

PSR – Phoenix Safety Relay

PSR-ESL4_B

- Optical data link monitoring
- Emergency stop/safety door monitoring
- Safety Category 4, EN 954-1
- Plug-in screw-cage or spring-cage terminal blocks
- One or two-channel circuit
- Basic insulation
- Housing width 22.5 mm (0.886 in.)
- Three enable contacts
- One signaling contact

Approvals:  US Listed (applied for)

  (applied for)



1. Short Description

The PSR-...-24DC/ESL4/3X1/1X2/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 can be achieved.

One or two-channel control is available with manual or automatic activation. Depending on the controller board, a reset button is monitored.

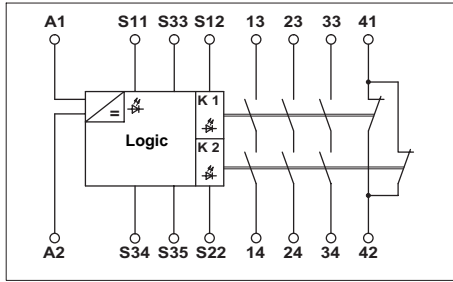
The relay has three enable current paths and one signaling current path. The contacts drop without delay according to Stop Category 0 (DIN EN 60204-1/VDE 0113 Part 1).

If an auxiliary supply of 24 V AC/DC is supplied at A1 and A2, the Power LED lights up. The safety relay is prepared by connecting terminal points S11/S12 and S11/S22. The module starts when terminal blocks S33/S34 or S33/S35 are jumpered. Contacts 13/14, 23/24, and 33/34 close and contact 41/42 opens.

LEDs "K1" and "K2" light up.

External contactors or contact expansions with positively driven contacts are monitored in the S33/S34 or S33/S35 circuit by looping the corresponding Form B contact.

2. Technical Data



PSR-ESL4_B

M 3	7/10	
	solid [mm ²]	flexible 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	
Safety relay, Category 4,	Screw-cage terminal block
Safety relay, Category 4	Spring-cage

Type	Order No.	Pcs. Pkt.
PSR-SCP-24UC/ESL4/3X1/1X2/B	29 81 05 9	1
PSR-SPP-24UC/ESL4/3X1/1X2/B	29 81 06 2	1

Technical Data	
Input Data	
Nominal input voltage U_N	24 V AC/DC
Permissible range	$0.85 - 1.1 \times U_N$
Typical current consumption at U_N	150 mA AC/70 mA DC
Voltage at input, start, and feedback circuit	24 V DC, approximately
Permissible input voltage range at S12/S22	18...26.4 V DC
Typical response time (K1, K2) at U_N	25 ms (monitored/manual start)
	100 ms (automatic start)
Typical release time (K1, K2) at U_N	10 ms
Recovery time	1 s, approximately
Output Data	
Contact version	
Contact material	
Maximum switching voltage	250 V AC/DC
Minimum switching voltage	15 V AC/DC
Limiting continuous current	6 A (Form A contact/Form B contact)
$I_{TH} = I_1^2 + I_2^2 + I_3^2$	On request
Maximum inrush current	6 A
Minimum switching current	25 mA
Maximum shutdown power	Ohmic load
	$\tau = 0$ ms
	144 W
	48 W
	48 W
	40 W
	77 W
	35 W
	88 W
	33 W
	1500 VA
	0.4 W
Minimum switching power	10^7 cycles, approximately
Mechanical life	24 V (DC13) 6A; 230 V (DC 15) 5 A
Breaking capacity according to DIN EN 60947-5-1/VDE 0660 Part 200	3600/h
Short-circuit protection of the output circuits, external	3600/h
	Enable current paths
	Signaling current path
	NEOZED 10 A gL/gG
	NEOZED 4 A gL/gG

3 enable current paths,	
1 signaling current path	
Silver stannic oxide, (AgSnO ₂)	
250 V AC/DC	
15 V AC/DC	
6 A (Form A contact/Form B contact)	
On request	
6 A	
25 mA	
Ohmic load	Inductive load
$\tau = 0$ ms	$\tau = 40$ ms
144 W	48 W
288 W	40 W
77 W	35 W
88 W	33 W
1500 VA	
0.4 W	
10^7 cycles, approximately	
24 V (DC13) 6A; 230 V (DC 15) 5 A	
24 V (DC13) 3A; 230 V (DC 15) 3 A	
NEOZED 10 A gL/gG	
NEOZED 4 A gL/gG	

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
Impulse voltage withstand level	4 kV ¹⁾
Degree of pollution	2
Surge Voltage Category	III
Dimensions (W x H x D)	22.5 mm x 99 mm x 114.5 mm (0.886 x 3.898 x 4.508 in.)
Cable cross section	0.2 - 2.5 mm ² (25 - 14 AWG)
Housing material	Polyamide PA, not reinforced

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.

¹⁾Safe isolation, reinforced insulation, and 6 kV between the input circuit and the output contact paths.

3. Connection Notes and Safety Instructions

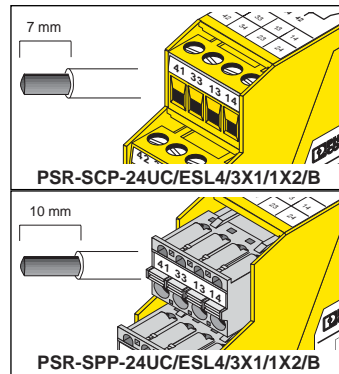
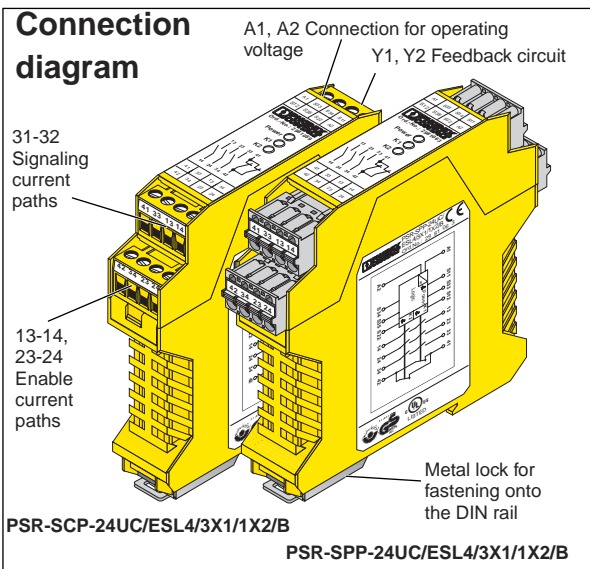
3.1. Safety Instructions

- Please observe the safety regulations of electrical engineering and industrial safety and liability associations.
- Disregarding these safety regulations may result in death or serious damage to persons or property.
- Startup, mounting, modifications, and upgrades should only be carried out by a skilled electrical engineer.
- Before working on the device, disconnect the power.
- For emergency stop applications, the machine must be prevented from restarting automatically by a higher-level control system.
- During operation, parts of electrical switching devices carry hazardous voltages.
- Protective covers must not be removed when operating electrical switching devices.
- In the event of an error, replace the device immediately.
- Repairs, especially if the housing must be opened, should only be carried out by the manufacturer or authorized persons. Otherwise the warranty is invalidated.
- Keep the instruction sheet in a safe place.

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

