

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



1015526

<https://www.phoenixcontact.com/us/products/1015526>

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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 Push-in 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	1015526
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN01
Product key	DNA181
Catalog page	Page 227 (C-6-2019)
GTIN	4055626496566
Weight per piece (including packing)	246 g
Weight per piece (excluding packing)	214.73 g
Customs tariff number	85371098
Country of origin	DE

## Technical data

### Product properties

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

### 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 $U_s = 30$ V, $I_L^2 = 108$ A <sup>2</sup> )
Nominal operating mode	100% operating factor

### Air clearances and creepage distances between the power circuits

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)

### 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 ( $\Delta t = 30$ $\mu$ s at $U_s$ )
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

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## 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 (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)
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 (typically 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 (typically 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 (typically 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)
Contact switching type	5 enabling current paths
Contact material	AgCuNi +0.2 $\mu$ m ... 0.4 $\mu$ m Au / AgSnO <sub>2</sub> +0.2 $\mu$ m Au
Switching voltage	min. 12 V AC/DC
	max. 250 V AC/DC (Observe the load curve)

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Switching capacity	min. 60 mW
Inrush current	min. 5 mA
	max. 6 A
Switching capacity in accordance with IEC 60947-5-1	4 A (24 V (DC13))
	3 A (230 V (AC 15))
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 ( $U_S - 1$ V)
Current	max. 100 mA
Maximum inrush current	500 mA ( $\Delta t = 10$ ms at $U_S$ )
Protective circuit	Suppressor diode
Short-circuit protection	Yes

## Clock: S11, S21

Output description	PNP
	non-safety-related
Number of outputs	2
Voltage	corresponds to $U_S$
Current	max. 100 mA
Maximum inrush current	500 mA ( $\Delta t = 10$ ms at $U_S$ )
Protective circuit	Suppressor diode
Short-circuit protection	Yes

## Connection data

### Connection technology

pluggable	yes
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### Conductor connection

Connection method	Push-in connection
Conductor cross section rigid	0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross section flexible	0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross section, flexible, with ferrule, with plastic sleeve	0.25 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> (only together with CRIMPFOX 6)
Conductor cross section flexible, with ferrule without plastic sleeve	0.25 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> (only together with CRIMPFOX 6)
Conductor cross-section AWG	24 ... 16
Stripping length	8 mm

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## Signaling

Status display	5 x bi-color LED
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## Dimensions

Width	22.5 mm
Height	117.5 mm
Depth	114.5 mm

## Material specifications

Housing material	Polyamide
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## 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

### CE

Identification	CE-compliant
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## Standards and regulations

Air clearances and creepage distances between the power circuits

Standards/regulations	EN 60664-1
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## Mounting

Mounting type	DIN rail mounting
Assembly instructions	See derating curve
Mounting position	vertical or horizontal
Connection method	Push-in connection

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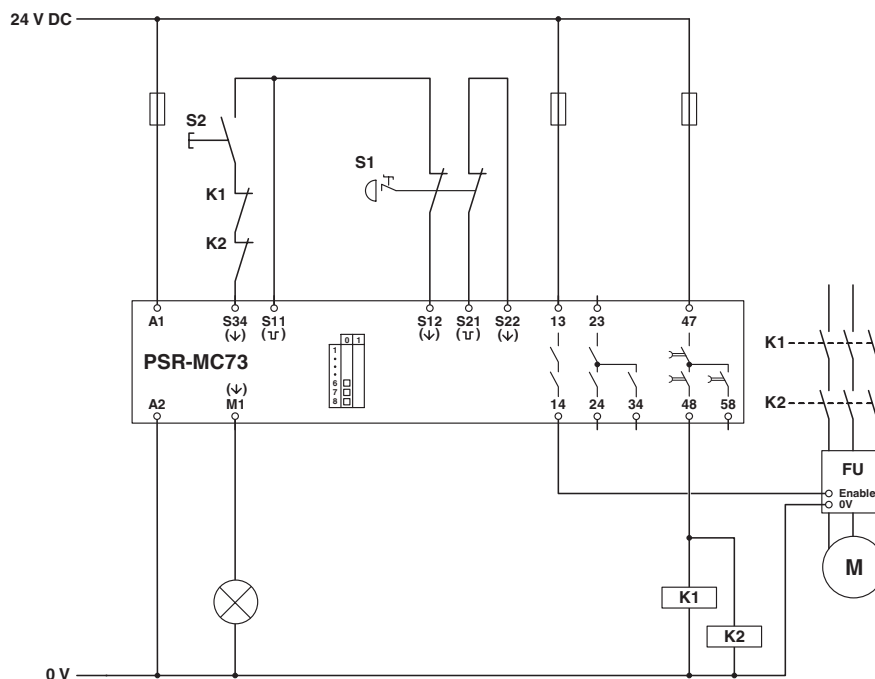


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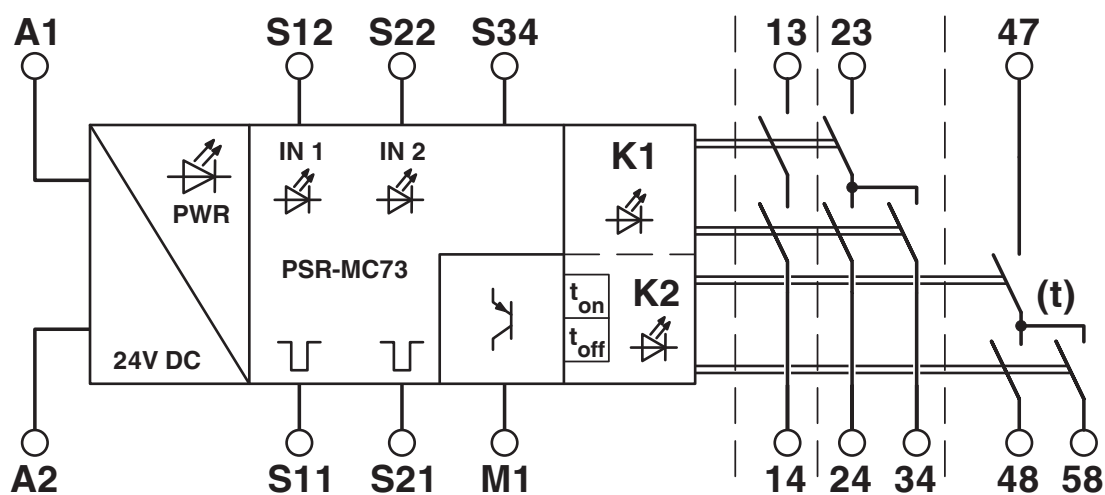
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## Drawings

Circuit diagram



Block diagram



Block diagram

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1015526>



### UL Listed

Approval ID: FILE E 140324



### cUL Listed

Approval ID: FILE E 140324



### EAC

Approval ID: RU\*-DE\*B.00606/20



### Functional Safety

Approval ID: 01/205/5486.01/19

cULus Listed



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## Classifications

### ECLASS

ECLASS-11.0	27371819
ECLASS-13.0	27371819
ECLASS-12.0	27371819

### ETIM

ETIM 8.0	EC001449
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### UNSPSC

UNSPSC 21.0	39122200
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## Environmental product compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads"

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## Accessories

### CP-MSTB - Coding profile

1734634

<https://www.phoenixcontact.com/us/products/1734634>

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



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### CR-MSTB - Coding section

1734401

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



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## CRIMPFOX 6 - Crimping pliers

1212034

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Crimping pliers, for ferrules without insulating collar according to DIN 46228 Part 1 and ferrules with insulating collar according to DIN 46228 Part 4, 0.25 mm<sup>2</sup> ... 6.0 mm<sup>2</sup>, lateral entry, trapezoidal crimp

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