

## Safety relays - PSR-SPP- 24DC/ESD/5X1/1X2/ T 3 - 2981237

Please be informed that the data shown in this PDF Document is generated from our Online Catalog. Please find the complete data in the user's documentation. Our General Terms of Use for Downloads are valid (<http://phoenixcontact.com/download>)



Safety relay for emergency stop and safety door monitoring up to SIL 3 or Cat. 4, PL e according to EN ISO 13849, automatic or manual activation, 3 N/O contacts, 1 N/C contact, 2 N/O contacts with fixed 3.0 s dropout delay, plug-in spring-cage terminal block

### Why buy this product

- Manually monitored and automatic activation
- Up to Cat. 3/4 and PL d/e according to ISO 13849-1, SIL CL 3 according to IEC 62061, SIL 3 according to IEC 61508
- For emergency stop and safety door monitoring, plus evaluation of light grids
- Fixed delay times of 3 s
- 3 undelayed and 2 dropout delay contacts
- Single and two-channel control



### Key Commercial Data

Packing unit	1 pc
GTIN	 4 017918 949051
GTIN	4017918949051

### Technical data

#### Note

Utilization restriction	EMC: class A product, see manufacturer's declaration in the download area
-------------------------	---

#### Dimensions

Width	45 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

# Safety relays - PSR-SPP- 24DC/ESD/5X1/1X2/ T 3 - 2981237

## Technical data

### Ambient conditions

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)

### Input data

Rated control circuit supply voltage $U_s$	24 V DC -15 % / +10 %
Rated control supply current $I_s$	typ. 150 mA
Power consumption at $U_s$	typ. 3.6 W
Inrush current	200 mA (at $U_s$ )
	< 40 mA (with $U_s/I_x$ to S10)
	< 150 mA (with $U_s/I_x$ to S12)
	> -60 mA (with $U_s/I_x$ to S22)
	< 40 mA (with $U_s/I_x$ to S34)
	< 40 mA (with $U_s/I_x$ to S35)
Current consumption	< 40 mA (with $U_s/I_x$ to S10)
	< 40 mA (with $U_s/I_x$ to S12)
	> -40 mA (with $U_s/I_x$ to S22)
	0 mA (with $U_s/I_x$ to S34)
	< 5 mA (with $U_s/I_x$ to S35)
Voltage at input/start and feedback circuit	24 V DC -15 % / +10 %
Typical response time	< 600 ms (automatic start)
	< 70 ms (manual start)
Typ. starting time with $U_s$	< 600 ms (when controlled via A1)
Typical release time	< 20 ms (when controlled via S11/S12 and S21/S22)
	< 20 ms (when controlled via A1)
Concurrence input 1/2	∞
Recovery time	< 1 s
Operating voltage display	1 x green LED
Status display	4 x green LEDs
Protective circuit	Surge protection Suppressor diode
Maximum switching frequency	0.5 Hz
Max. permissible overall conductor resistance	approx. 11 Ω (Input and start circuits at $U_s$ )
Delay time	K3(t), K4(t) fixed depending on model
Filter time	1 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

### Output data

Contact type	5 enabling current paths
	1 signaling current path

# Safety relays - PSR-SPP- 24DC/ESD/5X1/1X2/ T 3 - 2981237

## Technical data

### Output data

Contact material	AgSnO <sub>2</sub>
Maximum switching voltage	250 V AC/DC (Observe the load curve)
Minimum switching voltage	5 V AC/DC
Limiting continuous current	6 A (N/O contact, pay attention to the derating) 6 A (N/C contact)
Maximum inrush current	20 A ( $\Delta t \# 100$ ms, undelayed contacts) 8 A (delayed contacts)
Inrush current, minimum	10 mA
Sq. Total current	55 A <sup>2</sup> (observe derating)
Interrupting rating (ohmic load) max.	144 W (24 V DC, $\tau = 0$ ms) 288 W (48 V DC, $\tau = 0$ ms) 110 W (110 V DC, $\tau = 0$ ms, delayed contacts: 77 W) 88 W (220 V DC, $\tau = 0$ ms) 1500 VA (250 V AC, $\tau = 0$ ms, delayed contacts: 2000 VA)
Maximum interrupting rating (inductive load)	42 W (24 V DC, $\tau = 40$ ms, delayed contacts: 48 W) 42 W (48 V DC, $\tau = 40$ ms, delayed contacts: 40 W) 42 W (110 V DC, $\tau = 40$ ms, delayed contacts: 35 W) 42 W (220 V DC, $\tau = 40$ ms, delayed contacts: 33 W)
Switching capacity min.	50 mW
Mechanical service life	10x 10 <sup>6</sup> cycles
Switching capacity (360/h cycles)	4 A (24 V DC) 4 A (230 V AC)
Output fuse	10 A gL/gG (N/O contact) 6 A gL/gG (N/C contact)

### General

Relay type	Electromechanical relay with forcibly guided contacts in accordance with EN 50205
Nominal operating mode	100% operating factor
Net weight	412.2 g
Mounting position	any
Mounting type	DIN rail mounting
Degree of protection	IP20 IP54
Min. degree of protection of inst. location	IP54
Housing material	PBT
Housing color	yellow

### Connection data

Connection method	Spring-cage connection
pluggable	Yes
Conductor cross section solid min.	0.2 mm <sup>2</sup>

# Safety relays - PSR-SPP- 24DC/ESD/5X1/1X2/ T 3 - 2981237

## Technical data

### Connection data

Conductor cross section solid max.	1.5 mm <sup>2</sup>
Conductor cross section flexible min.	0.2 mm <sup>2</sup>
Conductor cross section flexible max.	1.5 mm <sup>2</sup>
Conductor cross section AWG min.	24
Conductor cross section AWG max.	16
Stripping length	8 mm

### Safety-related characteristic data

Stop category	0
	1
Designation	IEC 61508 - High demand
Safety Integrity Level (SIL)	3 (for delayed contacts SIL 2)
Designation	IEC 61508 - Low demand
Safety Integrity Level (SIL)	3 (for delayed contacts SIL 2)
Designation	EN ISO 13849
Performance level (PL)	e (for delayed contacts PL d)
Category	4 (Undelayed contacts)
	3 (delayed contacts)
Designation	EN 62061
Safety Integrity Level Claim Limit (SIL CL)	3 (for delayed contacts SILCL 2)

### Standards and Regulations

Designation	Air clearances and creepage distances between the power circuits
Standards/regulations	DIN EN 50178/VDE 0160
Rated insulation voltage	250 V AC
Rated surge voltage/insulation	Basic insulation 4 kV: between all current paths and housing Safe isolation, reinforced insulation 6 kV: between 13/14, 23/24, 33/34, and the remaining current paths between 13/14, 23/24, 33/34 among one another
Degree of pollution	2
Overvoltage category	III
Shock	15g
Vibration (operation)	10 Hz ...150 Hz, 2g
Conformance	CE-compliant

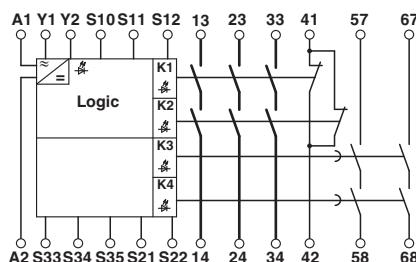
### Environmental Product Compliance

China RoHS	Environmentally friendly use period: unlimited = EFUP-e
	No hazardous substances above threshold values

### Drawings

## Safety relays - PSR-SPP- 24DC/ESD/5X1/1X2/ T 3 - 2981237

Circuit diagram



### Approvals

#### Approvals

##### Approvals

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

##### Ex Approvals

#### Approval details

UL Listed



<http://database.ul.com/cgi-bin/XYV/template/LISELECT/1FRAME/index.htm>

FILE E 140324

cUL Listed



<http://database.ul.com/cgi-bin/XYV/template/LISELECT/1FRAME/index.htm>

FILE E 140324

Functional Safety



01/205/5347.01/16

EAC



RU C-  
DE.A\*30.B.01082

cULus Listed



Phoenix Contact 2018 © - all rights reserved  
<http://www.phoenixcontact.com>

PHOENIX CONTACT GmbH & Co. KG  
Flachsmarktstr. 8  
32825 Blomberg  
Germany  
Tel. +49 5235 300  
Fax +49 5235 3 41200  
<http://www.phoenixcontact.com>

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Phoenix Contact:](#)

[2981237](#)