

# PSR-MC37-3NO-1NC-24DC-SP - Safety relays



2702412

<https://www.phoenixcontact.com/us/products/2702412>

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Safety relay for emergency switching off and safety doors as well as for elevator applications up to SIL 3, Cat. 4, PL e, 1 or 2-channel operation, automatic or manual start, cross-circuit detection, 3 enabling current paths,  $U_S = 24 \text{ V DC}$ , pluggable Push-in terminal block

## Your advantages

- Low housing width of only 22.5mm
- 3 enabling current paths, 1 signaling current path, 1 digital signal output
- Cross-circuit detection
- Automatic and manual activation
- Up to Cat. 4/PL e in accordance with EN ISO 13849-1, SIL 3 in accordance with EN IEC 62061
- Suitable for elevator applications in accordance with EN 81-20

## Commercial data

Item number	2702412
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN01
Product key	DNA181
Catalog page	Page 222 (C-6-2019)
GTIN	4055626276953
Weight per piece (including packing)	223 g
Weight per piece (excluding packing)	202.5 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
	Solenoid switch
	Transponder
Relay type	Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3

### Times

Typical response time	< 100 ms (automatic start)
Typ. starting time with $U_S$	< 100 ms (when controlled via A1)
Typical release time	< 20 ms (when controlled via A1 or S12 and S22.)
Restart time	< 1 s (Boot time)
Recovery time	< 500 ms

### Electrical properties

Maximum power dissipation for nominal condition	17.03 W ( $U_B = 30\text{ V}$ , $U_S = 24\text{ V}$ , $I_S = 70\text{ mA}$ , $I_L^2 = 72\text{ A}^2$ , $R_{\text{Contact}} = 0.2\ \Omega_{\text{IEC 60947}}$ )
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
	Basic insulation 4 kV between all current paths and housing

### 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. 70 mA
Power consumption at $U_S$	typ. 1.68 W
Inrush current	2 A ( $\Delta t = 300\ \mu\text{s}$ at $U_S$ )
Protective circuit	Serial protection against polarity reversal; Suppressor diode

### Input data

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

Description of the input	safety-related sensor inputs
Number of inputs	2
Input voltage range "0" signal	< 5 V (S12)
	0 V DC ... 5 V DC (S22)

# PSR-MC37-3NO-1NC-24DC-SP - Safety relays



2702412

<https://www.phoenixcontact.com/us/products/2702412>

Input current range "0" signal	< 2 mA (S12)
	0 mA ... 2 mA (S22)
Inrush current	< 5 mA ()
	< 5 mA (typically with $U_S$ at S22/24 V, $\Delta t = 500 \mu s$ )
	> -5 mA (typically with $U_S$ at S22/0 V, $\Delta t = 500 \mu s$ )
Filter time	max. 3 ms (at S12, S22; test pulse width; blanking pulses/dark test)
	> 1 s (at S12, S22; test pulse rate; blanking pulses/dark test)
	Where test pulse width $\leq 1$ ms: test pulse rate = 5 x test pulse width
	max. 1 ms (at S12, S22; test pulse width; switch-on pulses/light test)
	> 100 ms (at S12, S22; test pulse rate; switch-on pulses/light test)
	Unless test pulses are safety-related, they should be disabled.
Max. permissible overall conductor resistance	150 $\Omega$
Protective circuit	Suppressor diode
Current consumption	< 4 mA (Typically with $U_S$ at S12)
	< 4 mA (typically with $U_S$ at S22/24 V)
	> -5 mA (typically with $U_S$ at S22/0 V)

## Digital: Start circuit (S35)

Description of the input	non-safety-related
	NPN
Number of inputs	1
Input voltage range "1" signal	19.2 V DC ... 30 V DC
Inrush current	< 10 mA (typically with $U_S$ , $\Delta t = 500 \mu s$ )
Max. permissible overall conductor resistance	150 $\Omega$
Protective circuit	Suppressor diode
Current consumption	< 0.5 mA

## Output data

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

Output description	safety-related N/O contacts
Number of outputs	3 (undelayed)
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 capacity	min. 50 mW
Inrush current	min. 10 mA
	max. 6 A
Switching capacity in accordance with IEC 60947-5-1	5 A (24 V (DC13))
	5 A (250 V (AC15))
Limiting continuous current	6 A

# PSR-MC37-3NO-1NC-24DC-SP - Safety relays



2702412

<https://www.phoenixcontact.com/us/products/2702412>

Sq. Total current	72 A <sup>2</sup> (observe derating)
Switching frequency	0.5 Hz
Mechanical service life	10x 10 <sup>6</sup> cycles
Output fuse	6 A gL/gG (N/O contact)

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

Output description	non-safety-related N/C contact
Number of outputs	1 (undelayed)
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 capacity	min. 50 mW
Inrush current	min. 10 mA max. 6 A (Δt = 100 ms)
Limiting continuous current	1 A
Sq. Total current	1 A <sup>2</sup>
Switching frequency	0.5 Hz
Mechanical service life	10x 10 <sup>6</sup> cycles
Output fuse	1 A gL/gG

## Signal: Y32

Output description	non-safety-related PNP
Number of outputs	1 (digital)
Voltage	23 V DC (U <sub>s</sub> - 1 V)
Current	max. 100 mA
Maximum inrush current	1 A (Δt = 5 ms at U <sub>s</sub> )
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

## Signaling

# PSR-MC37-3NO-1NC-24DC-SP - Safety relays



2702412

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

## Dimensions

Width	22.5 mm
Height	117.4 mm
Depth	114.5 mm

## Material specifications

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

## Characteristics

### Safety data

Stop category	0
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### Safety data: EN ISO 13849

Category	4
Performance level (PL)	e (5 A DC13; 5 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)	-40 °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 for $\Delta t = 11$ ms (continuous shock: 10g for $\Delta t = 16$ ms)
Vibration (operation)	10 Hz ... 150 Hz, amplitude 0.15 mm, 2g

## Approvals

### CE

Identification	CE-compliant
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2702412

<https://www.phoenixcontact.com/us/products/2702412>

## Standards and regulations

Air clearances and creepage distances between the power circuits

Standards/regulations	DIN EN 60664-1:2008
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## Mounting

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

# PSR-MC37-3NO-1NC-24DC-SP - Safety relays

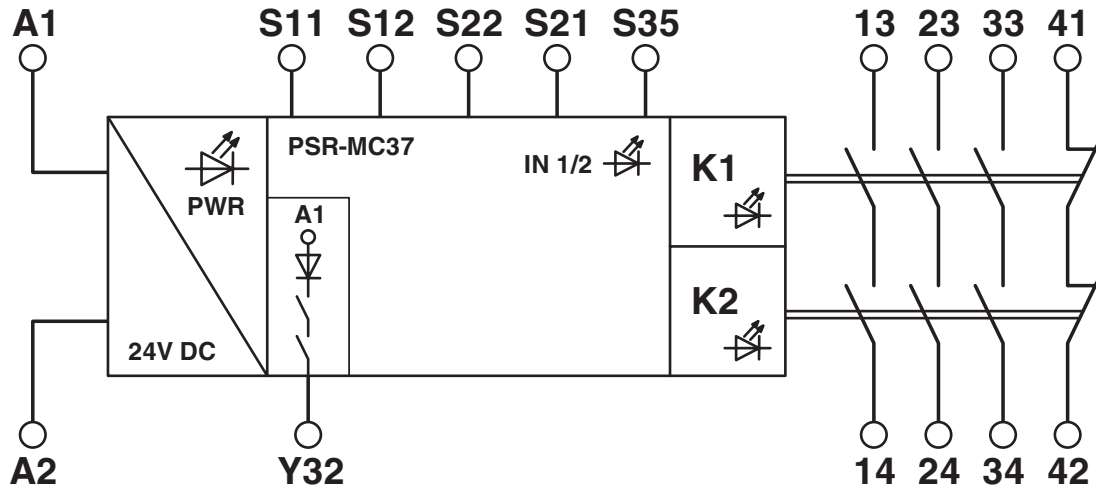


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## Drawings

Block diagram



Block diagram





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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2702412>



### UL Listed

Approval ID: FILE E 140324



### cUL Listed

Approval ID: FILE E 140324



### Functional Safety

Approval ID: 44-208-15124305



### Functional Safety

Approval ID: 44-786-161627

### cULus Listed

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2702412

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## Classifications

### ECLASS

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

### ETIM

ETIM 9.0	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	18791b4e-21d2-4def-a9b3-4158057cd408

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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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