

Safety relays - PSR-MC30-2NO-1DO-24DC-SC - 2700498

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Safety relay for emergency stop and safety doors up to SILCL 3, Cat. 4, PL e, 1 or 2-channel operation, automatic or manual, monitored start, cross-circuit detection, 2 enabling current paths, $U_s = 24 \text{ V DC}$, plug-in screw terminal block

Your advantages

- Up to Cat.4/PL e according to ISO 13849-1, SILCL 3 according to IEC 62061
- Low housing width of just 12.5 mm
- Two-channel control
- 2 enabling current paths, 1 digital signal output
- Manually monitored and automatic activation in a single device
- Cross-circuit detection



Key Commercial Data

| | |
|--------------|---|
| Packing unit | 1 pc |
| GTIN |  4 046356 912860 |
| GTIN | 4046356912860 |

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) | -40 °C ... 55 °C (observe derating) |
| Ambient temperature (storage/transport) | -40 °C ... 85 °C |
| Max. permissible relative humidity (operation) | 75 % (on average, 85% infrequently, non-condensing) |

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Ambient conditions

| | |
|---|---|
| Max. permissible humidity (storage/transport) | 75 % (on average, 85% infrequently, non-condensing) |
| Maximum altitude | ≤ 2000 m (Above sea level) |

Power supply

| | |
|--|---|
| Designation | A1/A2 |
| Rated control circuit supply voltage U_s | 24 V DC -15 % / +10 % |
| | 20.4 V DC ... 26.4 V DC |
| Rated control supply current I_s | typ. 65 mA |
| Power consumption at U_s | typ. 1.56 W |
| Inrush current | 4 A ($\Delta t = 200 \mu s$ at U_s) |
| Filter time | 1 ms (at A1 in the event of voltage dips at U_s) |
| Protective circuit | Surge protection Suppressor diode |
| | Protection against polarity reversal for rated control circuit supply voltage |

Digital inputs

| | |
|---|---|
| Input name | Sensor circuit |
| | S11, S12, S21, S22 |
| 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 current range "0" signal | 0 mA ... 2 mA (for safe Off; at S12) |
| Inrush current | < 20 mA (with U_s/I_x to S12) |
| | < 5 mA (with U_s/I_x to S22) |
| | > -15 mA (with U_s/I_x to S22/S21) |
| 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/S21) |
| Filter time | max. 1.5 ms (at S12, S22; test pulse width) |
| | min. 7.5 ms (at S12, S22; test pulse rate) |
| | Test pulse rate = 5 x Test pulse width |
| Max. permissible overall conductor resistance | 150 Ω |
| Input name | 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 | typ. 200 mA |
| Current consumption | < 10 mA () |
| | > -5 mA () |
| Max. permissible overall conductor resistance | 150 Ω |
| Protective circuit/component | Suppressor diode |

Relay outputs: enabling current path

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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 |
| Switching voltage | min. 12 V AC/DC |
| | max. 250 V AC/DC (Observe the load curve) |
| Limiting continuous current | 6 A (observe derating) |
| Inrush current | min. 3 mA |
| | max. 6 A |
| Sq. Total current | 72 A ² (observe derating) |
| Switching capacity | min. 60 mW |
| Switching frequency | 0.5 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) |

Alarm outputs

| | |
|--------------------------|---------------------------------------|
| Designation | 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 (Δt = 1 ms at U _s) |
| Short-circuit protection | no |

Times

| | |
|-----------------------------|--|
| Typical pickup time at US | < 250 ms (when controlled via A1) |
| Typical response time at US | < 175 ms (automatic start) |
| | < 175 ms (manual, monitored start) |
| Typical release time at US | < 20 ms (when controlled via A1 or S12 and S22.) |
| 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 | 159 g |
| Mounting position | vertical or horizontal |
| Mounting type | DIN rail mounting |
| Assembly instructions | See derating curve |

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Technical data

General

| | |
|---|---------------|
| Degree of protection | IP20 |
| Min. degree of protection of inst. location | IP54 |
| Housing material | PBT |
| Housing color | yellow |
| Operating voltage display | 1 x green LED |
| Status display | 3 x green LED |

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 |
| Torque | 0.5 Nm ... 0.6 Nm |

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 (4 A DC13; 5 A AC15; 8760 switching cycles/year) |
| Category | 4 |
| Designation | EN 62061 |
| Safety Integrity Level Claim Limit (SIL CL) | 3 |

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 | Safe isolation, reinforced insulation 6 kV between input circuit and enabling current path (13/14) and enabling current path (23/24) Basic insulation 4 kV between all current paths and housing |
| Degree of pollution | 2 |
| Overvoltage category | III |
| Shock | 15g |
| Vibration (operation) | 10 Hz ... 150 Hz, 2g |
| Conformance | CE-compliant |

Environmental Product Compliance

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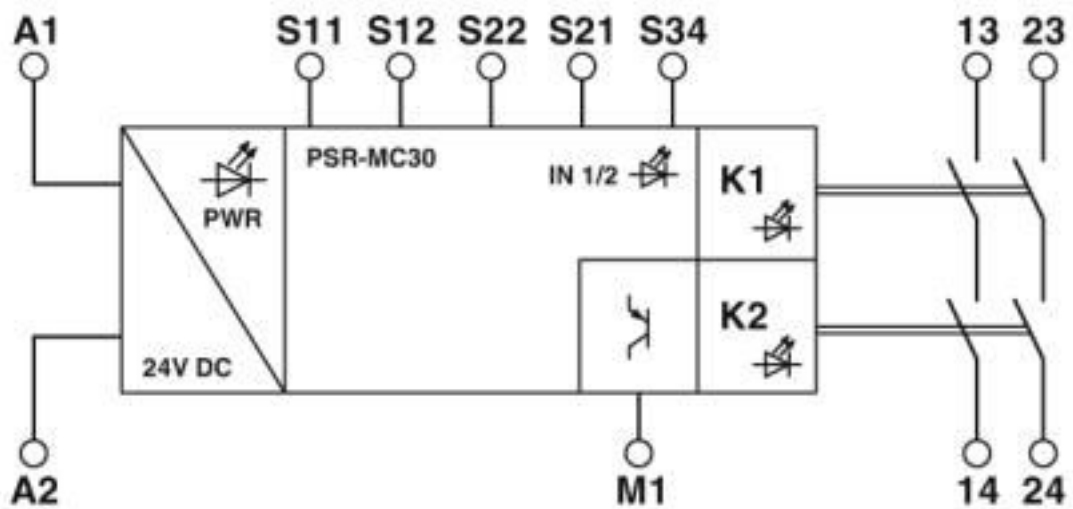
Technical data

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" |

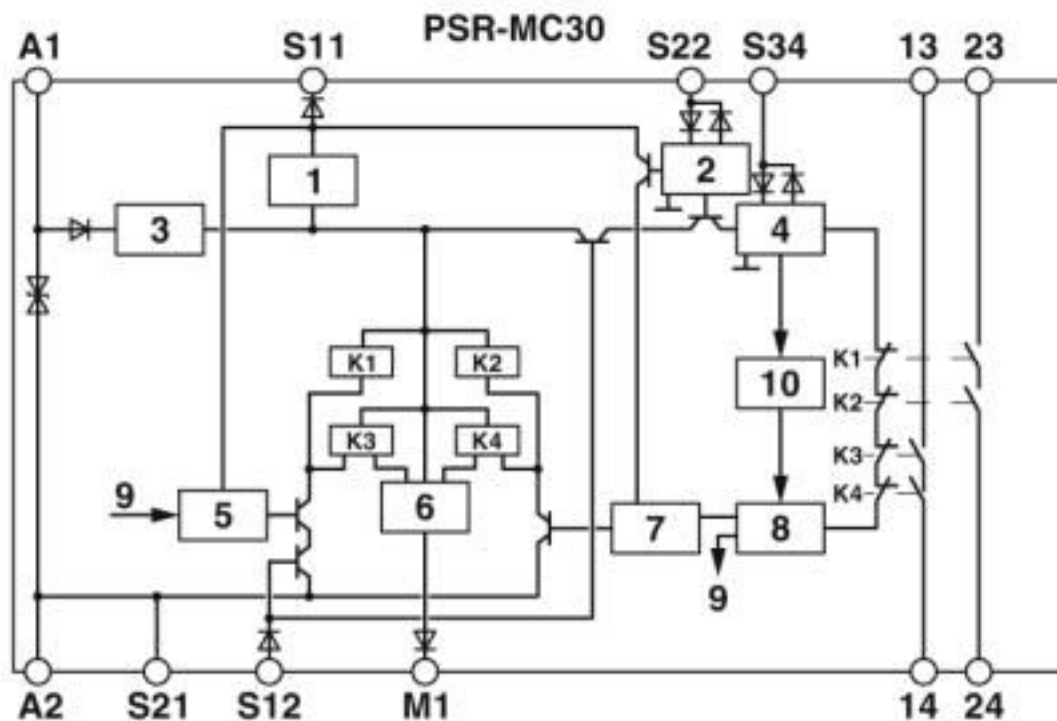
Drawings

Block diagram



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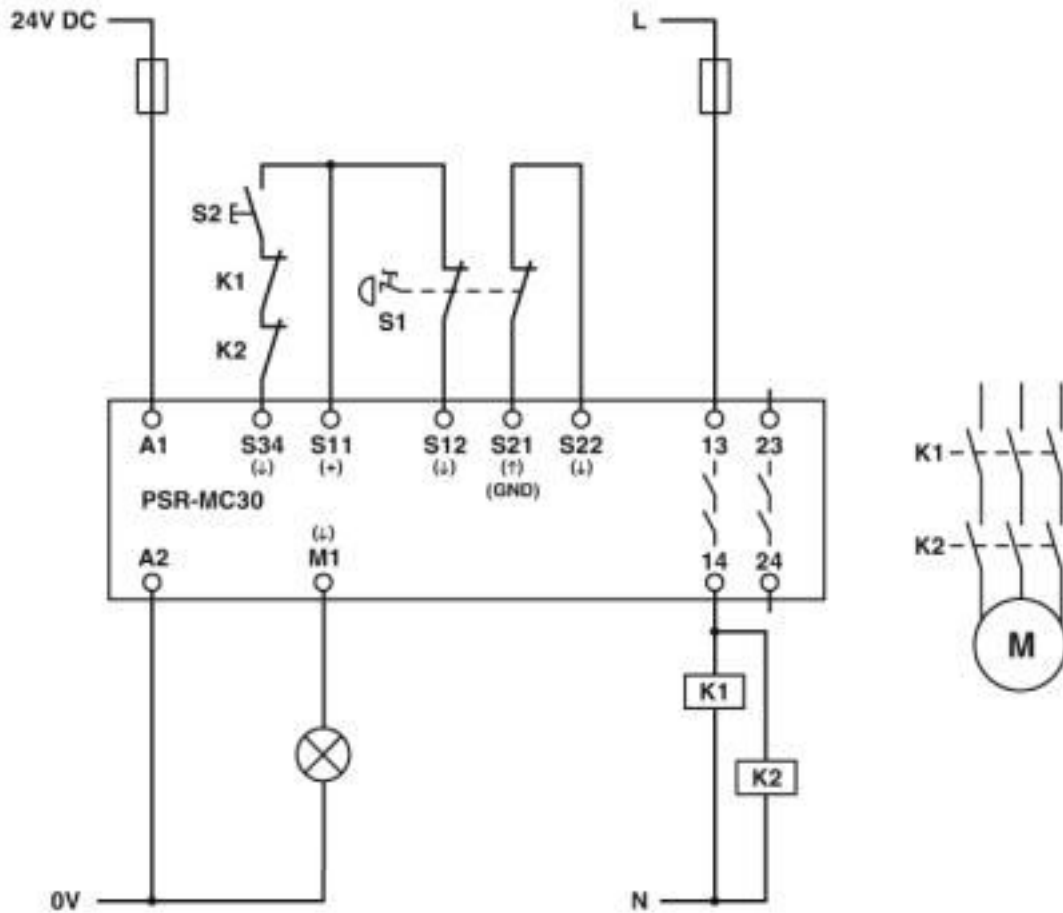
Block diagram



- Key:
- 1 = Current limitation
 - 2 = Input circuit
 - 3 = Voltage limitation
 - 4 = Start circuit
 - 5 = Control circuit channel 1
 - 6 = Control circuit signal output
 - 7 = Control circuit channel 2
 - 8 = Start channel 1 and 2
 - 9 = Channel 1
 - 10 = Diagnostics
 - K1, K2 ... K4 = Force-guided elementary relays

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Circuit diagram



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

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Classifications

UNSPSC

| | |
|-------------|----------|
| UNSPSC 13.2 | 39121501 |
| UNSPSC 18.0 | 39122205 |
| UNSPSC 19.0 | 39122205 |
| UNSPSC 20.0 | 39122205 |
| UNSPSC 21.0 | 39122205 |

Approvals

Approvals

Approvals

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

Ex Approvals

Approval details

| | | | |
|----|--|---|-------------|
| GL | | https://approvalfinder.dnvgl.com/ | 11253-14 HH |
|----|--|---|-------------|

| | | | |
|-----------|--|---|---------------|
| 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 | | | 44-205-13755201 |
|-------------------|--|--|-----------------|

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

| | | | |
|-------------------|--|--|-----------------|
| Functional Safety | | | 44-780-13755201 |
|-------------------|--|--|-----------------|

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Approvals

cULus Listed



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