

# PSR-MC60-2NO-1DO-24DC-SP - Safety relays



2700572

<https://www.phoenixcontact.com/ae/products/2700572>

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Safety relay for two-hand controls in accordance with ISO 13851 type IIIA, up to SIL 1, Cat. 1, PL c, synchronous activation monitoring < 0.5 s, 2 enabling current paths,  $U_S = 24 \text{ V DC}$ , plug-in Push-in terminal block

## Your advantages

- Depending on the application, up to cat. 4/PL e in accordance with ISO 13849-1, SIL CL 3 in accordance with EN IEC 62061
- Type IIIA in accordance with ISO 13851
- Low housing width of just 12.5 mm
- 2 enabling current paths, 1 digital signal output
- Automatic activation

## Commercial data

Item number	2700572
Packing unit	1 pc
Minimum order quantity	1 pc
Note	Made to order (non-returnable)
Sales key	DNA
Product key	DNA181
Catalog page	Page 225 (C-6-2019)
GTIN	4046356988360
Weight per piece (including packing)	142.93 g
Weight per piece (excluding packing)	111.28 g
Customs tariff number	85371098
Country of origin	DE

## Technical data

### Product properties

Product type	Safety relays
Product family	PSRmini
Application	Two-hand control
Relay type	Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3

### Times

Typical response time	< 40 ms
Typical release time	< 10 ms (when controlled via S12/S22) < 5 ms (when interrupted via A1; applicative deactivation via A1/A2 is not permitted)
Restart time	< 2 s (Boot time)
Recovery time	< 500 ms

### Electrical properties

Maximum power dissipation for nominal condition	3.12 W (at $U_S = 30$ V, $I_L^2 = 72$ 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
	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, S35, M1) and enabling current path (13/14)
	between (A1, A2, S11, S12, S21, S22, S35, M1) and enabling current path (23/24) between enabling current paths

### 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. 35 mA
Power consumption at $U_S$	typ. 0.9 W
Inrush current	typ. 20 A ( $\Delta t = 10$ $\mu$ s at $U_S$ )
Filter time	10 ms (For the logic. At A1 in the event of voltage dips at $U_S$ )
Protective circuit	Surge protection; Suppressor diode
	Protection against polarity reversal for rated control circuit supply voltage

### Input data

#### Digital: Sensor circuit (S12, S22)

Description of the input	safety-related sensor inputs
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Number of inputs	2
Inrush current	< 5.5 mA (with $U_s/I_x$ to S12)
	> -5.5 mA (with $U_s/I_x$ to S22)
Concurrency	< 0.5 s
Max. permissible overall conductor resistance	150 $\Omega$
Current consumption	< 5.1 mA (with $U_s/I_x$ to S12)
	> -5.1 mA (with $U_s/I_x$ to S22)

## Digital: Feedback circuit (S35)

Description of the input	non-safety-related
Number of inputs	1
Inrush current	< 5.5 mA (typically with $U_s$ )
Max. permissible overall conductor resistance	150 $\Omega$
Voltage at input/start and feedback circuit	24 V DC -20 % / +25 %
Current consumption	< 5.1 mA (typically with $U_s$ )

## Output data

### Relay: Enabling current paths (13/14, 23/24)

Output description	safety-related N/O contacts
Number of outputs	2 (undelayed)
Contact switching type	2 enabling current paths
Contact material	AgSnO <sub>2</sub> (enabling current path)
Switching voltage	min. 12 V AC/DC
	max. 250 V AC/DC (Observe the load curve)
Switching capacity	min. 60 mW
Inrush current	min. 3 mA
	max. 6 A
Limiting continuous current	6 A (observe derating)
Sq. Total current	72 A <sup>2</sup> (observe derating)
Switching frequency	1 Hz
Mechanical service life	10x 10 <sup>6</sup> cycles
Output fuse	6 A gL/gG (N/O contact)

### Signal: M1

Output description	PNP
	non-safety-related
Number of outputs	1 (digital, PNP)
Voltage	22 V DC ( $U_s - 2$ V)
Current	max. 100 mA
Maximum inrush current	500 mA ( $\Delta t = 1$ ms at $U_s$ )
Short-circuit protection	Yes

## Connection data

Connection technology

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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

## Signaling

Status display	5 x bi-color LED
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## Dimensions

Width	12.5 mm
Height	116.6 mm
Depth	114.5 mm

## Material specifications

Color	yellow
Housing material	Polyamide

## Characteristics

### Safety data

Stop category	0
Type class	IIIA

### Safety data: EN ISO 13849

Category	1 (4 A DC13; 5 A AC15; 8760 switching cycles/year)
Performance level (PL)	c (4 A DC13; 5 A AC15; 8760 switching cycles/year)

### Safety data: IEC 61508 - High demand

Safety Integrity Level (SIL)	1 (4 A DC13; 5 A AC15; 8760 switching cycles/year)
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### Safety data: EN IEC 62061

Safety Integrity Level (SIL)	1 (4 A DC13; 5 A AC15; 8760 switching cycles/year)
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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)

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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	15g
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	DIN EN 50178
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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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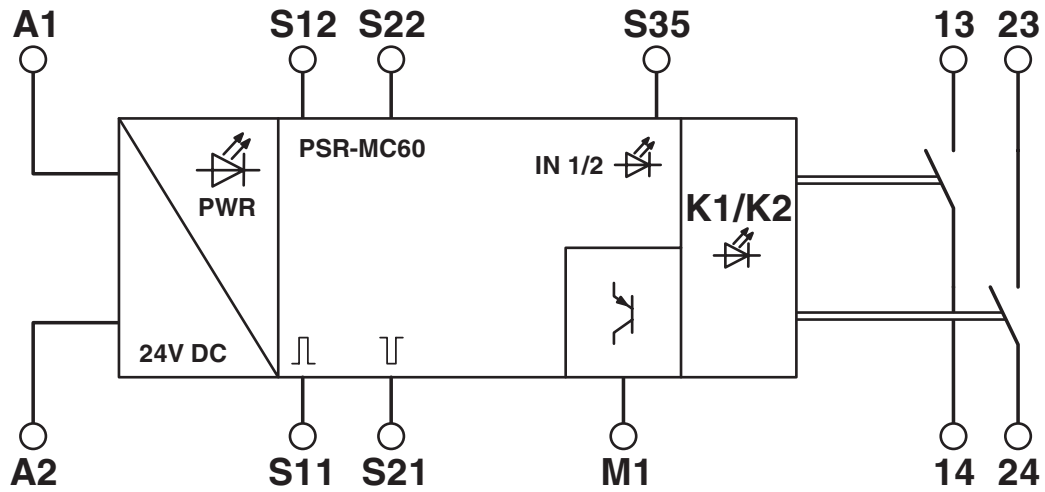


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## Drawings

Block diagram



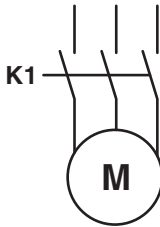
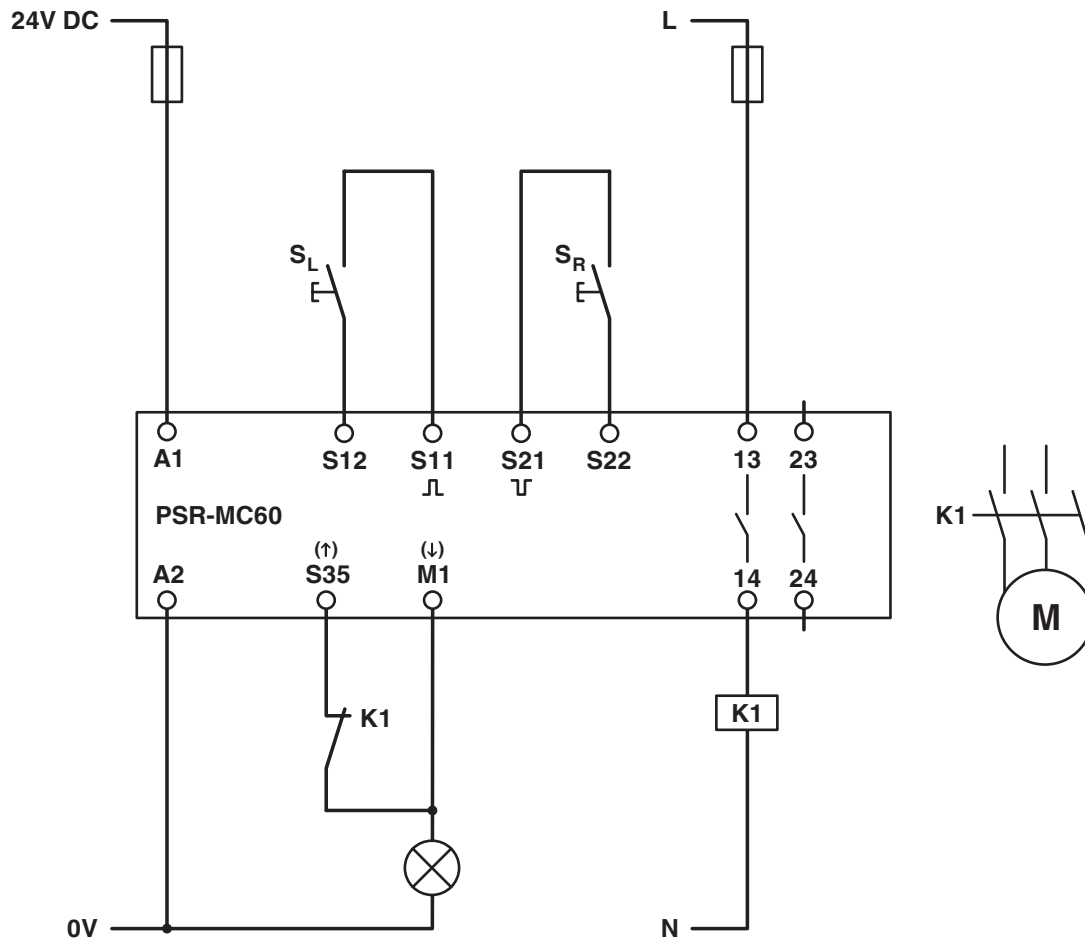
Block diagram

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Circuit diagram



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## Classifications

### ECLASS

ECLASS-11.0

27371821

### ETIM

ETIM 8.0

EC001452

### UNSPSC

UNSPSC 21.0

39121100



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## Environmental product compliance

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

### 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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