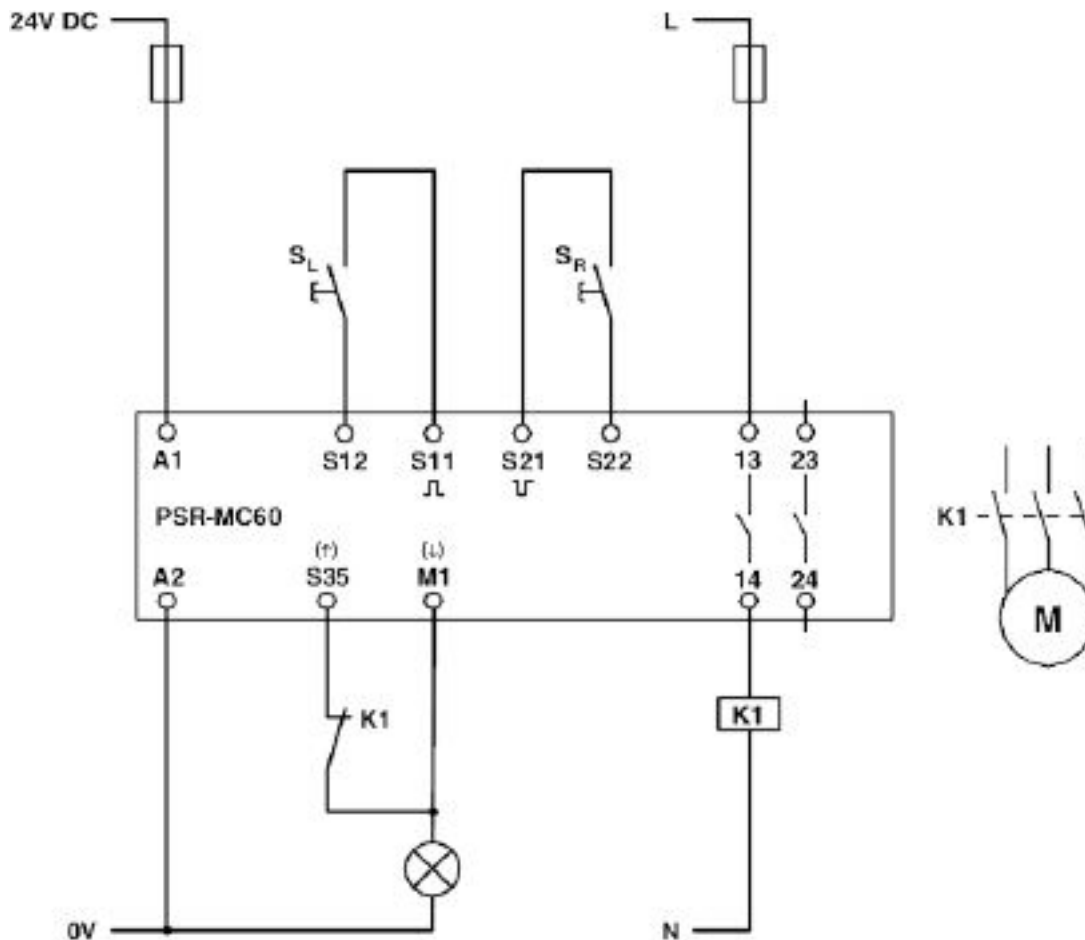
Drawings

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Block diagram



Circuit diagram



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Classifications

eCl@ss

| | |
|---------------|----------|
| eCl@ss 10.0.1 | 27371821 |
| 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 | 27371821 |
| eCl@ss 9.0 | 27371821 |

ETIM

| | |
|----------|----------|
| ETIM 5.0 | EC001452 |
| ETIM 6.0 | EC001452 |
| ETIM 7.0 | EC001452 |

UNSPSC

| | |
|-------------|----------|
| UNSPSC 13.2 | 39121501 |
| UNSPSC 18.0 | 39121105 |
| UNSPSC 19.0 | 39121105 |
| UNSPSC 20.0 | 39121105 |
| UNSPSC 21.0 | 39121105 |

Approvals

Approvals

Approvals

UL Listed / cUL Listed / Functional Safety / 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 |
|------------|--|---|---------------|

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Approvals

| | | |
|-------------------|---|-------------------|
| Functional Safety |  | 01/205/5532.00/16 |
|-------------------|---|-------------------|

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

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