

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



2700571

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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 screw 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	2700571
Packing unit	1 pc
Note	Made to order (non-returnable)
Sales key	DN01
Product key	DNA181
GTIN	4046356988353
Weight per piece (including packing)	148.2 g
Weight per piece (excluding packing)	115.32 g
Customs tariff number	85371098
Country of origin	DE

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## 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

Insulation characteristics: Air clearances and creepage distances between the power circuits

Overvoltage category	III
Degree of pollution	2

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	See data sheet, 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. 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
Number of inputs	2

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



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Inrush current	< 5.5 mA (with $U_s/I_x$ to S12)
	> -5.5 mA (with $U_s/I_x$ to S22)
Concurrence	< 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 (typ. 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 (typ. 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
Switching power	min. 60 mW
Inrush current	min. 3 mA
	max. 6 A
Limiting continuous current	6 A
Sq. Total current	72 A <sup>2</sup> (observe derating)
Switching frequency	0.1 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

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

## Signaling

Status display	5 x bi-color LED
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## Dimensions

Width	12.5 mm
Height	112.2 mm
Depth	114.5 mm

## Material specifications

Color	yellow
Housing material	PA

## Characteristics

### Safety data

Stop category (EN 60204-1)	0
Type class	IIIA

### Safety data: EN ISO 13849

Performance level (PL)	c
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### Safety data: IEC 61508 - High demand

Safety Integrity Level (SIL)	1
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### Safety data: EN IEC 62061

Safety Integrity Level (SIL)	1
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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	15g

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Vibration (operation)	10 Hz ... 150 Hz, 2g
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## Approvals

CE

Identification	CE-compliant
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## Standards and regulations

Air clearances and creepage distances between the power circuits

Standards/regulations	IEC 60664-1
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## Mounting

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



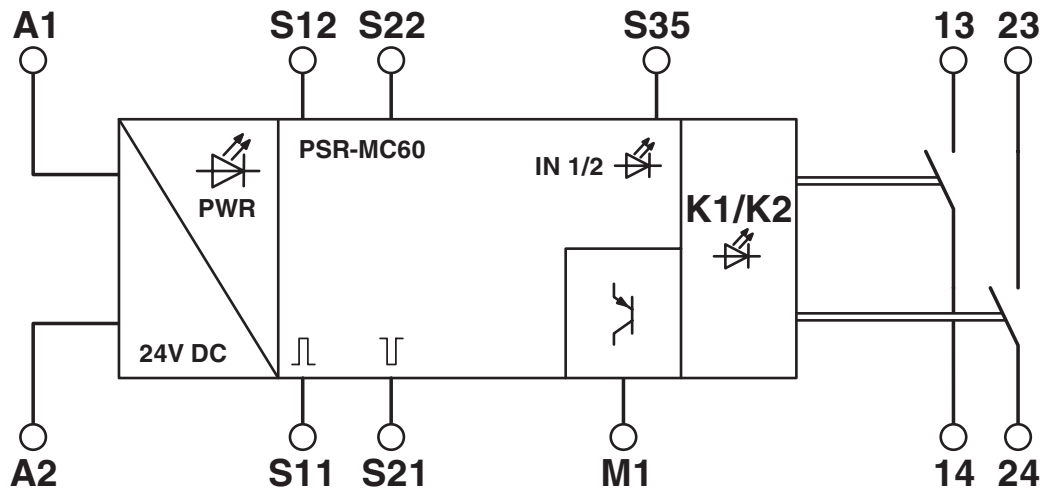
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Block diagram



Block diagram

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## Classifications

### UNSPSC

UNSPSC 21.0	39121100
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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)
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Phoenix Contact USA  
586 Fulling Mill Road  
Middletown, PA 17057, United States  
(+717) 944-1300  
[info@phoenixcon.com](mailto:info@phoenixcon.com)