

# 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/tightening delay 0.2 s to 60 s, 2 enabling current paths,  $U_s = 24 \text{ V DC}$ , plug-in spring-cage terminal block


The figure shows a version with a screw connection

## Why buy this product

- 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 STK
GTIN	 4 046356 952491
GTIN	4046356952491
Weight per Piece (excluding packing)	126.450 g
Weight per piece (including packing)	160.340 g
Custom tariff number	85371099
Country of origin	Germany
Sales Key	G1 - Relay

## Technical data

### Note

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

Width	12.5 mm
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## Technical data

### Dimensions

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)
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 DC -20 % / +25 %
Power consumption at $U_s$	typ. 1.44 W
Rated control supply current $I_s$	typ. 60 mA
Inrush current	25 A ( $\Delta t = 10 \mu s$ at $U_s$ )
Current consumption	< 4.1 mA (with $U_s/I_x$ to S12/S22) < 3.2 mA (with $U_s/I_x$ to S34)
Voltage at input/start and feedback circuit	24 V DC -20 % / +25 %
Typical response time	< 35 ms (automatic start) < 30 ms (manual, monitored start)
Typical release time	< 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)
Concurrence input 1/2	$\infty$
Status display	5 x bi-color LED
Maximum switching frequency	1 Hz
Max. permissible overall conductor resistance	150 $\Omega$
Filter time	10 ms (For the logic. At A1 in the event of voltage dips at $U_s$ ) max. 3 ms (at S12, S22, S34; test pulse width) min. 21 ms (at S12, S22, S34; test pulse rate) Test pulse rate = 7 x Test pulse width

### Output data

Contact type	2 enabling current paths
Contact material	AgSnO <sub>2</sub>
Minimum switching voltage	12 V AC/DC
Maximum switching voltage	250 V AC/DC (Observe the load curve)
Limiting continuous current	6 A (observe derating)
Inrush current, minimum	3 mA
Maximum inrush current	6 A

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## Technical data

### Output data

Sq. Total current	72 A <sup>2</sup> (observe derating)
Switching capacity	min. 60 mW
Output fuse	6 A gL/gG (N/O contact)
	4 A gL/gG (for low-demand applications)

### Alarm outputs

Number of outputs	1 (digital, PNP)
Voltage	23 V DC (U <sub>S</sub> - 1 V)
Current	max. 100 mA
Maximum inrush current	500 mA (Δt = 1 ms at U <sub>S</sub> )
Short-circuit protection	Yes

### General

Relay type	Electromechanical relay with forcibly guided contacts in accordance with IEC/EN 61810-3 (EN 50205)
Mechanical service life	10 x 10 <sup>6</sup> cycles
Nominal operating mode	100% operating factor
Net weight	126.45 g
Mounting type	DIN rail mounting
Assembly instructions	See derating curve
Mounting position	vertical or horizontal
Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Control	one and two channel
Housing material	PBT
Housing color	yellow

### Connection data

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

### Safety-related characteristic data

Stop category	0
	1
Designation	IEC 61508 - High demand
Safety Integrity Level (SIL)	3

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## Technical data

### Safety-related characteristic data

Designation	EN ISO 13849
Performance level (PL)	e
Category	4
Designation	EN 62061
Safety Integrity Level Claim Limit (SIL CL)	3

### Standards and Regulations

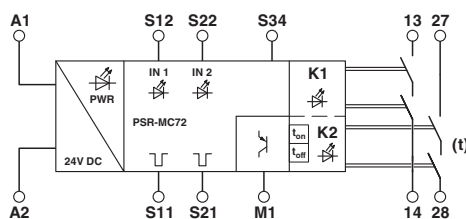
Shock	15g
Designation	Air clearances and creepage distances between the power circuits
Standards/regulations	DIN EN 50178
Rated insulation voltage	250 V AC
	250 V AC
Rated surge voltage/insulation	Basic insulation 4 kV: between all current paths and housing Safe isolation, reinforced insulation 6 kV: 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
Vibration (operation)	10 Hz ... 150 Hz, 2g
Conformance	CE-compliant

### Environmental Product Compliance

China RoHS	Environmentally friendly use period: unlimited = EFUP-e
	No hazardous substances above threshold values

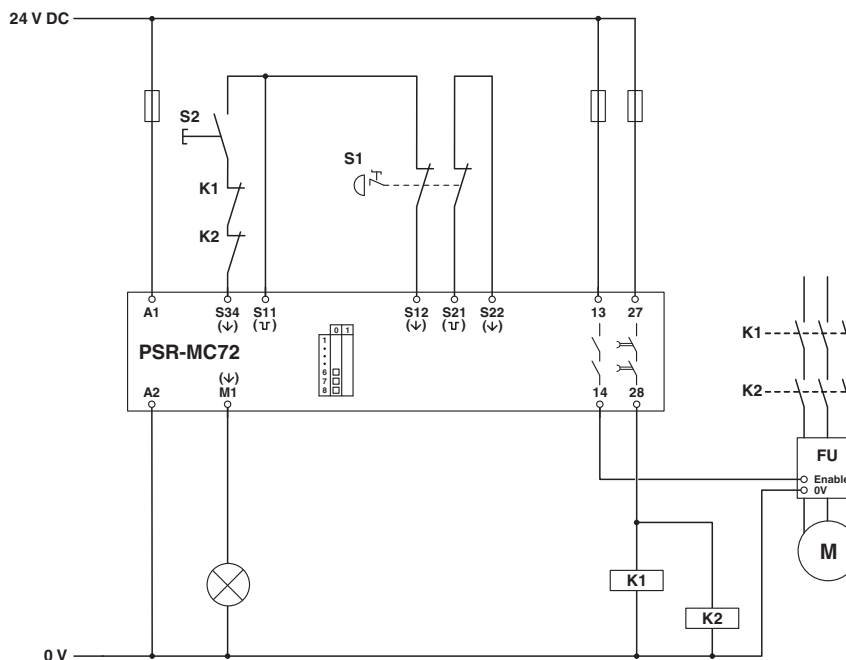
## Drawings

Block diagram



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Circuit diagram



## Classifications

eCl@ss

eCl@ss 5.1	27371901
eCl@ss 6.0	27371819
eCl@ss 8.0	27371819
eCl@ss 9.0	27371819

ETIM

ETIM 5.0	EC001449
ETIM 6.0	EC001449

UNSPSC

UNSPSC 13.2	39121501
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## Approvals

Approvals

Approvals

UL Listed / cUL Listed / cULus Listed


Ex Approvals

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### Approvals

#### Approval details

UL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 140324
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cUL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 140324
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