

# PSR-MC32-3NO-1NC-24-230UC-SC - Safety relays



2700524

<https://www.phoenixcontact.com/us/products/2700524>

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Safety relay for emergency stop, safety doors, and light grids up to SIL 3, Cat. 4, PL e, 1 or 2-channel operation, automatic or manual, monitored start, 3 enabling current paths, 1 signaling current path,  $U_S = 24 \dots 230 \text{ V AC/DC}$ , plug-in screw terminal block

## Product description

The safety relay PSR-MC32 enables the monitoring of various items of safety equipment, e.g., emergency stop, safety doors, or light grids. Thanks to the wide range input from 24 V AC/DC to 230 V AC/DC and the option of connecting antivalent or equivalent signal generators, the PSR-MC32 is ideal for both retrofit and new projects.

## 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 or 2-channel control
- Wide range input 24 V AC/DC ... 230 V AC/DC
- Cross-circuit detection

## Commercial data

Item number	2700524
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN01
Product key	DNA181
GTIN	4046356912693
Weight per piece (including packing)	225.2 g
Weight per piece (excluding packing)	203.3 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	PSRcompact
Application	Emergency stop
	Safety door
	Magnetic switch
	Transponder
	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	II, III (See the section "Insulation coordination")
Degree of pollution	2

### Times

Typical response time	< 150 ms (automatic start)
	< 100 ms (manual, monitored start)
Typ. starting time with $U_s$	< 200 ms (when controlled via A1)
Response time	< 200 ms (When requested via A1; applicative deactivation via A1/A2 is not permitted)
Typical release time	< 20 ms (on demand via the sensor circuit)
Restart time	< 1 s (Boot time)
Recovery time	< 500 ms (following demand of the safety function)
	100 ms (Availability time after activating the sensor circuit during manual start)
Start pulse length	min. 500 ms (manual start)

### Electrical properties

Maximum power dissipation for nominal condition	17.3 W (at $I_L^2 = 72 \text{ A}^2$ )
Nominal operating mode	100% operating factor
Rated insulation voltage	250 V AC
Rated surge voltage/insulation	See data sheet, section "Insulation coordination".

### Supply

Designation	A1/A2
Rated control circuit supply voltage $U_s$	24 V AC/DC ... 230 V AC/DC -15 % / +10 %
	typ. 103 mA (24 V DC)

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Rated control supply current $I_S$	typ. 47 mA (48 V DC)
	typ. 38 mA (110 V AC)
	typ. 21 mA (230 V AC)
Power consumption at $U_S$	2.7 W (with DC)
	2.9 W (with AC)
Apparent power	typ. 5 VA (at $U_S$ )
Inrush current	< 80 A ( $\Delta t = 50 \mu s$ at $U_S$ )
Filter time	2 ms (at A1 in the event of voltage dips at $U_S$ )
Protective circuit	275 V varistor / 411 V suppressor diode

## Input data

Digital: Sensor circuit (S10, S12, S13, S22)

Description of the input	safety-related sensor inputs IEC 61131-2 Type 3 (S10, S12, S13) Current, inward (S10, S12, S13) Current, outward (S22)
Number of inputs	4
Input voltage range "0" signal	0 V DC ... 5 V DC (for safe Off; at S10/S12/S13)
Input voltage range "1" signal	11 V DC ... 30 V DC (at S10/S12/S13)
Input current range "0" signal	0 mA ... 2 mA (for safe Off; at S10/S12/S13)
Inrush current	< 5 mA (typically with $U_S$ at S10/S12/S13)
	> -5 mA (typ. with $U_S$ at S22)
Filter time	max. 1.5 ms (Test pulse width of low test pulses)
	Test pulse rate = 5 x Test pulse width
Concurrence	$\infty$
Max. permissible overall conductor resistance	150 $\Omega$
Protective circuit	Reverse polarity protection; 38.6 V suppressor diode
Current consumption	typ. 4 mA (typically with $U_S$ at S10/S12/S13)
	typ. -2 mA (typ. with $U_S$ at S22)

Digital: Start circuit (S34, S35)

Description of the input	non-safety-related
Number of inputs	2
Input voltage range "1" signal	19.2 V DC ... 30 V DC
Inrush current	typ. 10 mA (typ. with $U_S$ at S34/S35, $\Delta t = 330$ ms)
Max. permissible overall conductor resistance	150 $\Omega$
Protective circuit	Reverse polarity protection; 38.6 V suppressor diode
Current consumption	typ. 2.5 mA (typ. with $U_S$ at S34)
	typ. 1 mA (typ. with $U_S$ at S35)

## Output data

Relay: Enabling current paths (13/14, 23/24, 33/34)

Output description	2 N/O contacts each in series, safety-related, floating
Number of outputs	3

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Contact switching type	3 enabling current paths
Contact material	AgSnO <sub>2</sub>
Switching voltage	min. 5 V AC/DC
	max. 250 V AC/DC
Switching power	min. 50 mW
Inrush current	min. 10 mA
	max. 6 A
Switching capacity	5 A (DC13)
	5 A (AC15)
Limiting continuous current	6 A
Sq. Total current	72 A <sup>2</sup> (observe derating)
Switching frequency	max. 1 Hz
Mechanical service life	10x 10 <sup>6</sup> cycles
Output fuse	6 A gL/gG
	4 A gL/gG (for low-demand applications)

## Relay: Signaling current path (41/42)

Output description	2 N/C contacts parallel, non-safety-related, floating
Number of outputs	1
Contact switching type	1 signaling current path
Contact material	AgSnO <sub>2</sub>
Switching voltage	min. 5 V AC/DC
	max. 250 V AC/DC
Switching power	min. 50 mW
Inrush current	min. 10 mA
	max. 6 A
Limiting continuous current	6 A
Switching frequency	1 Hz
Mechanical service life	10x 10 <sup>6</sup> cycles
Output fuse	6 A gL/gG
	4 A gL/gG (for low-demand applications)

## 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
Tightening torque	0.5 Nm ... 0.6 Nm

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## Signaling

Status display	3 x LED (green)
Operating voltage display	1 x LED (green)

## Dimensions

Width	22.5 mm
Height	112.7 mm
Depth	111.7 mm

## Material specifications

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

## Characteristics

### Safety data

Stop category (EN 60204-1)	0
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### Safety data: EN ISO 13849

Performance level (PL)	e
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### 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)	-40 °C ... 55 °C (observe derating) -40 °C ... 60 °C (mounted in the horizontal mounting position with ≥ 9 mm spacing)
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
Vibration (operation)	10 Hz ... 150 Hz, 2g

## Mounting

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

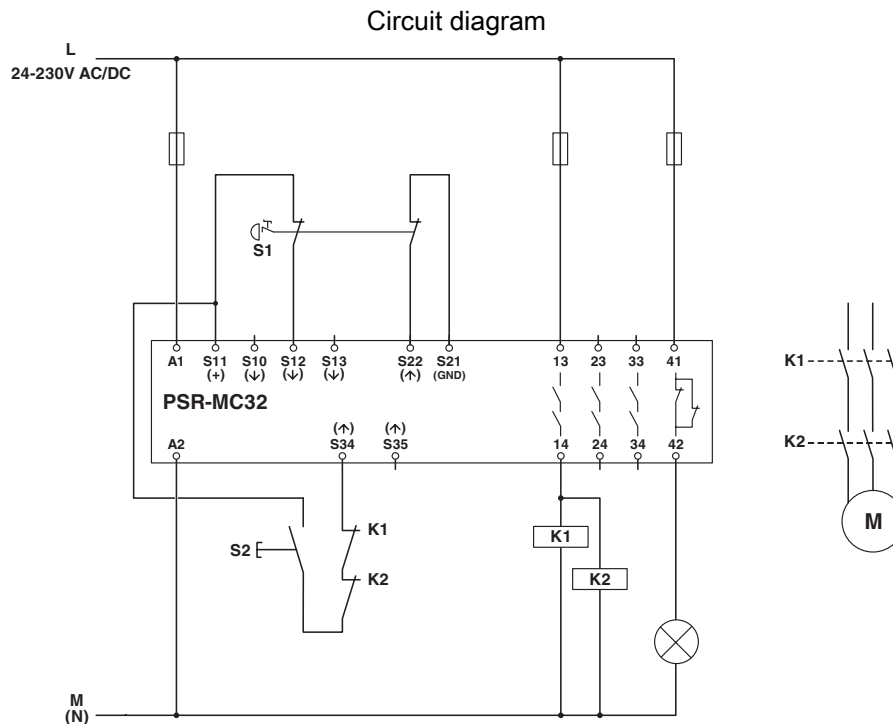
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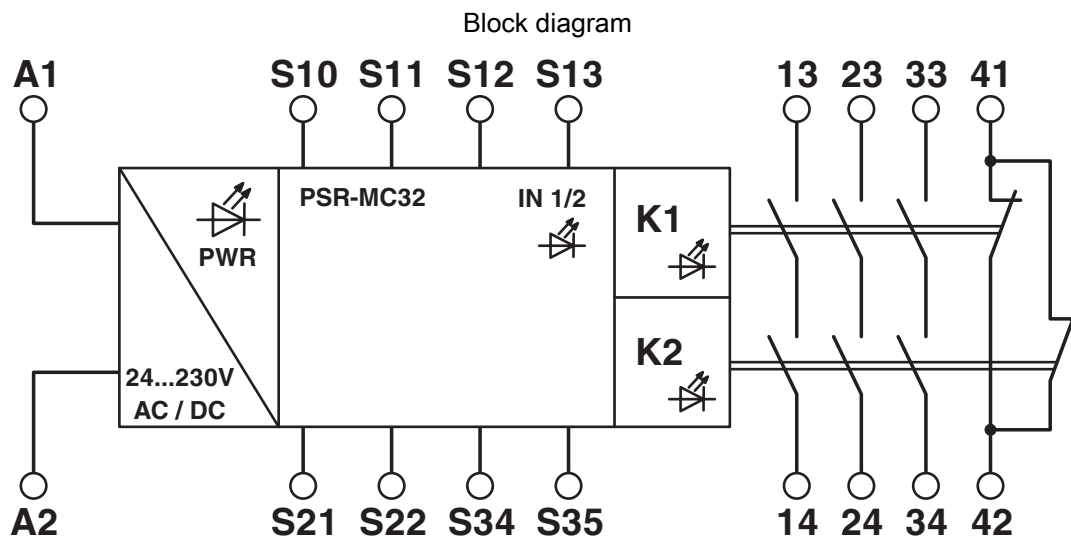
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## Drawings



Example application



Block diagram

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## Approvals

🔗 To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2700524>



### Functional Safety

Approval ID: 44-205-15124310



### Functional Safety

Approval ID: 44-780-15124310



### cULus Listed

Approval ID: E140324

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## Classifications

### ECLASS

ECLASS-13.0	27371819
ECLASS-15.0	27371819
ECLASS-15.0 ASSET	27250101

### ETIM

ETIM 10.0	EC001449
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### 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	21cea9ff-7e80-4410-97b3-0c2f7f6afd45

### EF3.1 Climate Change

CO2e kg	4.652 kg CO2e
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