


## PSR – Phoenix Safety Relay PSR-ESA2\_B

- Emergency stop/safety door monitoring
- Safety Category 4, EN 954-1
- Plug-in screw-cage or spring-cage terminal blocks
- One-channel circuit
- Basic insulation
- Housing width 22.5 mm (0.886 in.)
- Four enable contacts
- One signaling contact
- Approvals:  US Listed



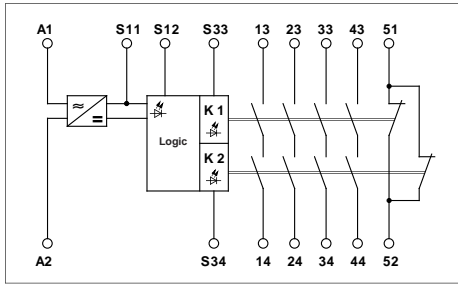
### 1. Short Description

The PSR-...-24UC/ESA 2/4x1/1x2/B safety relay can be used in safety circuits according to DIN EN 60204-1/ VDE 0113 Part 1. Depending on the external circuit, up to Safety Category 4 according to EN 954-1 can be achieved.


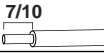
One-channel control is available with manual or automatic activation. However, the connected reset button is not monitored.

The relay has four enable current paths and one signaling current path. The contacts drop without delay according to Stop Category 0 (DIN EN 60204-1/ VDE 0113 Part 1).

## 2. Technical Data



**PSR-ESA2\_B**

 <b>M 3</b>	 <b>7/10</b>	solid	flexible	
		[mm <sup>2</sup> ]		AWG
Connection data:		0.2 - 2.5	0.2 - 2.5	25 - 14
Stripping length:		Screw-cage version 7 mm (0.28 in.)		
		Spring-cage version 10 mm (0.39 in.)		

Housing width 22.5 mm (0.886 in.)

Description	
<b>Safety relay</b> , Category 4	Screw-cage Spring-cage

Type	Order No.	Pcs. Pkt.
<b>PSR-SCP-24UC/ESA2/4X1/1 X2/B</b>	29 63 80 2	1
<b>PSR-SPP-24UC/ESA2/4X1/1 X2/B</b>	29 63 95 4	1

### Technical Data

#### Input Data

Nominal input voltage  $U_N$   
 Permissible range  
 Typical current consumption at  $U_N$   
 Voltage at input, start, and feedback circuit  
 Maximum voltage drop for S11/S12 and S21/S22  
 (e.g., two Form B contacts of an emergency stop button)  
 Typical response time (K1, K2) at  $U_N$   
 Typical release time (K1, K2) at  $U_N$   
 Recovery time

24 V AC/DC  
 0.85 - 1.1 x  $U_N$   
 140 mA AC, 65 mA DC  
 24 V DC, approximately  
 2 V DC, approximately (corresponds to 22.8 Ω)  
 (at  $U_N = 24$  V DC and  $T_{amb} = 25^\circ\text{C}$  [77°F])  
 65 ms (automatic mode)  
 45 ms  
 1 s, approximately

#### Output Data

Contact version

Contact material  
 Maximum switching voltage  
 Minimum switching voltage  
 Limiting continuous current  
 $I_{TH} = I_1^2 + I_2^2 + I_3^2$   
 Maximum inrush current  
 Minimum switching current  
 Maximum shutdown power

4 enable current paths,  
 1 signaling current path  
 Silver stannic oxide, gold-flashed (AgSnO<sub>2</sub> 0.2 μm Au)  
 250 V AC/DC  
 15 V AC/DC  
 6 A (3 A)<sup>1)</sup>  
 On request  
 6 A  
 25 mA  
 Ohmic load  
 Inductive load  
 $\tau = 0$  ms  
 $\tau = 40$  ms

Minimum switching power  
 Mechanical life  
 Breaking capacity according to  
 DIN EN 60947-5-1/VDE 0660 Part 20  
 Short-circuit protection of the output circuits,  
 external

Cycles: 360/h  
 3600/h

10<sup>7</sup> cycles, approximately  
 24 V (DC13) 4 A; 230 V (AC15) 4 A  
 24 V (DC13) 2.5 A; 230 V (AC15) 3 A  
 6 A fast-blow

<sup>1)</sup> Applies to a Form B contact

**General Data**

Permissible ambient operating temperature	-20°C to +55°C (-4°F to +131°F)
Nominal operating mode	100% ED
Degree of protection	According to VDE 0470 Part 1
- Housing	IP 40
- Connection terminal blocks	IP 20
- Mounting location	IP 54, minimum
Mounting position	Any
Mounting	Can be mounted without spacing
Air and creepance distances between circuits	According to DIN EN 50 178:1998-04, Basic insulation <sup>1)</sup> 4 kV <sup>1)</sup>
Impulse voltage withstand level	2
Degree of pollution	III
Surge Voltage Category	22.5 mm x 99 mm x 114.5 mm (0.886 x 3.898 x 4.508 in.)
Dimensions (W x H x D)	0.2 - 2.5 mm <sup>2</sup> (25 - 14 AWG)
Cable cross section	Polyamide PA, not reinforced
Housing material	

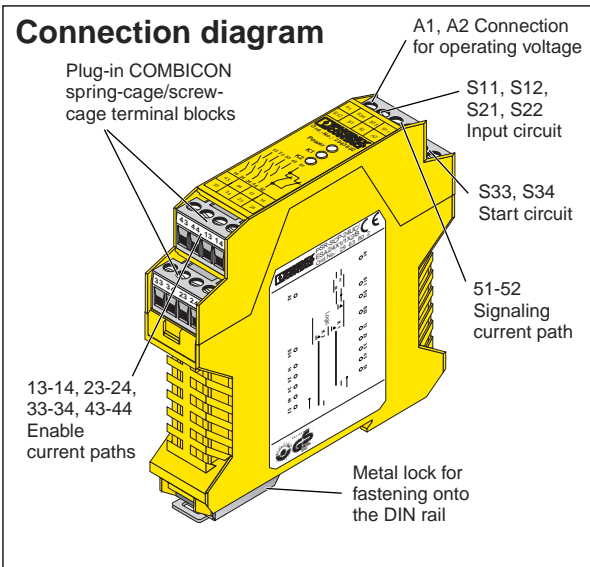
**Note:** When operating relay modules the operator must meet the requirements for emitted interference for electrical and electronic equipment (EN 50081-2) on the contact side and, if required, take appropriate measures.

<sup>1)</sup>Safe isolation, reinforced insulation, and 6 kV between the input circuit and the output contact paths (Form A contacts) and between Form B contacts and the output contact paths (Form A contacts).

**3. Connection Notes and Safety Instructions**

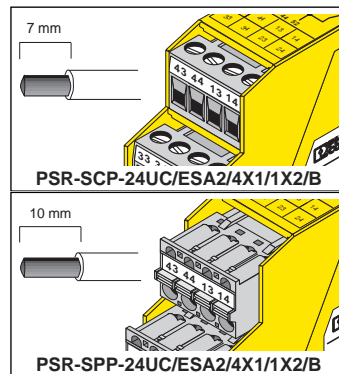
**3.1. Safety Instructions**

- Please observe the safety regulations of electrical engineering and industrial safety and liability associations.
- Regarding these safety regulations may result in death or serious damage to persons or property.
- Before working on the device, disconnect the power.
- Startup, mounting, modifications, and upgrades should only be carried out by a skilled electrical engineer.
- Protective covers must not be removed when operating electrical switching devices.
- During operation, parts of electrical switching devices carry hazardous voltages.
- Keep the instruction sheet in a safe place.
- In the event of an error, replace the device immediately.



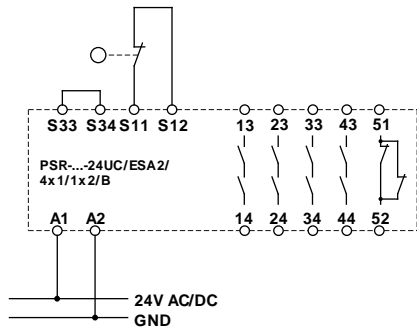
**3.2. Connection Notes**

To maintain the UL, use copper cables, which are designed for operating temperatures of 75°C (167°F). For reliable and safe contacts, strip the connector ends accordingly.

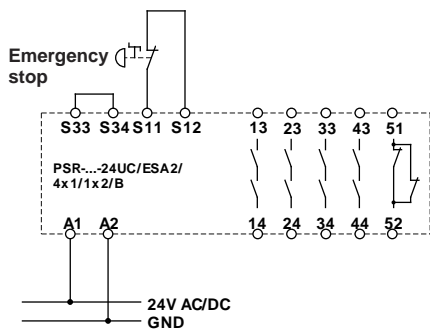


## 4. Connection Examples

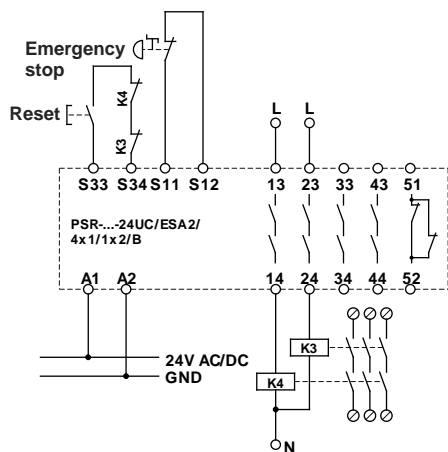
One-channel safety door monitoring with automatic activation, suitable for up to Safety Category 2<sup>2)</sup>.



One-channel emergency stop circuit with automatic activation suitable for up to Safety Category 2<sup>2)</sup>.



One-channel emergency stop circuit with manual activation and monitored contact expansion, suitable for up to Safety Category 2<sup>2)</sup>.



<sup>2)</sup>Safety Category 4 can only be achieved if automatic disconnecting switches are used and the cables are installed in separate cable sheaths.