

# PSR-SPP- 24DC/ESD/4X1/30 - Safety relays



2981813

<https://www.phoenixcontact.com/us/products/2981813>

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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, automatic or manual activation, 2 N/O contacts with a fixed dropout delay of 0.1 s ... 30 s, pluggable Push-in terminal block

## Your advantages

- Maximum of 3 undelayed and 2 dropout delay contacts
- Manually monitored and automatic activation
- Up to Cat. 3/4 and PL d/e in accordance with EN ISO 13849-1, SIL 3 in accordance with EN IEC 62061, SIL 3 in accordance with IEC 61508
- For emergency stop and safety door monitoring, plus evaluation of light grids
- 1- and 2-channel control
- Protective labels to prevent manipulation of the set time (PSR-ESD-300) or electronic protection against manipulation (PSR-ESD-30)
- Fixed delay times of 0.1 s ... 300 s

## Commercial data

Item number	2981813
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN01
Product key	DNA131
Catalog page	Page 230 (C-6-2019)
GTIN	4046356117265
Weight per piece (including packing)	229.76 g
Weight per piece (excluding packing)	209.68 g
Customs tariff number	85371098
Country of origin	DE

## Technical data

### Product properties

Product type	Safety relays
Product family	PSRclassic
Application	Emergency stop
	Safety door
	Light grid
Mechanical service life	approx. 10 <sup>7</sup> cycles
Relay type	Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3

### Times

Typical response time	150 ms (Monitored/manual and auto-start)
Typical release time	20 ms (Undelayed contacts)
	100 ms
Delay time range	0.1 s ... 30 s ±30 % (adjustable)
Recovery time	330 ms (Restart)
	1 s (Electric torque)

### Electrical properties

Maximum power dissipation for nominal condition	1.8 W
Nominal operating mode	100% operating factor

### Air clearances and creepage distances between the power circuits

Rated insulation voltage	250 V
Rated surge voltage/insulation	4 kV / basic insulation

### Supply

Rated control circuit supply voltage $U_S$	24 V DC
Inrush current	typ. 250 mA

### Input data

#### General

Nominal input voltage $U_N$	24 V DC
Input voltage range in reference to $U_N$	0.85 ... 1.1
Typical input current at $U_N$	75 mA DC
Voltage at input/start and feedback circuit	approx. 24 V DC
Typical response time	150 ms (Monitored/manual and auto-start)
	20 ms (Undelayed contacts)
Typical release time	100 ms (delayed contacts)
	0.1 s ... 30 s
Typical release time range	330 ms (Restart)
	1 s (Electric torque)
Recovery time	330 ms (Restart)
Protective circuit	Suppressor diode, 33 V DC

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Max. permissible overall conductor resistance	500 $\Omega$ (Input and reset circuit at $U_N$ )
Operating voltage display	Green LED
Status display	LED K1/K2 and K3(t)/K4(t), green

## Output data

Contact switching type	4 enabling current paths
Contact material	AgSnO <sub>2</sub>
Maximum switching voltage	250 V AC/DC
Minimum switching voltage	15 V AC/DC
Limiting continuous current	6 A (N/O contact)
Maximum inrush current	6 A
Inrush current, minimum	25 mA
Sq. Total current	120 A <sup>2</sup> (see to derating)
Interrupting rating (ohmic load) max.	144 W (24 V DC, $\tau = 0$ ms)
	288 W (48 V DC, $\tau = 0$ ms)
	90 W (110 V DC, $\tau = 0$ ms)
	88 W (220 V DC, $\tau = 0$ ms)
	1500 VA (250 V AC, $\tau = 0$ ms)
Maximum interrupting rating (inductive load)	42 W (24 V DC, $\tau = 40$ ms)
	33 W (48 V DC, $\tau = 40$ ms)
	25 W (110 V DC, $\tau = 40$ ms)
	23 W (220 V DC, $\tau = 40$ ms)
Switching capacity min.	0.4 W
Switching capacity (360/h cycles)	on request
Switching capacity (3600/h cycles)	3 A (24 V (DC13))
	3 A (230 V (AC15))
Output fuse	10 A gL/gG NEOZED (N/O contact)

## Connection data

### Connection technology

pluggable	yes
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### 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	22.5 mm
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Height	112 mm
Depth	114.5 mm

## Material specifications

Housing material	Polyamide
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## Characteristics

### Safety data

Stop category	0
	1

### Safety data: EN ISO 13849

Category	4
Performance level (PL)	e

### Safety data

Safety Integrity Level (SIL)	3
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### Safety data: EN IEC 62061

Safety Integrity Level (SIL)	3
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## Environmental and real-life conditions

### Ambient conditions

Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Ambient temperature (operation)	-20 °C ... 45 °C
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

## Standards and regulations

### Air clearances and creepage distances between the power circuits

Standards/regulations	DIN EN 60947-1
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## Mounting

Mounting type	DIN rail mounting
Mounting position	any

# PSR-SPP- 24DC/ESD/4X1/30 - Safety relays

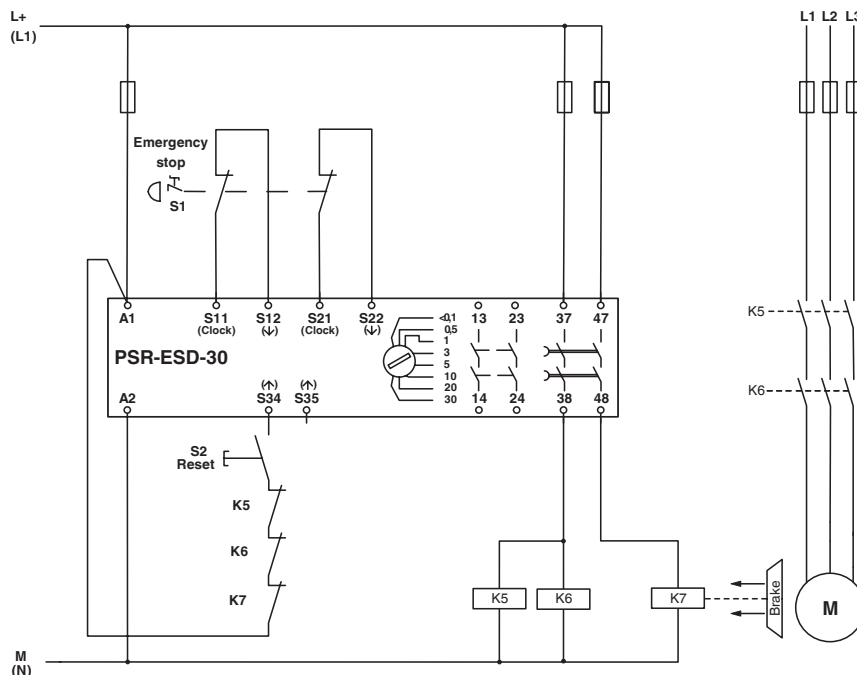


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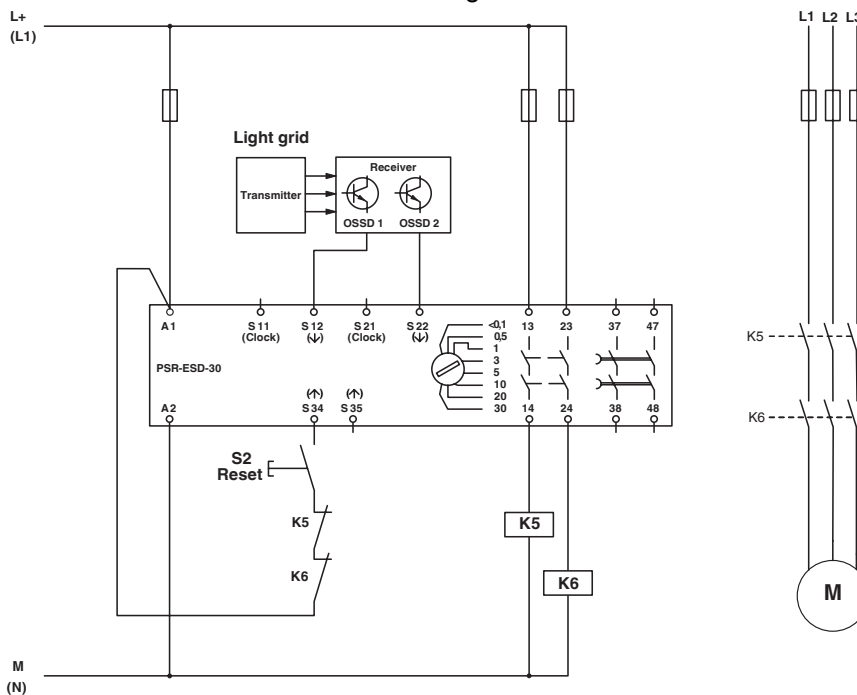
<https://www.phoenixcontact.com/us/products/2981813>

## Drawings

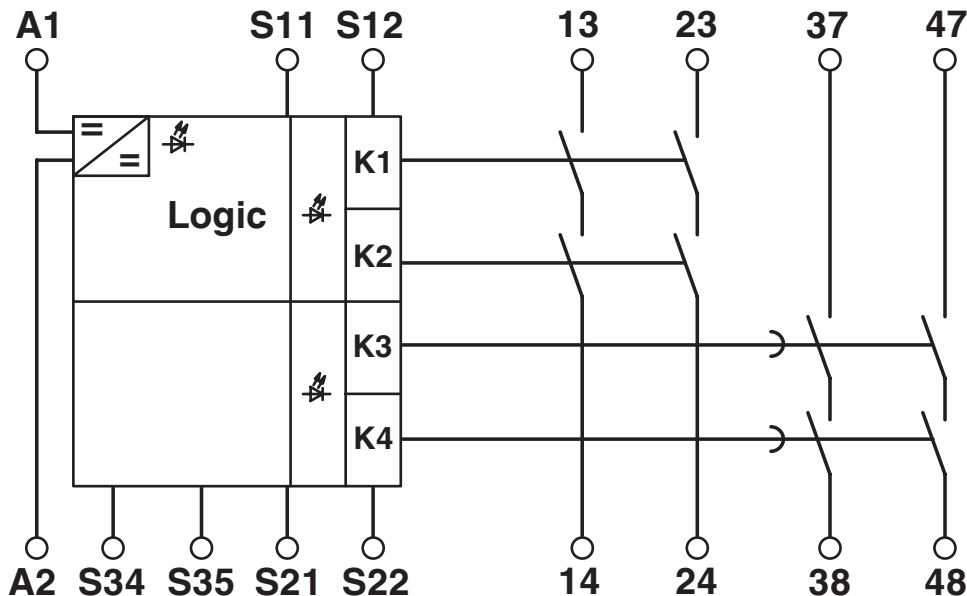
Circuit diagram



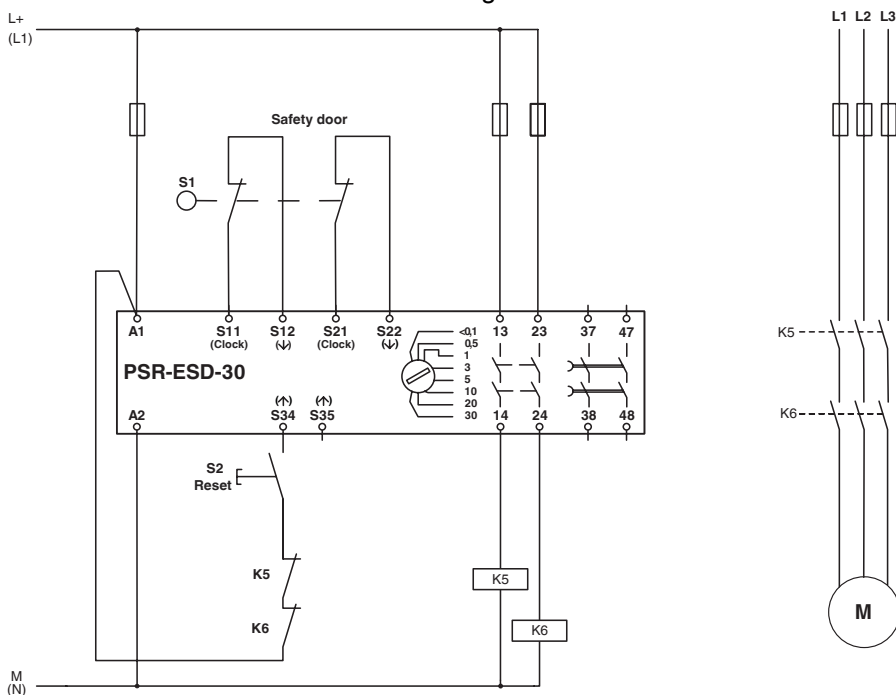
Circuit diagram



Circuit diagram



Circuit diagram



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2981813>



**EAC**

Approval ID: TR\_TS\_D\_00573\_c



**UL Listed**

Approval ID: FILE E 140324



**cUL Listed**

Approval ID: FILE E 140324



**Functional Safety**

Approval ID: 01/205/0656.04/23

**cULus Listed**

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## Classifications

### ECLASS

ECLASS-11.0	27371819
ECLASS-13.0	27371819
ECLASS-12.0	27371819

### ETIM

ETIM 9.0	EC001449
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### UNSPSC

UNSPSC 21.0	39122200
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## 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"

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## Accessories

### CRIMPFOX 6 - Crimping pliers

1212034

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Crimping pliers, for ferrules without insulating collar according to DIN 46228 Part 1 and ferrules with insulating collar according to DIN 46228 Part 4, 0.25 mm<sup>2</sup> ... 6.0 mm<sup>2</sup>, lateral entry, trapezoidal crimp

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