

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



2981156

<https://www.phoenixcontact.com/us/products/2981156>

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 documentation. Our general terms of use for downloads are valid.



The figure shows a version of the product

Safety relay for emergency stop and safety door monitoring up to SIL 3 or Cat. 4, PL e in accordance with EN ISO 13849, automatic or manual activation, 3 N/O contacts, 1 N/C contact, 2 N/O contacts with a fixed dropout delay of 1.0 s, plug-in Push-in terminal block

## Your advantages

- Fixed delay times of 1 s
- 3 undelayed and 2 dropout delay contacts
- 1- and 2-channel control
- For emergency stop and safety door monitoring, plus evaluation of light grids
- Manually monitored and automatic activation

## Commercial data

Item number	2981156
Packing unit	1 pc
Note	Made to order (non-returnable)
Sales key	DN01
Product key	DNA132
GTIN	4017918949044
Weight per piece (including packing)	410.4 g
Weight per piece (excluding packing)	410.4 g
Customs tariff number	85371098
Country of origin	DE

## Technical data

### Product properties

Product type	Safety relays
Application	Emergency stop
	Safety door
	Light grid
Control	1 and 2 channel
Mechanical service life	10x 10 <sup>6</sup> cycles
Relay type	Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3

Insulation characteristics: Air clearances and creepage distances between the power circuits

Overvoltage category	III
Degree of pollution	2

### Electrical properties

Maximum power dissipation for nominal condition	3.6 W
Nominal operating mode	100% operating factor

Air clearances and creepage distances between the power circuits

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

### Input data

#### General

Rated control circuit supply voltage $U_S$	24 V DC -15 % / +10 %
Power consumption at $U_S$	typ. 3.6 W
Rated control supply current $I_S$	typ. 150 mA
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 %

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



2981156

<https://www.phoenixcontact.com/us/products/2981156>

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
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	$\infty$
Recovery time	< 1 s
Delay time	K3(t), K4(t) fixed depending on model
Maximum switching frequency	0.5 Hz
Protective circuit	Surge protection; Suppressor diode
Max. permissible overall conductor resistance	approx. 11 $\Omega$ (Input and start circuits at $U_s$ )
Operating voltage display	1 x LED (green)
Status display	4 x LED (green)

## Output data

Contact switching type	5 enabling current paths
	1 signaling current path
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 ( $\Delta t \leq \text{[trapezoidal pulse symbol]} \text{ ms}$ , 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 power min.	50 mW
Switching capacity (360/h cycles)	4 A (24 V DC)
	4 A (230 V AC)
Switching capacity (3600/h cycles)	2.5 A (24 V (DC13))
	3 A (230 V (AC15))

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



2981156

<https://www.phoenixcontact.com/us/products/2981156>

Output fuse	10 A gL/gG (N/O contact)
	6 A gL/gG (N/C contact)

## Connection data

### Connection technology

pluggable	yes
-----------	-----

### Conductor connection

Connection method	Push-in connection
Conductor cross-section, rigid	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, 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	yellow
Housing material	PBT

## Characteristics

### Safety data

Stop category (EN 60204-1)	0 (Undelayed contacts)
	1 (delayed contacts)

### Safety data: EN ISO 13849

Performance level (PL)	e (for delayed contacts PL d)
------------------------	-------------------------------

### Safety data: IEC 61508 - High demand

Safety Integrity Level (SIL)	3 (for delayed contacts SIL 2)
------------------------------	--------------------------------

### Safety data: IEC 61508 - Low demand

Safety Integrity Level (SIL)	3 (for delayed contacts SIL 2)
------------------------------	--------------------------------

### Safety data: EN IEC 62061

Safety Integrity Level (SIL)	3 (for delayed contacts SIL 2)
------------------------------	--------------------------------

## Environmental and real-life conditions

### Ambient conditions

Degree of protection	IP20
----------------------	------

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



2981156

<https://www.phoenixcontact.com/us/products/2981156>

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

CE

Certificate	CE-compliant
-------------	--------------

## Standards and regulations

Air clearances and creepage distances between the power circuits

Standards/regulations	DIN EN 50178/VDE 0160
-----------------------	-----------------------

## Mounting

Mounting type	DIN rail mounting
Mounting position	any

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



2981156

<https://www.phoenixcontact.com/us/products/2981156>

## Drawings

Circuit diagram



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



2981156

<https://www.phoenixcontact.com/us/products/2981156>

## Classifications

### UNSPSC

UNSPSC 21.0	39122205
-------------	----------

2981156

<https://www.phoenixcontact.com/us/products/2981156>

## Environmental product compliance

### 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.)	No substance above 0.1 wt%
-------------------------------------	----------------------------

Phoenix Contact 2026 © - all rights reserved  
<https://www.phoenixcontact.com>

Phoenix Contact USA  
586 Fulling Mill Road  
Middletown, PA 17057, United States  
(+717) 944-1300  
[info@phoenixcon.com](mailto:info@phoenixcon.com)