

# PSR-SCP- 24UC/ESA2/4X1/1X2/B - Safety relays



2963802

<https://www.phoenixcontact.com/gb/products/2963802>

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Safety relay for emergency stop and safety door up to SIL 1, Cat. 1, PL c, depending on the application up to SIL 3, Cat. 4, PL e, single-channel operation, 4 enabling current paths,  $U_S = 24\text{ V DC}$ , plug-in screw terminal blocks

## Your advantages

- Up to Cat. 1/PL c in accordance with ISO 13849-1, SIL 1 in accordance with EN IEC 62061, SIL 1 in accordance with IEC 61508
- Depending on the application, up to Cat. 4/PL e in accordance with ISO 13849-1, SIL 3 in accordance with EN IEC 62061, SIL 3 in accordance with IEC 61508
- Basic insulation
- 1-channel control

## Commercial data

Item number	2963802
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DNA111
Product key	DNA111
Catalog page	Page 229 (C-6-2019)
GTIN	4017918892661
Weight per piece (including packing)	212.4 g
Weight per piece (excluding packing)	210.5 g
Customs tariff number	85371098
Country of origin	DE

## Technical data

### Product properties

Product type	Safety relays
Product family	PSRclassic
Application	Emergency stop
	Safety door
Mechanical service life	10x 10 <sup>6</sup> cycles
Relay type	Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3

### Times

Typical response time	< 100 ms (For U <sub>S</sub> autostart)
	< 100 ms (with U <sub>S</sub> manual start)
Typ. starting time with U <sub>S</sub>	< 100 ms (with U <sub>S</sub> / when controlled via A1)
Typical release time	< 10 ms (At U <sub>S</sub> on demand via sensor circuit)
	< 100 ms (At U <sub>S</sub> /on demand via A1)
Recovery time	< 1 s (Boot time)

### Electrical properties

Maximum power dissipation for nominal condition	16 W (U <sub>S</sub> = 26.4 V, I <sub>L</sub> <sup>2</sup> = 72 A <sup>2</sup> , P <sub>Total max</sub> = 1.6 W + 14.4 W)
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 and 13/14, 23/24, 33/34, 43/44 between S11/S12/S33/S34 and 13/14, 23/24, 33/34, 43/44 between 51/52 and 13/14, 23/24, 33/34, 43/44

### Supply

Rated control circuit supply voltage U <sub>S</sub>	24 V DC -15 % / +10 %
Rated control supply current I <sub>S</sub>	typ. 55 mA (at U <sub>S</sub> )
Power consumption at U <sub>S</sub>	typ. 1.32 W
Inrush current	< 3.5 A (typically with U <sub>S</sub> , Δt = 2 ms)
Filter time	2 ms (in the event of voltage dips at U <sub>S</sub> )
Protective circuit	Serial protection against polarity reversal; Suppressor diode

### Input data

#### Digital: Logic (S12)

Description of the input	safety-related
Number of inputs	1
Input voltage range "0" signal	0 V DC ... 5 V DC
Input voltage range "1" signal	20.4 V ... 26.4 V

Input current range "0" signal	0 mA ... 2 mA
Inrush current	80 mA (typically with $U_S$ , $\Delta t = 150$ ms)
Filter time	No brightness test pulses / high test pulses permitted.
	1 ms (Test pulse width of low test pulses)
	1 s (Test pulse rate for low test pulse)
Max. permissible overall conductor resistance	50 $\Omega$
Protective circuit	Suppressor diode
Current consumption	typ. 50 mA (with $U_S$ at S11)
	typ. 52 mA (with $U_S$ supplied externally)

## Digital: Start circuit (S34)

Description of the input	non-safety-related
Number of inputs	1
Input voltage range "1" signal	20.4 V ... 26.4 V
Inrush current	< 6 mA (typically with $U_S$ , $\Delta t = 65$ ms)
Filter time	No test pulses permitted
Max. permissible overall conductor resistance	50 $\Omega$
Protective circuit	Suppressor diode
Current consumption	0 mA (typically with $U_S$ )

## Output data

### Relay: Enabling current paths (13/14, 23/24, 33/34, 43/44)

Output description	2 N/O contacts in series, safety-related, floating
Number of outputs	4
Contact switching type	4 enabling current paths
Contact material	AgSnO <sub>2</sub>
Switching voltage	min. 10 V
	max. 250 V AC
Switching capacity	min. 100 mW
Inrush current	min. 10 mA
	max. 20 A ( $\Delta t = 100$ ms)
Switching capacity in accordance with IEC 60947-5-1	3 A (AC15)
	5 A (DC13)
Limiting continuous current	6 A
Sq. Total current	72 A <sup>2</sup> (observe derating)
Switching frequency	max. 0.5 Hz
Interrupting rating (ohmic load) max.	Observe derating and load limit curve
Maximum interrupting rating (inductive load)	Observe derating and load limit curve
Output fuse	10 A gL/gG (High demand)
	4 A gL/gG (Low demand)

### Relay: Signaling current path (51/52)

Output description	2 N/C contacts parallel, non-safety-related, floating
Number of outputs	1

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Contact switching type	1 signaling current path
Contact material	AgSnO <sub>2</sub>
Switching voltage	min. 5 V
	max. 250 V AC
Switching capacity	min. 50 mW
Inrush current	min. 10 mA
	max. 6 A
Switching capacity in accordance with IEC 60947-5-1	1.5 A (AC15)
	5 A (DC13)
Limiting continuous current	6 A (Signaling current path)
Sq. Total current	36 A <sup>2</sup>
Switching frequency	max. 0.5 Hz
Interrupting rating (ohmic load) max.	Observe derating and load limit curve
Maximum interrupting rating (inductive load)	Observe derating and load limit curve
Output fuse	6 A gL/gG

## 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

## Signaling

Status display	2 x green LEDs
Operating voltage display	1 x green LED

## Dimensions

Width	22.5 mm
Height	99 mm
Depth	114.5 mm

## Material specifications

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

## Characteristics

### Safety data

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Stop category	0
Safety data: EN ISO 13849	
Category	4
Performance level (PL)	e (3 A DC13; 3 A AC15; 8760 switching cycles/year)
	e (5 A DC13; 3 A AC15; 4380 switching cycles/year)
Safety data: IEC 61508 - High demand	
Safety Integrity Level (SIL)	3
Safety data: IEC 61508 - Low demand	
Safety Integrity Level (SIL)	3
Safety data: EN IEC 62061	
Safety Integrity Level (SIL)	3

## Environmental and real-life conditions

### Ambient conditions

Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Ambient temperature (operation)	-20 °C ... 65 °C (observe derating)
Ambient temperature (storage/transport)	-40 °C ... 70 °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

## 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 60947-1
	DIN EN 60664-1

## Mounting

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

# PSR-SCP- 24UC/ESA2/4X1/1X2/B - Safety relays

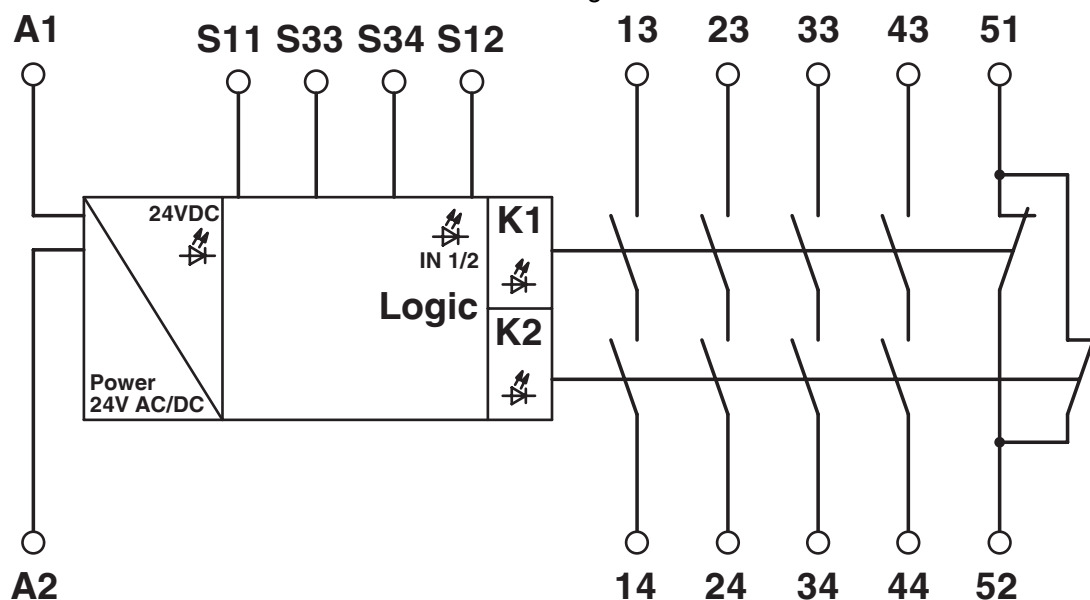


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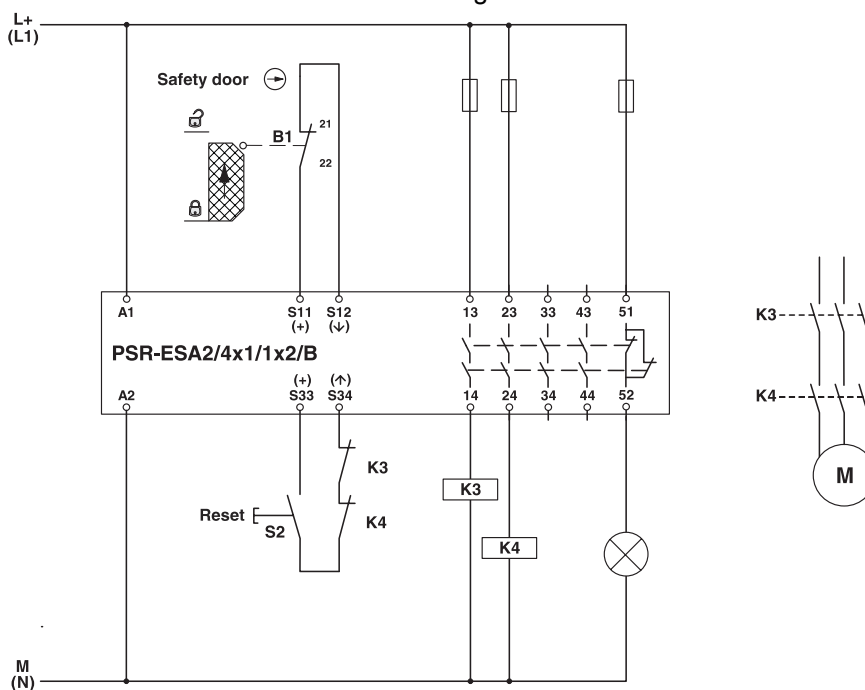
<https://www.phoenixcontact.com/gb/products/2963802>

## Drawings

Circuit diagram



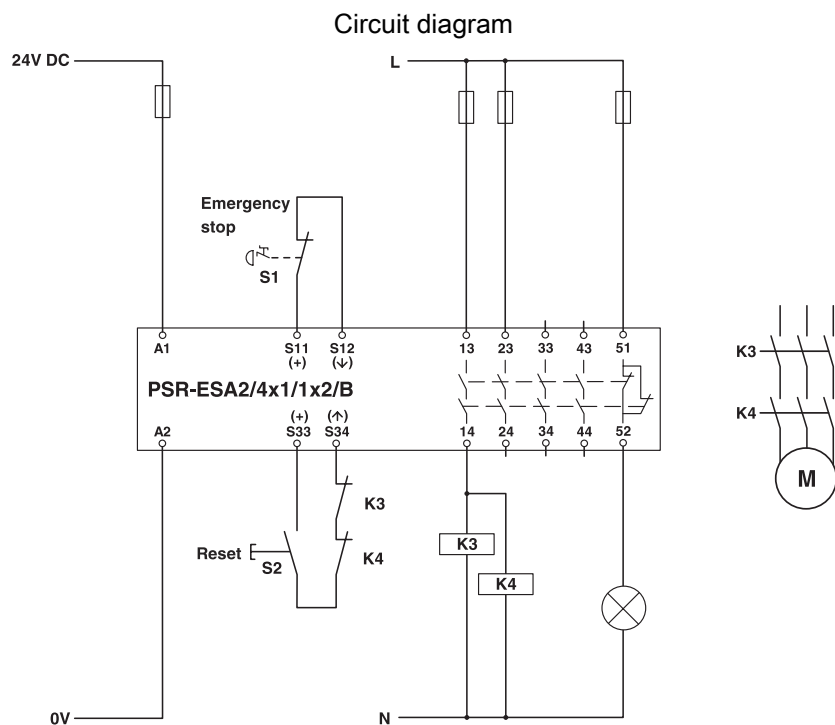
Circuit diagram



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## Approvals


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**EAC**  
Approval ID: TR\_TS\_D\_00573\_c


**UL Listed**  
Approval ID: FILE E 140324


**cUL Listed**  
Approval ID: FILE E 140324

**Functional Safety**  
Approval ID: 01/205/0653.03/21

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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

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	0cde4f44-4521-4b22-8d20-64858a0ac0dc
EF3.0 Climate Change	
CO2e kg	3.61 kg CO2e

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## Accessories

### CP-MSTB - Coding profile

1734634

<https://www.phoenixcontact.com/gb/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

<https://www.phoenixcontact.com/gb/products/1734401>

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

<https://www.phoenixcontact.com/gb/products/1212034>



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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## PSR-ESS-M0-H110 - Actuator

1221757

<https://www.phoenixcontact.com/gb/products/1221757>



Actuator with anti-lock collar for modular emergency stop switches, for combination with module holder and contact module as a functional unit, panel installation, bayonet lock

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## PSR-ESS-ACC-CB1-C3 - Module holder

1221747

<https://www.phoenixcontact.com/gb/products/1221747>



Module holder for modular emergency stop switches, connects the contact block and actuator with bayonet lock, suitable for 3 elements

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## PSR-ESS-ACC-CB1-NC-SC - Contact module

1221752

<https://www.phoenixcontact.com/gb/products/1221752>



Contact module for modular emergency stop switches with force-guided N/C contact for safety-related shutdown, in conjunction with appropriate evaluation unit suitable for use up to PL e (EN ISO 13849-1), SIL 3 (EN IEC 62061)

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PHOENIX CONTACT Ltd  
Halesfield 13, Telford  
Shropshire, TF7 4PG  
01952 681700  
[info@phoenixcontact.co.uk](mailto:info@phoenixcontact.co.uk)