

# Safety relays - PSR-SPP- 24UC/ESAM4/2X1/1X2 - 2900526

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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, 2 enabling current paths, nominal input voltage: 24 V DC, plug-in Push-in terminal block


The figure shows a version with a screw connection

## Your advantages

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



## Key Commercial Data

Packing unit	1 pc
GTIN	 4 046356 515665
GTIN	4046356515665

## Technical data

### Dimensions

Width	22.5 mm
Height	112 mm
Depth	114.5 mm

### Ambient conditions

Ambient temperature (operation)	-20 °C ... 55 °C (observe derating)
Ambient temperature (storage/transport)	-40 °C ... 70 °C
Max. permissible relative humidity (operation)	75 % (on average, 85% infrequently, non-condensing)
Max. permissible humidity (storage/transport)	75 % (on average, 85% infrequently, non-condensing)
Maximum altitude	≤ 2000 m (Above sea level)

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## Technical data

### Input data

Rated control circuit supply voltage $U_s$	24 V DC -15 % / +10 %
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 $U_s$ )
Power consumption at $U_s$	typ. 1.68 W (DC)
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
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	$\infty$
Recovery time	1 s (following demand of the safety function)
	< 1 s (Boot time)
Operating voltage display	Green LED
Status display	Green LED
Protective circuit	Surge protection Suppressor diode
Max. permissible overall conductor resistance	approx. 50 $\Omega$ (Input and start circuits at $U_s$ )
Filter time	5 ms (in the event of voltage dips at $U_s$ )
	No test pulses permitted

### Output data

Contact type	2 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 (N/O contact)
Maximum inrush current	6 A
Inrush current, minimum	10 mA
Sq. Total current	72 A <sup>2</sup> (Enabling current paths)

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## Technical data

### Output data

	36 A <sup>2</sup> (Signaling current path 31/32)
Interrupting rating (ohmic load) max.	144 W (24 V DC, τ = 0 ms)
	288 W (48 V DC, τ = 0 ms)
	77 W (110 V DC, τ = 0 ms)
	88 W (220 V DC, τ = 0 ms)
	1500 VA (250 V AC, τ = 0 ms)
Maximum interrupting rating (inductive load)	48 W (24 V DC, τ = 40 ms)
	40 W (48 V DC, τ = 40 ms)
	35 W (110 V DC, τ = 40 ms)
	35 W (220 V DC, τ = 40 ms)
Switching capacity min.	100 mW
Mechanical service life	approx. 10 <sup>7</sup> cycles
Switching capacity according to IEC 60947-5-1	6 A (DC13)
	5 A (AC15)
	2 A (DC13)
Output fuse	10 A gL/gG NEOZED (Enabling current paths)
	6 A gL/gG NEOZED (Signaling current path)

### General

Relay type	Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3
Nominal operating mode	100% operating factor
Net weight	222.2 g
Mounting position	vertical or horizontal
Mounting type	DIN rail mounting
Assembly instructions	See derating curve
Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Housing material	Polyamide
Housing color	yellow

### Connection data

Connection method	Push-in connection
pluggable	yes
Conductor cross section solid	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 AWG	24 ... 16
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 flexible with ferrule and plastic sleeve	0.25 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> (only together with CRIMPFOX 6)
Stripping length	8 mm

### Safety-related characteristic data

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## Technical data

### Safety-related characteristic data

Stop category in accordance with IEC 60204	0
Designation	IEC 61508 - High demand
Safety Integrity Level (SIL)	3
Designation	IEC 61508 - Low demand
Safety Integrity Level (SIL)	3
Designation	EN ISO 13849
Performance level (PL)	e (5 A DC13; 5 A AC15; 8760 switching cycles/year)
Category	4
Designation	EN 62061
Safety Integrity Level (SIL)	3
Designation	EN 50156
Safety Integrity Level (SIL)	3

### Standards and Regulations

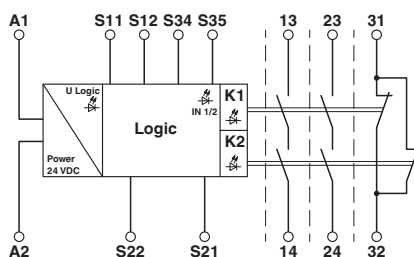
Designation	Air clearances and creepage distances between the power circuits
Standards/regulations	DIN EN 60947-1
Rated insulation voltage	250 V
Degree of pollution	2
Overvoltage category	III
Shock	15g
Vibration (operation)	10 Hz ... 150 Hz, 2g

### Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads"

## Drawings

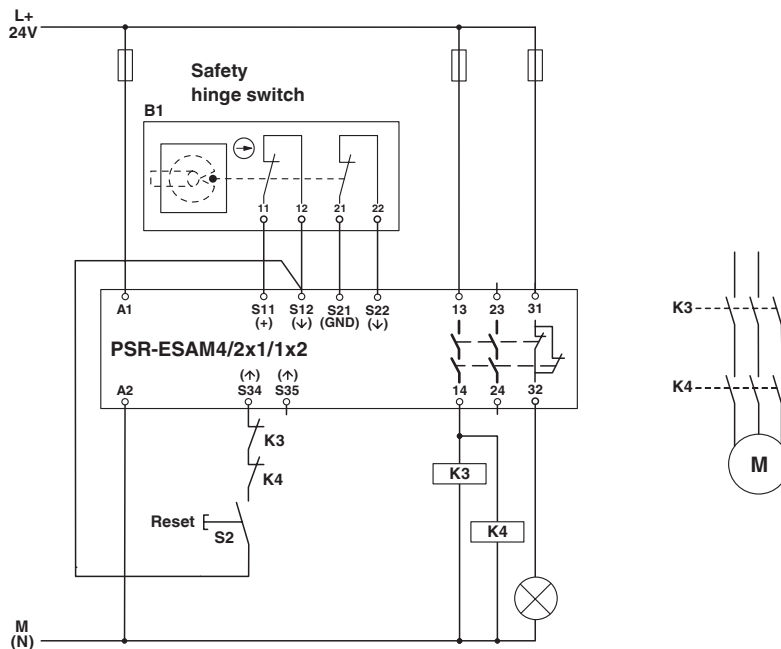
Circuit diagram



### Block diagram

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Circuit diagram



Hinge switch

## Classifications

eCl@ss

eCl@ss 10.0.1	27371819
eCl@ss 11.0	27371819
eCl@ss 4.0	40020600
eCl@ss 4.1	40020600
eCl@ss 5.0	27371900
eCl@ss 5.1	27371900
eCl@ss 6.0	27371800
eCl@ss 7.0	27371819
eCl@ss 9.0	27371819

ETIM

ETIM 3.0	EC001449
ETIM 4.0	EC001449
ETIM 6.0	EC001449
ETIM 7.0	EC001449

UNSPSC

UNSPSC 6.01	30211901
UNSPSC 7.0901	39121501

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## Classifications

### UNSPSC

UNSPSC 11	39121501
UNSPSC 12.01	39121501
UNSPSC 13.2	39121501
UNSPSC 18.0	39122205
UNSPSC 19.0	39122205
UNSPSC 20.0	39122205
UNSPSC 21.0	39122205

## Approvals

### Approvals

#### Approvals

UL Listed / cUL Listed / Functional Safety / EAC / Functional Safety / cULus Listed

#### Ex Approvals

### Approval details

UL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 140324
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cUL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 140324
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Functional Safety			01/205/5117.03/21
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EAC			RU C- DE.A*30.B.01082
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Functional Safety			968/EZ 496.04/21
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### Approvals

cULus Listed



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