

Safety relays - PSR-MC72-2NO-1DO-24DC-SP - 2702097

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Safety relay for emergency stop, safety doors, light grid up to SILCL 3, Cat. 4, PL e, 1- or 2-channel operation, cross-circuit detection, can be retriggered, fall back/on delay 0.2 s to 60 s, 2 enabling current paths, $U_s = 24\text{ V DC}$, pluggable Push-in terminal block


The figure shows a version with a screw connection

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
- Single and two-channel control
- 2 enabling current paths, 1 digital signal output
- Manually monitored and automatic activation in a single device



Key Commercial Data

| | |
|--------------|---|
| Packing unit | 1 pc |
| GTIN |  4 046356 952491 |
| GTIN | 4046356952491 |

Technical data

Note

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

Dimensions

| | |
|--------|----------|
| Width | 12.5 mm |
| Height | 116.6 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) |

Safety relays - PSR-MC72-2NO-1DO-24DC-SP - 2702097

Technical data

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 -20 % / +25 % |
| | 19.2 V DC ... 30 V DC |
| Rated control supply current I_s | typ. 60 mA |
| Power consumption at U_s | typ. 1.44 W |
| Inrush current | typ. 25 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 |
| Input voltage range "0" signal | 0 V DC ... 5 V DC |
| Input current range "0" signal | 0 mA ... 2 mA |
| Inrush current | < 11 mA (typically with U_s) |
| Current consumption | < 4.1 mA (typically with U_s) |
| Filter time | max. 3 ms (Test pulse width of low test pulses) |
| | min. 21 ms (Test pulse rate for low test pulse) |
| | Test pulse rate = 7 x Test pulse width |
| Max. permissible overall conductor resistance | 150 Ω |
| Concurrence input 1/2 | ∞ |
| Limit frequency | min. 0 Hz |
| | max. 1 Hz |
| Input name | Start circuit |
| | S34 |
| Description of the input | non-safety-related |
| Number of inputs | 1 |
| Inrush current | < 8.6 mA (typically with U_s) |
| Current consumption | < 3.2 mA (typically with U_s) |
| Filter time | max. 3 ms (Test pulse width of low test pulses) |
| | min. 21 ms (Test pulse rate for low test pulse) |
| | Test pulse rate = 7 x Test pulse width |
| Max. permissible overall conductor resistance | 150 Ω |

Relay outputs: enabling current path

Safety relays - PSR-MC72-2NO-1DO-24DC-SP - 2702097

Technical data

Relay outputs: enabling current path

| | |
|-----------------------------|---|
| Output name | Enabling current paths |
| | 13/14, 27/28 |
| Output description | safety-related N/O contacts |
| Number of outputs | 1 (undelayed) |
| | 1 (delayed) |
| Contact type | 2 enabling current paths |
| Contact material | AgSnO ₂ |
| Switching voltage | min. 12 V AC/DC |
| | max. 250 V AC (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 |
| 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 | PNP |
| | non-safety-related |
| Number of outputs | 1 |
| Voltage | approx. 23 V DC (U _S - 1 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 | < 35 ms (automatic start) |
| | < 30 ms (manual, monitored start) |
| Typical release time at US | < 25 ms (when controlled via S12 (only for undelayed contact 13/14)) |
| | < 5 ms (when interrupted via A1; applicative deactivation via A1/A2 is not permitted) |
| Delay time range | 0.2 s ... 60 s ±5 % (can be set for 27/28) |
| Restart time | < 1 s (Boot time) |

General

| | |
|------------------------|--|
| Relay type | Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3 |
| Nominal operating mode | 100% operating factor |
| Net weight | 126.45 g |
| Mounting position | vertical or horizontal |

Safety relays - PSR-MC72-2NO-1DO-24DC-SP - 2702097

Technical data

General

| | |
|---|--------------------|
| 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 | Push-in connection |
| pluggable | Yes |
| Conductor cross section solid | 0.2 mm ² ... 1.5 mm ² |
| Conductor cross section flexible | 0.2 mm ² ... 1.5 mm ² |
| Conductor cross-section AWG | 24 ... 16 |
| Conductor cross-section flexible with ferrule without plastic sleeve | 0.25 mm ² ... 1.5 mm ² (only together with CRIMPFOX 6) |
| Conductor cross-section flexible with ferrule and plastic sleeve | 0.25 mm ² ... 1.5 mm ² (only together with CRIMPFOX 6) |
| Stripping length | 8 mm |

Safety-related characteristic data

| | |
|---|-------------------------|
| Stop category | 0 |
| | 1 |
| Designation | IEC 61508 - High 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 |

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, S34, M1) and enabling current path (13/14) between (A1, A2, S11, S12, S21, S22, S34, M1) and enabling current path (27/28) between enabling current paths |
| Degree of pollution | 2 |
| Overvoltage category | III |
| Shock | 15g |

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Technical data

Standards and Regulations

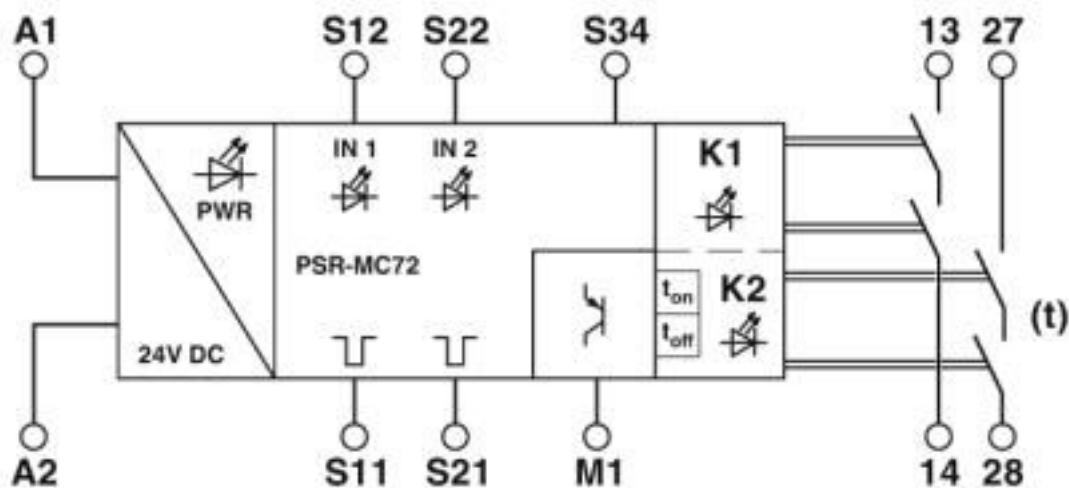
| | |
|-----------------------|----------------------|
| Vibration (operation) | 10 Hz ... 150 Hz, 2g |
| Conformance | CE-compliant |

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" |

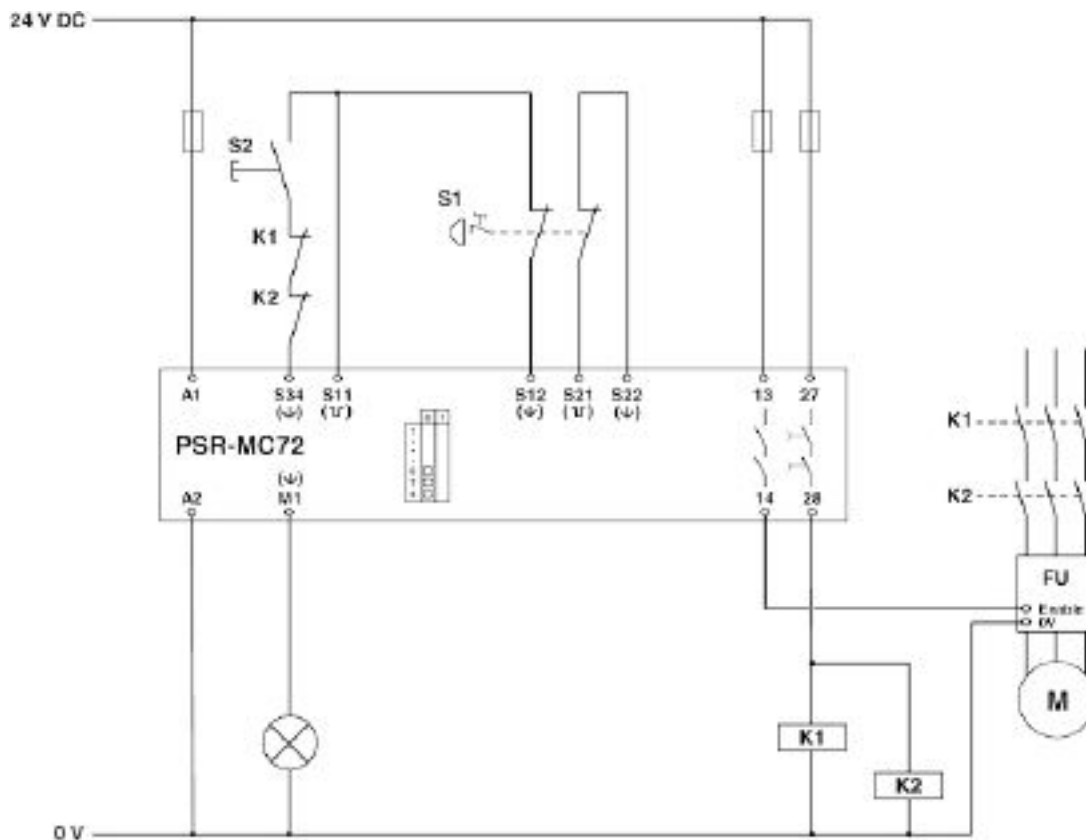
Drawings

Block diagram



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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 |

UNSPSC

| | |
|-------------|----------|
| UNSPSC 13.2 | 39121501 |
|-------------|----------|

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UNSPSC

| | |
|-------------|----------|
| 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 / 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 | | | 01/205/5486.00/16 |
|-------------------|--|--|-------------------|

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

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