

# PSR-SPP- 24UC/ESA4/3X1/1X2/B - Safety relays



2963941

<https://www.phoenixcontact.com/us/products/2963941>

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Safety relay for emergency stop and safety door monitoring up to SIL 3 or Cat. 4, PL e in accordance with EN ISO 13849, 2-channel operation, 3 enabling current paths, nominal input voltage: 24 V DC, pluggable Push-in terminal block

## Your advantages

- Up to Cat. 4/PL e in accordance with EN ISO 13849-1, SIL 3 in accordance with EN IEC 62061, SIL 3 in accordance with IEC 61508
- 2 channel control
- 3 enabling current paths, 1 signaling current path
- Manually monitored and automatic activation in a single device

## Commercial data

Item number	2963941
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN01
Product key	DNA113
Catalog page	Page 21 (IF-2009)
GTIN	4017918904784
Weight per piece (including packing)	192.3 g
Weight per piece (excluding packing)	159.02 g
Customs tariff number	85371098
Country of origin	DE

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## Technical data

### Product properties

Product type	Safety relays
Product family	PSRclassic
Application	Emergency stop
	Safety door
Mechanical service life	approx. $10^7$ cycles
Relay type	Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3

### Electrical properties

Maximum power dissipation for nominal condition	16.44 W ( $U_S = 26.4$ V, $I_L^2 = 72$ A <sup>2</sup> , $P_{Total\ max} = 2.04$ W + 14.4 W)
Nominal operating mode	100% operating factor

### Air clearances and creepage distances between the power circuits

Rated insulation voltage	250 V
Rated surge voltage/insulation	See section "Insulation coordination"

### Input data

#### General

Rated control circuit supply voltage $U_S$	24 V DC -15 % / +10 %
Power consumption at $U_S$	typ. 1.68 W (DC)
Rated control supply current $I_S$	typ. 70 mA
Input voltage range in reference to $U_N$	0.85 ... 1.1
Typical input current at $U_N$	70 mA DC (at $U_S$ )
Inrush current	< 3.5 A ( $\Delta t = 3$ ms at $U_S$ )
	< 100 mA ( $\Delta t = 500$ ms, with $U_S/I_x$ at S12)
	> -100 mA ( $\Delta t = 300$ ms, with $U_S/I_x$ at S22)
	< 6 mA (with $U_S/I_x$ to S34)
Current consumption	typ. 38 mA (S12)
	typ. -38 mA (S22)
	typ. 1 mA (with $U_S/I_x$ to S34)
Voltage at input/start and feedback circuit	approx. 24 V DC
Filter time	5 ms (at A1 in the event of voltage dips at $U_S$ )
	No test pulses permitted
Typical response time	150 ms (automatic start)
Typ. starting time with $U_S$	250 ms (with $U_S$ when controlled via A1)
Typical release time	20 ms (on demand via the sensor circuit)
	45 ms (on demand via A1)
Concurrence	$\infty$
Recovery time	1 s (following demand of the safety function)
	< 1 s (Boot time)
Protective circuit	Surge protection; Suppressor diode

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Max. permissible overall conductor resistance	approx. 50 Ω (Input and start circuits at U <sub>S</sub> )
Operating voltage display	Green LED
Status display	Green LED

## Output data

Contact switching type	3 enabling current paths
	1 signaling current path
Contact material	AgSnO <sub>2</sub> , + 0.2 μm Au
Maximum switching voltage	250 V AC
Minimum switching voltage	10 V AC/DC
Limiting continuous current	6 A (N/O contact)
Maximum inrush current	6 A
Inrush current, minimum	10 mA
Sq. Total current	72 A <sup>2</sup> (Enabling current paths)
	36 A <sup>2</sup> (Signaling current path 31/32)
Switching capacity min.	100 mW
Switching capacity in accordance with IEC 60947-5-1	DC13, enabling current paths
	AC15, enabling current paths
	2 A (DC13, signaling current paths)
	1.5 A (AC15, signaling current paths)
Output fuse	10 A gL/gG (Enabling current paths)
	4 A gL/gG (Low-demand enabling current paths)
	6 A gL/gG (Signaling current path)

## 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

## Dimensions

Width	22.5 mm
Height	112 mm
Depth	114.5 mm

## Material specifications

Color (Housing)	yellow (RAL 1018)
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Housing material	Polyamide
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## 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)	-20 °C ... 55 °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

## Standards and regulations

### Air clearances and creepage distances between the power circuits

Standards/regulations	DIN EN 60947-1
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## Mounting

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

# PSR-SPP- 24UC/ESA4/3X1/1X2/B - Safety relays

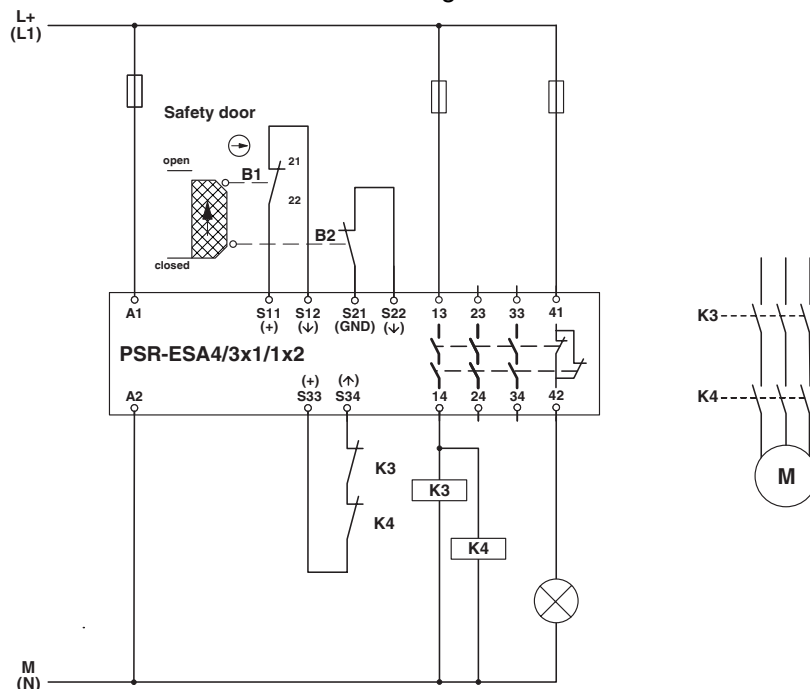


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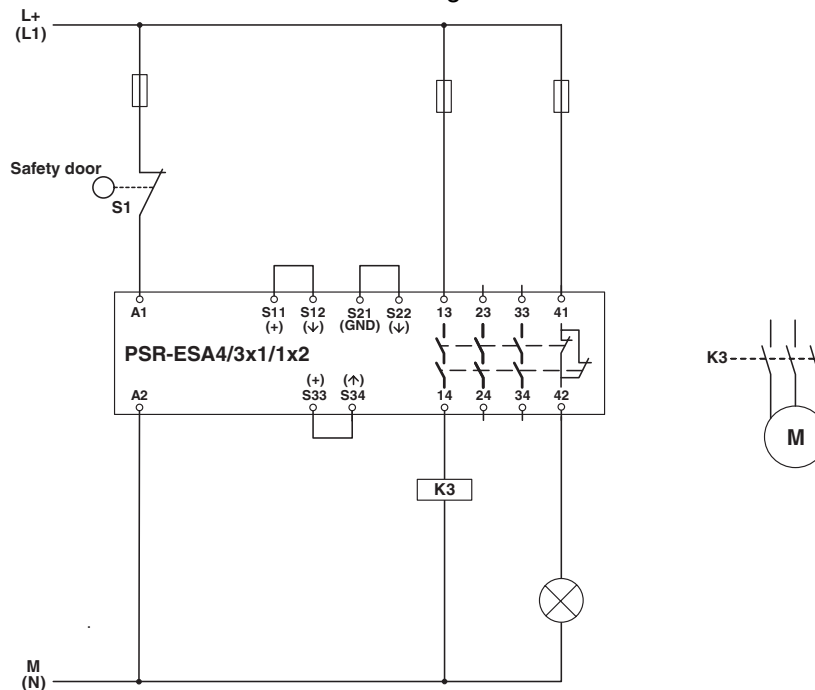
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## Drawings

### Circuit diagram



### Circuit diagram



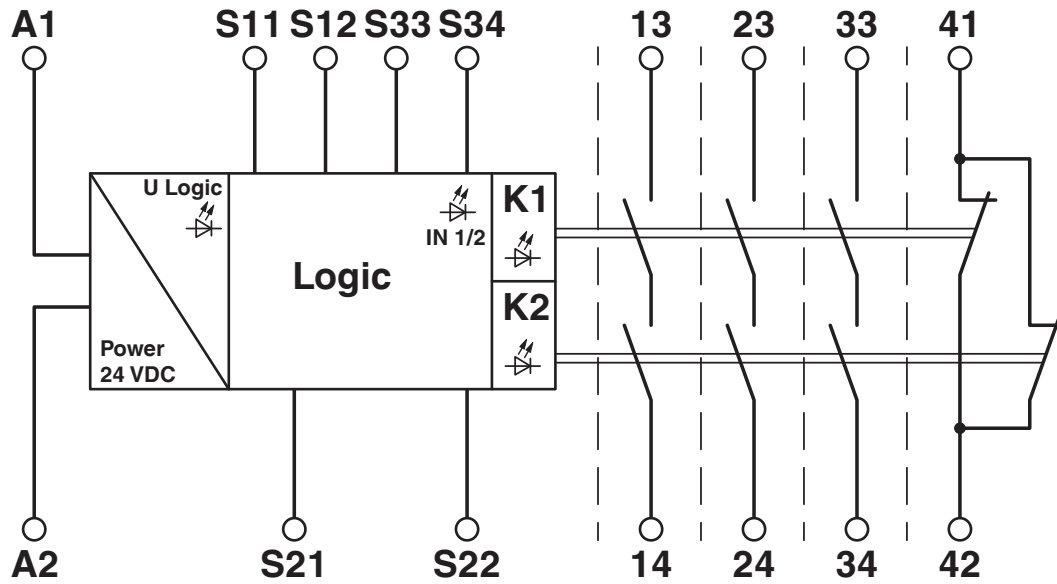
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Circuit diagram



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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: 01/205/0652.05/22



**Functional Safety**

Approval ID: 968/EZ 404.07/22

**cULus Listed**

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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	39122205
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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	9d33e01f-c21b-422c-b23e-244303eef29c

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