

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



1015533

<https://www.phoenixcontact.com/in/products/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 retrigged, off-/on delay of 0.2 s to 300 s, 5 enabling current paths,  $U_S = 24$  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 EN 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

## Commercial data

Item number	1015533
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DNA
Product key	DNA181
Catalog page	Page 227 (C-6-2019)
GTIN	4055626496740
Weight per piece (including packing)	254.53 g
Weight per piece (excluding packing)	155.43 g
Customs tariff number	85371098
Country of origin	DE

## Technical data

### Notes

#### Note on application

Note on application	Only for industrial use
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### Product properties

Product type	Safety relays
Product family	PSRmini
Application	Emergency stop
	Safety door
	Light grid
Control	1 and 2 channel
Relay type	Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3

#### Insulation characteristics

Overvoltage category	III
Degree of pollution	2

#### Times

Typical response time	< 50 ms (automatic start)
	< 50 ms (manual, monitored start)
Typ. starting time with $U_S$	500 ms (with $U_S$ when controlled via A1)
Typical release time	< 25 ms (when controlled via S12 and S22 (only for undelayed contacts))
	< 10 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)

### Electrical properties

Maximum power dissipation for nominal condition	8.1 W (At $U_S = 30\text{ V}$ , $I_L^2 = 108\text{ A}^2$ )
Nominal operating mode	100% operating factor
Rated insulation voltage	250 V AC
Rated surge voltage/insulation	See section "Insulation coordination"

#### Supply

Designation	A1/A2
Rated control circuit supply voltage $U_S$	19.2 V DC ... 30 V DC
Rated control circuit supply voltage $U_S$	24 V DC -20 % / +25 %
Rated control supply current $I_S$	typ. 80 mA
Power consumption at $U_S$	typ. 1.92 W
Inrush current	typ. 28 A ( $\Delta t = 30\ \mu\text{s}$ at $U_S$ )

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Filter time	1 ms (For the logic. At A1 in the event of voltage dips at $U_S$ )
Protective circuit	Serial protection against polarity reversal; Suppressor diode

## Input data

### General

Limit frequency	min. 0 Hz
	max. 1 Hz

### Digital: 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 (typ. 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)
Concurrence	$\infty$
Limit frequency	min. 0 Hz
	max. 1 Hz
Max. permissible overall conductor resistance	150 $\Omega$
Protective circuit	Varistor
Current consumption	< 4.5 mA (typ. with $U_S$ )

### Digital: Start circuit (S34)

Description of the input	non-safety-related
Number of inputs	1
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 (typ. with $U_S$ )
Filter time	max. 1 ms (Test pulse width of low test pulses)
	min. 21 ms (Test pulse rate for low test pulse)
Limit frequency	min. 0 Hz
	max. 1 Hz
Max. permissible overall conductor resistance	150 $\Omega$
Protective circuit	Varistor
Current consumption	< 3.2 mA (typ. with $U_S$ )

## Output data

### Relay: 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)

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Contact switching type	5 enabling current paths
Contact material	AgCuNi +0.2 µm ... 0.4 µm Au / AgSnO <sub>2</sub> +0.2 µm Au
Switching voltage	min. 12 V AC/DC
	max. 250 V AC/DC (Observe the load curve)
Switching capacity	min. 60 mW
Inrush current	min. 5 mA
	max. 6 A
Limiting continuous current	6 A
Sq. Total current	108 A <sup>2</sup> (observe derating)
Switching frequency	0.5 Hz (depending on the set delay time)
Mechanical service life	10x 10 <sup>6</sup> cycles
Output fuse	6 A gL/gG
	4 A gL/gG (for low-demand applications)

## Signal: M1

Output description	PNP
	non-safety-related
Number of outputs	1
Voltage	approx. 23 V DC (U <sub>S</sub> - 1 V)
Current	max. 100 mA
Maximum inrush current	500 mA (Δt = 10 ms at U <sub>S</sub> )
Protective circuit	Suppressor diode
Short-circuit protection	Yes

## Clock: S11, S21

Output description	PNP
	non-safety-related
Number of outputs	2
Voltage	corresponds to U <sub>S</sub>
Current	max. 100 mA
Maximum inrush current	500 mA (Δt = 10 ms at U <sub>S</sub> )
Protective circuit	Suppressor diode
Short-circuit protection	Yes

## Connection data

### Connection technology

pluggable	yes
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### Conductor connection

Connection method	Screw connection
Conductor cross section rigid	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

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Tightening torque	0.5 Nm ... 0.6 Nm
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## Signaling

Status display	5 x bi-color LED
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## Dimensions

Width	22.5 mm
Height	112.2 mm
Depth	114.5 mm

## Material specifications

Color (Housing)	yellow (RAL 1018)
Housing material	PA

## Characteristics

### Safety data

Stop category	0
	1

### Safety data: EN ISO 13849

Category	4
Performance level (PL)	e (4 A DC13; 3 A AC15; 8760 switching cycles/year)

### Safety data: IEC 61508 - High demand

Safety Integrity Level (SIL)	3
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### Safety data: IEC 61508 - Low demand

Safety Integrity Level (SIL)	3
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### Safety data: EN IEC 62061

Safety Integrity Level (SIL)	3
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## Environmental and real-life conditions

### Ambient conditions

Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Ambient temperature (operation)	-35 °C ... 60 °C (observe derating)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Maximum altitude	≤ 2000 m (Above sea level)
Max. permissible humidity (storage/transport)	75 % (on average, 85% infrequently, non-condensing)
Max. permissible relative humidity (operation)	75 % (on average, 85% infrequently, non-condensing)
Shock	10g (operation), 15g (transport)
Vibration (operation)	10 Hz ... 150 Hz, 2g

## Approvals

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## CE

Identification	CE-compliant
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## Mounting

Mounting type	DIN rail mounting
Assembly note	See derating curve
Mounting position	vertical or horizontal

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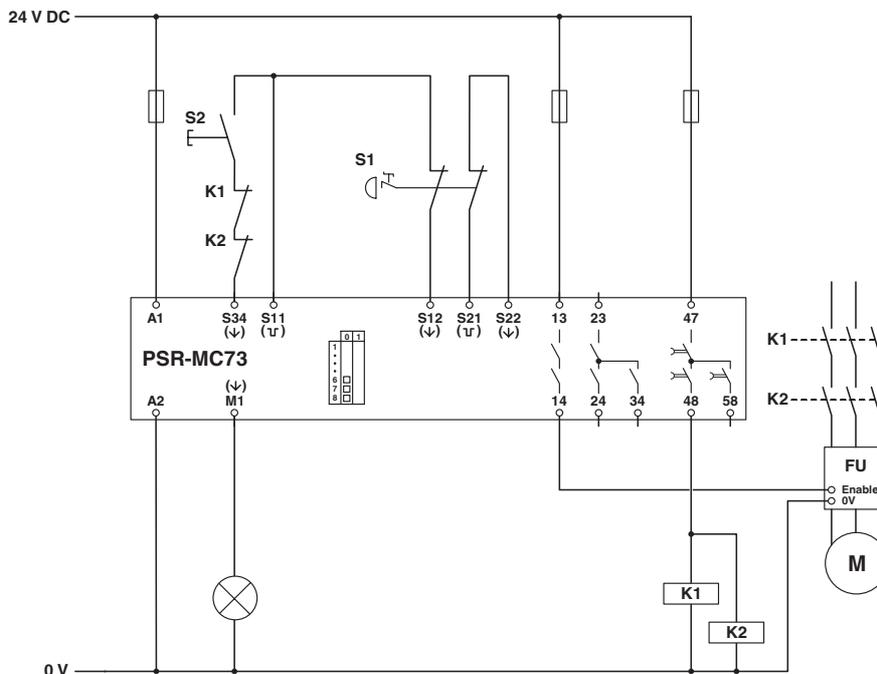


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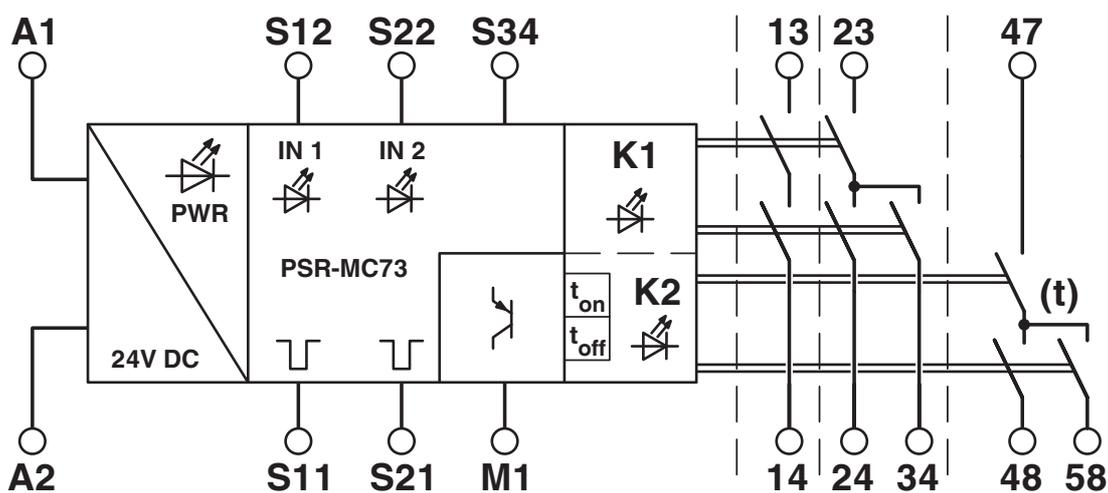
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## Drawings

Circuit diagram



Block diagram



Block diagram

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## Approvals

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### Functional Safety

Approval ID: 01/205/5486.02/24



### cULus Listed

Approval ID: E140324

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## Classifications

### ECLASS

ECLASS-13.0

27371819

### ETIM

ETIM 9.0

EC001449

### UNSPSC

UNSPSC 21.0

39122200

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## Environmental product compliance

### EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	7(a), 7(c)-I

### China RoHS

Environment friendly use period (EFUP)	EFUP-50
	An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.

### EU REACH SVHC

REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
SCIP	3bb6380a-3506-4e07-921f-eefa21a54032

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PHOENIX CONTACT (I) Pvt. Ltd.

A-58/2, Okhla Industrial Area, Phase - II, New Delhi-110 020

+91.1275.71420

[info@phoenixcontact.co.in](mailto:info@phoenixcontact.co.in)