# Safety relays - PSR-SCP- 24UC/ESAM4/8X1/1X2 - 2963912

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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, single- or two-channel operation, 8 enabling current paths, $U_S$ = 24 V AC/DC, plug-in screw terminal block

## Product Features

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

## Key Commercial Data

| | |
|---|---|
| Packing unit | 1 pc |
| Weight per Piece (excluding packing) | 460.0 g |
| Custom tariff number | 85371099 |
| Country of origin | Germany |

## Technical data

### Note

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

### Dimensions

| | |
|---|---|
| Width | 45 mm |
| Height | 99 mm |
| Depth | 114.5 mm |

### Ambient conditions

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

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## Technical data

### 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) |
| Shock | 15g |
| Vibration (operation) | 10 Hz ...150 Hz, 2g |
| Maximum altitude | ≤ 2000 m (Above sea level) |

### Input data

| | |
|---|---|
| Rated control circuit supply voltage $U_S$ | 24 V AC/DC -15 % / +10 % |
| Power consumption at $U_S$ | typ. 4.25 W (AC) |
| | typ. 2.23 W (DC) |
| Rated control supply current $I_S$ | typ. 177 mA AC |
| | typ. 93 mA DC |
| Typical inrush current | 2 A (Δt = 10 µs at $U_s$) |
| Current consumption | < 50 mA (with $U_s/I_x$ to S10) |
| | < 50 mA (with $U_s/I_x$ to S12) |
| | > -50 mA (with $U_s/I_x$ to S22) |
| | 0 mA (with $U_s/I_x$ to S34) |
| | 0 mA (with $U_s/I_x$ to S35) |
| Voltage at input/start and feedback circuit | 24 V DC -15 % / +10 % |
| Typical response time | < 380 ms (automatic start) |
| | < 60 ms (manual start) |
| Typical pick-up time | < 500 ms (when controlled via A1) |
| Typical release time | < 20 ms (when controlled via S11/S12 and S21/S22) |
| | < 50 ms (when controlled via A1) |
| Concurrence input 1/2 | ∞ |
| Recovery time | < 1 s |
| Status display | 2 x green LEDs |
| Maximum switching frequency | 0.5 Hz |
| Max. permissible overall conductor resistance | approx. 11 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 S10, S12; test pulse width) |
| | 7.5 ms (at S10, S12; test pulse rate) |
| | Test pulse rate = 5 x Test pulse width |

### Output data

| | |
|---|---|
| Contact type | 8 enabling current paths |
| | 1 signaling current path |

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## Technical data

### Output data

| | |
|---|---|
| Contact material | $AgSnO_2$ |
| Minimum switching voltage | 5 V AC/DC |
| Maximum switching voltage | 250 V AC/DC (Observe the load curve) |
| Limiting continuous current | 6 A (N/O contact, pay attention to the derating) |
| | 6 A (N/C contact) |
| Inrush current, minimum | 10 mA |
| Maximum inrush current | 20 A (Δt # 100 ms) |
| Sq. Total current | 50 $A^2$ (observe derating) |
| Interrupting rating (ohmic load) max. | 144 W (24 V DC, τ = 0 ms) |
| | 288 W (48 V DC, τ = 0 ms) |
| | 110 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) | 42 W (24 V DC, τ = 40 ms) |
| | 42 W (48 V DC, τ = 40 ms) |
| | 42 W (110 V DC, τ = 40 ms) |
| | 42 W (220 V DC, τ = 40 ms) |
| Switching capacity min. | 50 mW |
| Output fuse | 10 A gL/gG (N/O contact) |
| | 6 A gL/gG (N/C contact) |

### General

| | |
|---|---|
| Relay type | Electromechanical relay with forcibly guided contacts in accordance with EN 50205 |
| Mechanical service life | 10 x $10^6$ cycles |
| Net weight | 461 g |
| Mounting type | DIN rail mounting |
| Degree of protection | IP54 |
| | IP20 |
| Min. degree of protection of inst. location | IP54 |
| Mounting position | any |
| Control | one and two channel |
| Housing material | PBT |

### Connection data

| | |
|---|---|
| Connection method | Screw connection |
| pluggable | Yes |
| Conductor cross section solid min. | 0.2 mm² |

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## Technical data

### Connection data

| | |
|---|---|
| Conductor cross section solid max. | 2.5 mm² |
| Conductor cross section flexible min. | 0.2 mm² |
| Conductor cross section flexible max. | 2.5 mm² |
| Conductor cross section AWG min. | 24 |
| Conductor cross section AWG max. | 12 |
| Stripping length | 7 mm |
| Screw thread | M3 |

### 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 |

### Standards and Regulations

| | |
|---|---|
| Shock | 15g |
| 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:<br>between all current paths and housing<br>Safe isolation, reinforced insulation 6 kV:<br>between A1/A2 and 63/64, 73/74, 83/84<br>between S10/S11/S12/S33/S34/S35 and 63/64, 73/74, 83/84<br>between 63/64, 73/74, 83/84 among one another |
| Degree of pollution | 2 |
| Overvoltage category | III |
| Vibration (operation) | 10 Hz ...150 Hz, 2g |
| Conformance | CE-compliant |

## Classifications

### eCl@ss

| | |
|---|---|
| eCl@ss 4.0 | 27371102 |

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## Classifications

### eCl@ss

| | |
|---|---|
| eCl@ss 4.1 | 27371102 |
| eCl@ss 5.0 | 27371901 |
| eCl@ss 5.1 | 27371901 |
| eCl@ss 6.0 | 27371819 |
| eCl@ss 7.0 | 27371819 |
| eCl@ss 8.0 | 27371819 |

### ETIM

| | |
|---|---|
| ETIM 2.0 | EC000196 |
| ETIM 3.0 | EC001449 |
| ETIM 4.0 | EC001449 |
| ETIM 5.0 | EC001449 |

### UNSPSC

| | |
|---|---|
| UNSPSC 6.01 | 30211901 |
| UNSPSC 7.0901 | 39121501 |
| UNSPSC 11 | 39121501 |
| UNSPSC 12.01 | 39121501 |
| UNSPSC 13.2 | 39121501 |

## Approvals

### Approvals

Approvals

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

Ex Approvals

Approvals submitted

### Approval details

UL Listed

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## Approvals

cUL Listed

Functional Safety

EAC

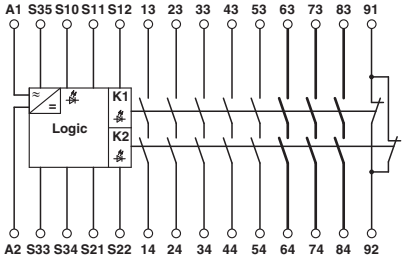
EAC

cUL Listed

cULus Listed

## Drawings

Circuit diagram



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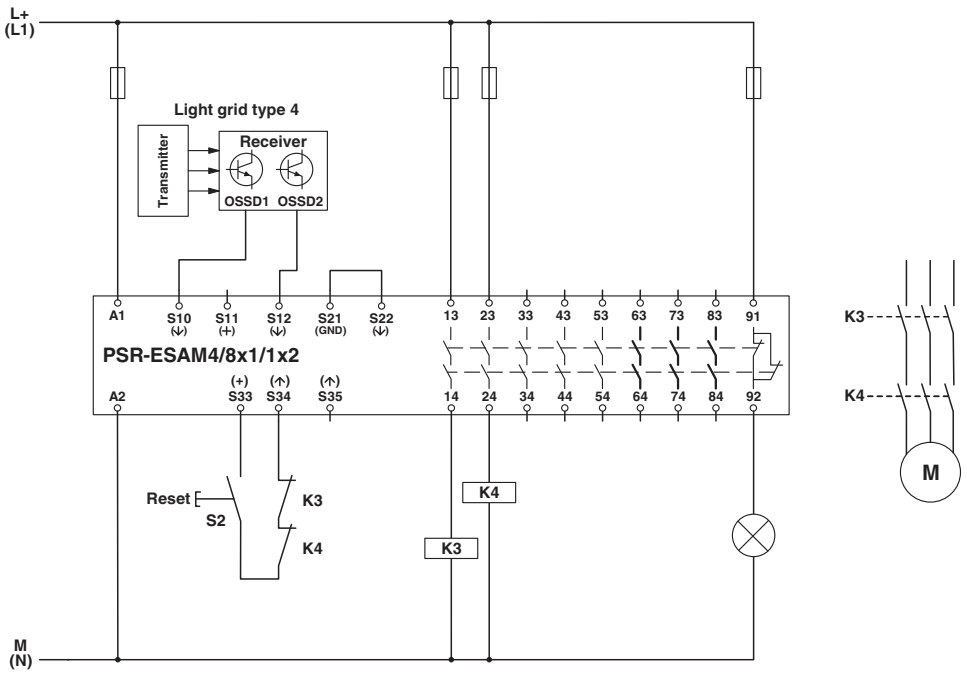
Circuit diagram




Light grid monitoring