

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



2981813

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

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.



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 | DNA131 |
| Product key | DNA131 |
| 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

Notes

Note on application

| | |
|---------------------|-------------------------|
| Note on application | Only for industrial use |
|---------------------|-------------------------|

Product properties

| | |
|-------------------------|--|
| Product type | Safety relays |
| Product family | PSRclassic |
| Application | Emergency stop Safety door Light grid |
| Control | 1 and 2 channel |
| Mechanical service life | approx. 10^7 cycles |
| Relay type | Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3 |

Insulation characteristics

| | |
|----------------------|----|
| Overvoltage category | II |
| Degree of pollution | 2 |

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 | 26.06 W ($U_S = 26,4$ V, $I_L^2 = 120$ A ²) |
| Nominal operating mode | 100% operating factor |
| 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 |

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



2981813

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

| | |
|---|---|
| Voltage at input/start and feedback circuit | approx. 24 V DC |
| Typical response time | 150 ms (Monitored/manual and auto-start) |
| Typical release time | 20 ms (Undelayed contacts) 100 ms (delayed contacts) |
| Typical release time range | 0.1 s ... 30 s |
| Recovery time | 330 ms (Restart) 1 s (Electric torque) |
| Protective circuit | Suppressor diode, 33 V DC |
| Max. permissible overall conductor resistance | 500 Ω (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 ₂ |
| 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 ² (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 |
|-----------|-----|

Conductor connection

| | |
|----------------------------------|---|
| Connection method | Push-in connection |
| Conductor cross-section rigid | 0.2 mm ² ... 1.5 mm ² |
| Conductor cross-section flexible | 0.2 mm ² ... 1.5 mm ² |

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



2981813

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

| | |
|---|--|
| Conductor cross-section, flexible, with ferrule, with plastic sleeve | 0.25 mm ² ... 1.5 mm ² (only together with CRIMPFOX 6) |
| Conductor cross-section flexible, with ferrule without plastic sleeve | 0.25 mm ² ... 1.5 mm ² (only together with CRIMPFOX 6) |
| Conductor cross-section AWG | 24 ... 16 |
| Stripping length | 8 mm |

Dimensions

| | |
|--------|----------|
| Width | 22.5 mm |
| Height | 112 mm |
| Depth | 114.5 mm |

Material specifications

| | |
|------------------|----|
| Housing material | PA |
|------------------|----|

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 |
|------------------------------|---|

Safety data: EN IEC 62061

| | |
|------------------------------|---|
| Safety Integrity Level (SIL) | 3 |
|------------------------------|---|

Environmental and real-life conditions

Ambient conditions

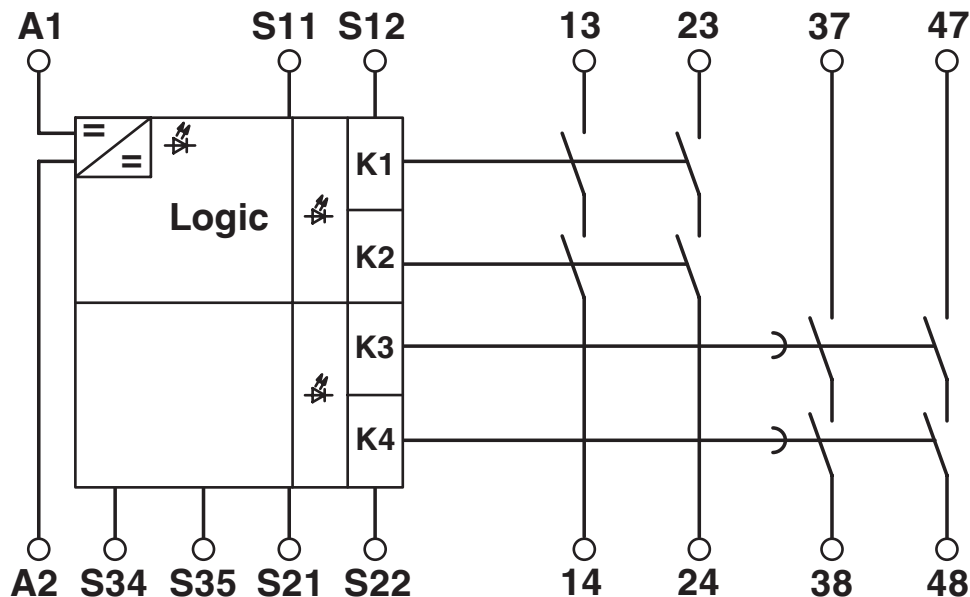
| | |
|--|---|
| Degree of protection | IP20 |
| Min. degree of protection of inst. location | IP54 |
| Ambient temperature (operation) | -20 °C ... 45 °C |
| Ambient temperature (storage/transport) | -40 °C ... 70 °C |
| Maximum altitude | ≤ 2000 m (Above sea level) |
| Max. permissible humidity (storage/transport) | 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 |

Mounting

| | |
|-------------------|-------------------|
| Mounting type | DIN rail mounting |
| Mounting position | any |

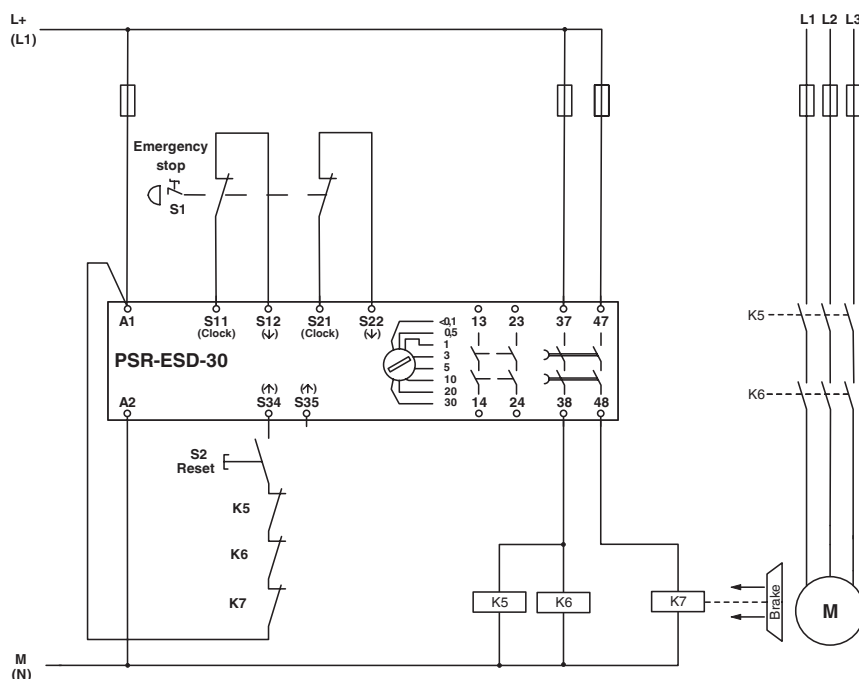
Drawings

Circuit diagram



Block diagram

Circuit diagram



2-channel emergency stop monitoring

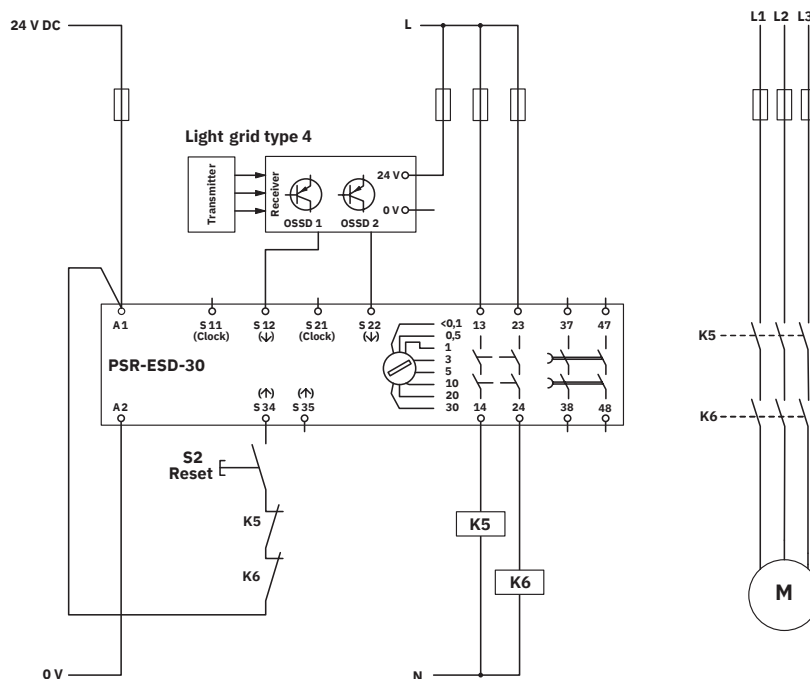
PSR-SPP- 24DC/ESD/4X1/30 - Safety relays



2981813

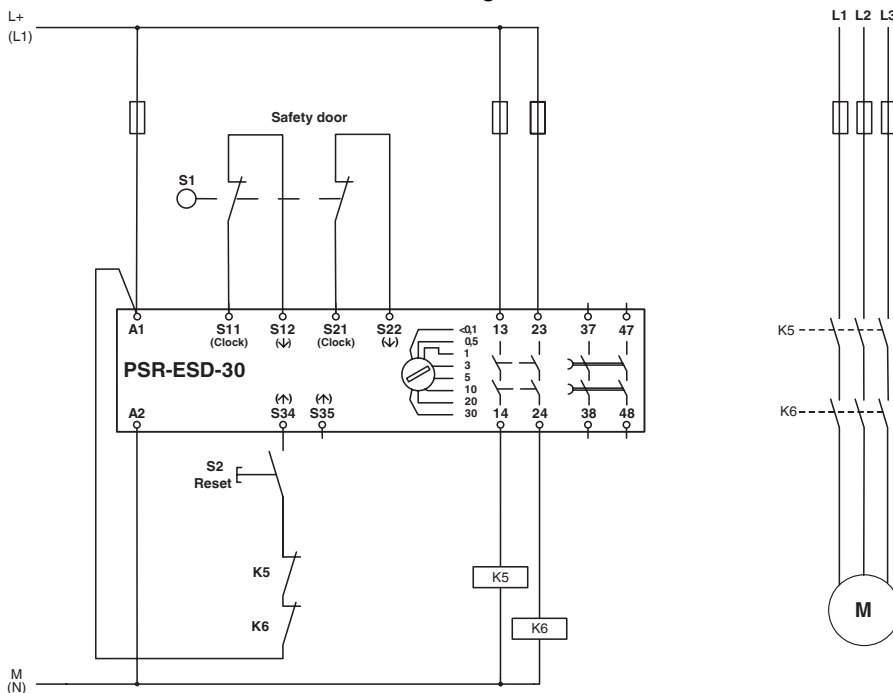
<https://www.phoenixcontact.com/gb/products/2981813>

Circuit diagram



Light grid monitoring

Circuit diagram



Two-channel safety door monitoring

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



2981813

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

Approvals

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

Functional Safety

Approval ID: 968/EZ322.06/23



cULus Listed

Approval ID: E140324



Functional Safety

Approval ID: 01/205/0656.04/23

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



2981813

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

Classifications

ECLASS

| | |
|-------------------|----------|
| ECLASS-13.0 | 27371819 |
| ECLASS-15.0 | 27371819 |
| ECLASS-15.0 ASSET | 27250101 |

ETIM

| | |
|----------|----------|
| ETIM 9.0 | EC001449 |
|----------|----------|

UNSPSC

| | |
|-------------|----------|
| UNSPSC 21.0 | 39122200 |
|-------------|----------|

Environmental product compliance

EU RoHS

| | |
|---|------------------|
| Fulfills EU RoHS substance requirements | Yes |
| Exemption | 34, 7(a), 7(c)-I |

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.) | 1-Methyl-2-pyrrolidone (NMP)(CAS: 872-50-4) |
| | Lead(CAS: 7439-92-1) |
| | 2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol(CAS: 79-94-7) |
| SCIP | 6f773305-d4ee-4c30-9f1d-e1978693fe90 |