

# PSR-SPP- 24UC/ESAM4/3X1/1X2/B - Safety relays



2900510  
<https://www.phoenixcontact.com/us/products/2900510>

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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
- Manually monitored and automatic activation in a single device
- Basic insulation
- 2 channel control
- 3 enabling current paths, 1 signaling current path

## Commercial data

Item number	2900510
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN01
Product key	DNA114
Catalog page	Page 229 (C-6-2019)
GTIN	4046356513784
Weight per piece (including packing)	191.5 g
Weight per piece (excluding packing)	159.08 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	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)
	< 6 mA (with $U_S/I_x$ to S35)
Current consumption	typ. 38 mA (S12)
	typ. -38 mA (S22)
	typ. 0 mA (with $U_S/I_x$ to S34)
	typ. 1 mA (with $U_S/I_x$ to S35)
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	100 ms (Monitored/manual start)
	150 ms (automatic start)
Typ. starting time with $U_S$	250 ms (when controlled via A1)
Typical release time	20 ms (on demand via the sensor circuit)
	45 ms (on demand via A1)
Concurrence	$\infty$

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Recovery time	1 s (following demand of the safety function) < 1 s (Boot time)
Protective circuit	Surge protection; Suppressor diode
Max. permissible overall conductor resistance	approx. 50 $\Omega$ (Input and start circuits at $U_G$ )
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 $\mu$ m Au
Maximum switching voltage	250 V AC
Minimum switching voltage	10 V AC/DC
Limiting continuous current	6 A (Observe derating and load limit curve)
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 41/42)
Switching capacity min.	100 mW
Switching capacity in accordance with IEC 60947-5-1	6 A (DC13) 5 A (AC15) 2 A (DC13)
Switching capacity (3600/h cycles)	1.5 A (AC15)
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

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

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Depth	114.5 mm
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## 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)	-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

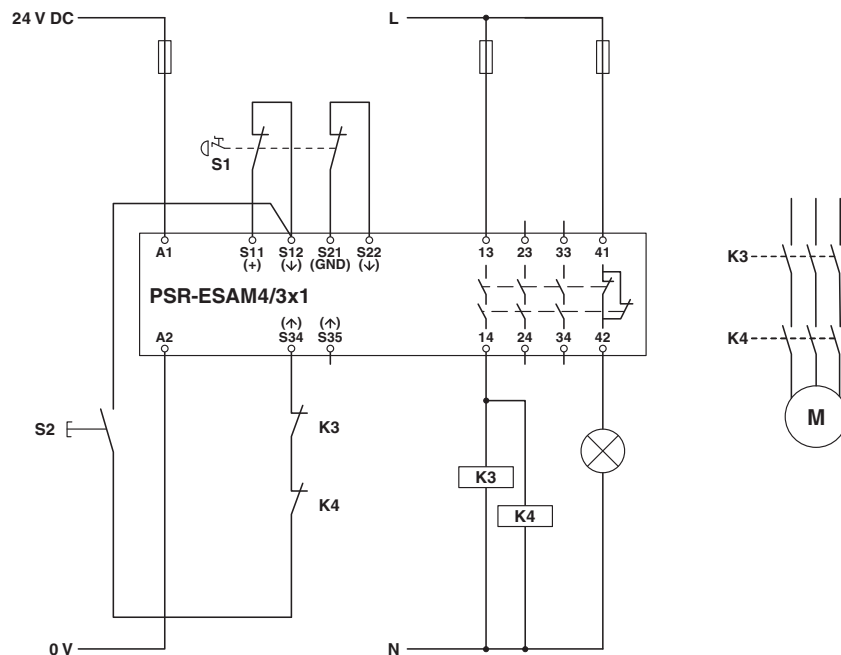
Standards/regulations	DIN EN 60947-1
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## Mounting

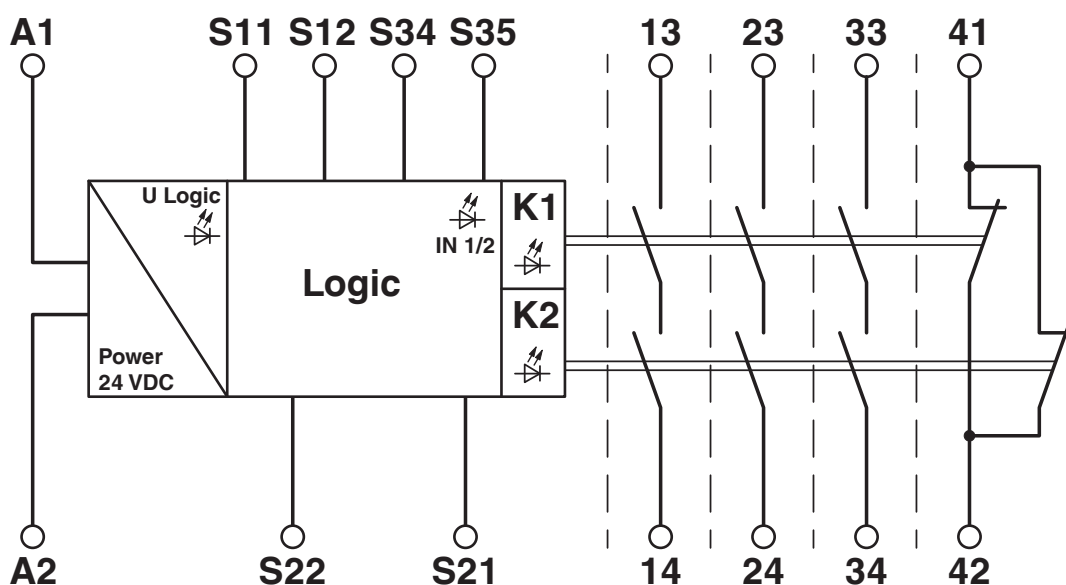
Mounting type	DIN rail mounting
Assembly note	See derating curve
Mounting position	vertical or horizontal

## Drawings

Circuit diagram



Circuit diagram



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2900510>



**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: 01/205/5117.03/21



**Functional Safety**

Approval ID: 968/EZ 496.04/21

**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	faf72f3e-a5d6-475a-adeb-073ef25de3a9



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## Accessories

### CP-MSTB - Coding profile

1734634

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