

## Safety relays - PSR-MC73-5NO-1DO-24DC-SC - 1015533

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Safety relay for emergency stop, safety doors, light grids up to SIL 3, Cat. 4, PL e, 1- or 2-channel operation, cross-circuit detection, can be retriggered, off-/on delay of 0.2 s to 300 s, 5 enabling current paths,  $U_s = 24 \text{ V DC}$ , plug-in screw terminal block

### Your advantages

- ✓ Up to Cat. 4/PL e in accordance with EN ISO 13849-1, SIL 3 in accordance with IEC 62061
- ✓ Low housing width of only 22.5mm
- ✓ 1- and 2-channel control
- ✓ 5 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 055626 496740
GTIN	4055626496740
Weight per Piece (excluding packing)	240.000 g
Custom tariff number	85371098
Country of origin	Germany

### Technical data

#### Dimensions

Width	22.5 mm
Height	112.2 mm
Depth	114.5 mm

#### Ambient conditions

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## Technical data

### 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)
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. 80 mA
Power consumption at $U_s$	typ. 1.92 W
Inrush current	typ. 28 A ( $\Delta t = 30 \mu s$ at $U_s$ )
Filter time	10 ms (For the logic. At A1 in the event of voltage dips at $U_s$ )
Protective circuit	Serial protection against polarity reversal Suppressor diode

### 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 voltage range "1" signal	11 V DC ... 30 V DC
Input current range "0" signal	0 mA ... 2 mA
Inrush current	< 11 mA (typically with $U_s$ )
Current consumption	< 4.5 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)
Max. permissible overall conductor resistance	150 $\Omega$
Concurrence	$\infty$
Limit frequency	min. 0 Hz
	max. 1 Hz
Protective circuit/component	Varistor

### 2. Digital inputs

Input name	Start circuit
	S34
Description of the input	non-safety-related
Number of inputs	1

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### 2. Digital inputs

Input voltage range "0" signal	0 V DC ... 5 V DC
Input voltage range "1" signal	11 V DC ... 30 V DC
Input current range "0" signal	0 mA ... 2 mA
Inrush current	< 8.6 mA (typically with U <sub>S</sub> )
Current consumption	< 3.2 mA (typically with U <sub>S</sub> )
Filter time	max. 1 ms (Test pulse width of low test pulses) min. 21 ms (Test pulse rate for low test pulse)
Max. permissible overall conductor resistance	150 Ω
Limit frequency	min. 0 Hz max. 1 Hz
Protective circuit/component	Varistor

### Relay outputs: enabling current path

Output name	Enabling current paths 13/14, 23/24/34, 47/48/58
Output description	2 N/O contacts each in series, safety-related, floating
Number of outputs	3 (undelayed: 13/14, 23/24/34) 2 (delayed: 47/48/58)
Contact type	5 enabling current paths
Contact material	AgSnO <sub>2</sub>
Switching voltage	min. 12 V AC/DC max. 250 V AC/DC (Observe the load curve)
Limiting continuous current	6 A
Inrush current	min. 3 mA max. 6 A
Sq. Total current	108 A <sup>2</sup> (observe derating)
Switching capacity	min. 60 mW
Switching frequency	0.5 Hz (depending on the set delay time)
Mechanical service life	10x 10 <sup>6</sup> cycles
Switching capacity according to IEC 60947-5-1	4 A (24 V (DC13)) 5 A (250 V (AC15))
Output fuse	6 A gL/gG 4 A gL/gG (for low-demand applications)

### Alarm outputs

Designation	M1
Output description	PNP non-safety-related

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#### Alarm outputs

Number of outputs	1
Voltage	approx. 23 V DC ( $U_s - 1$ V)
Current	max. 100 mA
Maximum inrush current	500 mA ( $\Delta t = 10$ ms at $U_s$ )
Protective circuit/component	Suppressor diode
Short-circuit protection	Yes

#### Clock outputs

Designation	S11, S21
Output description	PNP
	non-safety-related
Number of outputs	2
Voltage	corresponds to $U_s$
Current	max. 100 mA
Maximum inrush current	500 mA ( $\Delta t = 10$ ms at $U_s$ )
Cable length	max. 150 m
Protective circuit/component	Suppressor diode
Short-circuit protection	Yes

#### Times

Typical pickup time at US	500 ms (with $U_s$ when controlled via A1)
Typical response time at US	< 40 ms (automatic start)
	< 30 ms (manual, monitored start)
Typical release time at US	< 25 ms (when controlled via S12 and S22 (only for undelayed contacts))
	< 5 ms (when controlled via A1; applicative deactivation via A1/A2 is not permitted)
Delay time range	0.2 s ... 300 s $\pm 5$ % (can be set for 47/48/58)
Restart time	< 1 s (Boot time)
Recovery time	500 ms (following demand of the safety function)

#### General

Relay type	Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3
Nominal operating mode	100% operating factor
Net weight	222.04 g
Mounting position	vertical or horizontal
Mounting type	DIN rail mounting
Assembly instructions	See derating curve
Degree of protection	IP20

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## Technical data

### General

Min. degree of protection of inst. location	IP54
Housing material	Polyamide
Housing color	yellow
Status display	5 x bi-color LED

### Connection data

Connection method	Screw connection
pluggable	Yes
Conductor cross section solid	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross section flexible	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
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 in accordance with IEC 60204	0
	1
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 (SIL)	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
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) and enabling current path (23/24/34) and enabling current path (47/48/58)
Degree of pollution	2
Overvoltage category	III
Shock	10g (operation), 15g (transport)
Vibration (operation)	10 Hz ... 150 Hz, 2g

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## Technical data

### Standards and Regulations

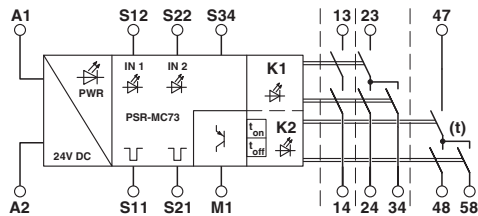
Conformance	CE-compliant
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### Environmental Product Compliance

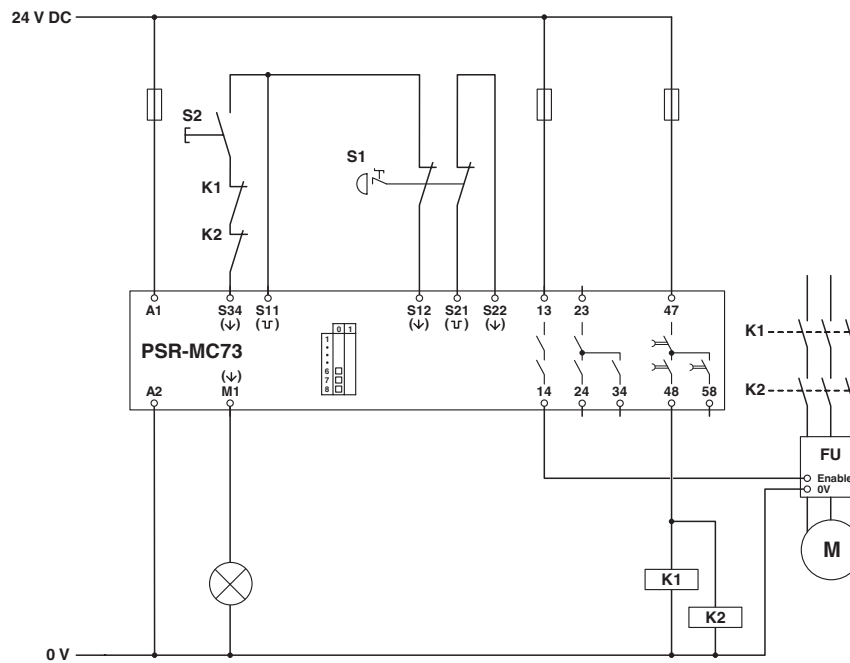
REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

## Drawings

Block diagram



Circuit diagram



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## Classifications

### eCl@ss

eCl@ss 10.0.1	27371819
eCl@ss 11.0	27371819
eCl@ss 9.0	27371819

### ETIM

ETIM 6.0	EC001449
ETIM 7.0	EC001449

### UNSPSC

UNSPSC 18.0	39122205
UNSPSC 19.0	39122205
UNSPSC 20.0	39122205
UNSPSC 21.0	39122205

## Approvals

### Approvals

#### Approvals

UL Listed / cUL Listed / EAC / cULus Listed

#### Ex 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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EAC		RU*-DE*B.00606/20
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### Approvals

cULus Listed



### Accessories

#### Accessories

#### Coding element

Coding profile - CP-MSTB - 1734634

Coding profile, is inserted into the slot on the plug or inverted header, red insulating material



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Coding section - CR-MSTB - 1734401

Coding section, inserted into the recess in the header or the inverted plug, red insulating material

