

# PSR-SPP-24UC/ESAM4/8X1/1X2 - Safety relays



2963996

<https://www.phoenixcontact.com/us/products/2963996>

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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, single- or two-channel operation, 8 enabling current paths,  $U_S = 24 \text{ V DC}$ , 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
- 1- and 2-channel control
- 8 enabling current paths, 1 signaling current path

## Commercial data

Item number	2963996
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN01
Product key	DNA114
GTIN	4017918904814
Weight per piece (including packing)	420.75 g
Weight per piece (excluding packing)	335.56 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	PSRclassic
Application	Emergency stop Safety door
Control	1 and 2 channel
Mechanical service life	approx. $10^7$ cycles
Relay type	Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3

#### Insulation characteristics

Overvoltage category	III
Degree of pollution	2

### Electrical properties

Maximum power dissipation for nominal condition	31.7 W ( $U_S = 26.4$ V, $I_L^2 = 144$ A <sup>2</sup> , $P_{Total\ max} = 2.9$ W + 28.8 W)
Nominal operating mode	100% operating factor
Rated insulation voltage	250 V
Rated surge voltage/insulation	Basic insulation 4 kV: between all current paths and housing Safe isolation, reinforced insulation 6 kV: between A1/A2 and 63/64, 73/74, 83/84 between S10/S11/S12/S33/S34/S35 and 63/64, 73/74, 83/84 between 63/64, 73/74, 83/84 among one another

### Input data

#### General

Rated control circuit supply voltage $U_S$	24 V DC -15 % / +10 %
Power consumption at $U_S$	typ. 2.4 W (DC)
Rated control supply current $I_S$	typ. 100 mA DC (at $U_S$ )
Inrush current	3.5 A ( $\Delta t = 2$ ms at $U_S$ ) max. 150 mA ( $\Delta t = 1$ ms, with $U_S/I_x$ at S10) max. 200 mA ( $\Delta t = 1$ ms, with $U_S/I_x$ at S12) max. -180 mA ( $\Delta t = 1$ ms, with $U_S/I_x$ at S22) < 10 mA (with $U_S/I_x$ to S34) < 10 mA (with $U_S/I_x$ to S35)
Current consumption	50 mA (with $U_S/I_x$ to S10) 50 mA (with $U_S/I_x$ to S12) -50 mA (with $U_S/I_x$ to S22)

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	0 mA (with $U_s/I_x$ to S34)
	1 mA (with $U_s/I_x$ to S35)
Voltage at input/start and feedback circuit	24 V DC -15 % / +10 %
Filter time	2 ms (at A1 in the event of voltage dips at $U_s$ )
	max. 1.5 ms (at S10, S12; test pulse width)
	7.5 ms (at S10, S12; test pulse rate)
	Test pulse rate = 5 x Test pulse width
Typical response time	< 120 ms (automatic start)
	< 140 ms (manual start)
Typ. starting time with $U_s$	< 200 ms (when controlled via A1)
Typical release time	< 20 ms (when controlled via S11/S12 and S21/S22)
	< 50 ms (when controlled via A1)
Concurrence	$\infty$
Recovery time	< 500 ms (following demand of the safety function)
	< 1 s (Boot time)
Maximum switching frequency	0.5 Hz
Protective circuit	Surge protection; Suppressor diode
Max. permissible overall conductor resistance	11 $\Omega$ (Input sensor circuit S10,S12,S22)
	50 $\Omega$ (S34,S35 start circuit input)
Operating voltage display	1 x LED (green)
Status display	2 x LED (green)

## Output data

Contact switching type	8 enabling current paths
	1 signaling current path
Contact material	AgSnO <sub>2</sub>
Maximum switching voltage	250 V AC/DC
Minimum switching voltage	5 V AC/DC
Limiting continuous current	6 A
Maximum inrush current	6 A
Inrush current, minimum	10 mA
Sq. Total current	144 A <sup>2</sup> (Enabling current paths)
	36 A <sup>2</sup> (Signaling current path)
Switching capacity min.	50 mW
Output fuse	10 A gL/gG (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>

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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	45 mm
Height	112 mm
Depth	114.5 mm

## Material specifications

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

## Characteristics

### Safety data

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

Category	4
Performance level (PL)	e (3 A DC13; 3 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

## Approvals

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## CE

Certificate	CE-compliant
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## Mounting

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

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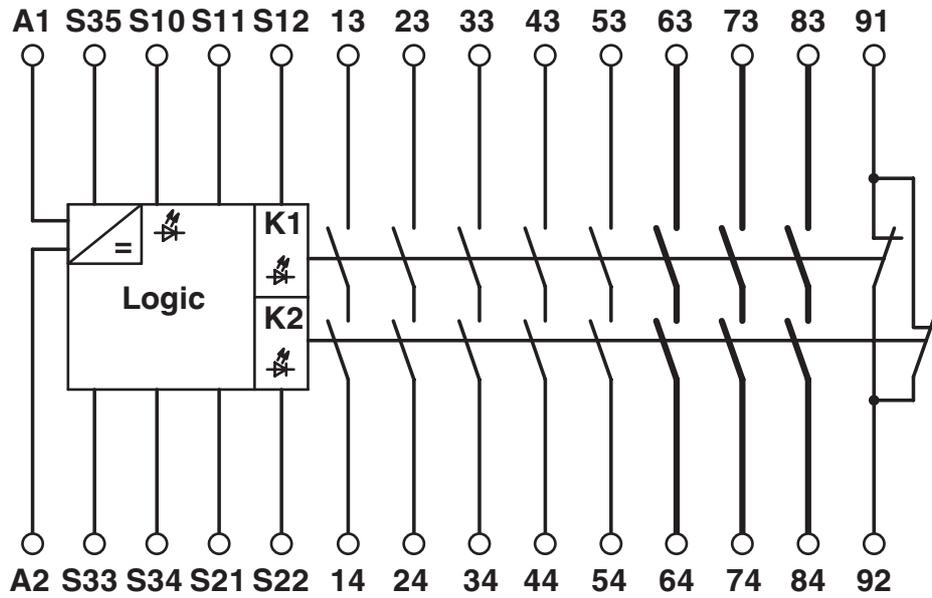


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## Drawings

Circuit diagram



Block diagram

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## Approvals

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### Functional Safety

Approval ID: 01/205/5363.04/24



### cULus Listed

Approval ID: E140324

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## Classifications

### ECLASS

ECLASS-13.0	27371819
ECLASS-15.0	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	01173c64-6e5f-4621-878f-998922d82156

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