

PSR-SPP- 24DC/SDC4/2X1/B - Safety relays



2981499
<https://www.phoenixcontact.com/us/products/2981499>

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Safety relay for emergency stop, safety door, and magnetic switches, as well as light grids, up to SIL 3 or Cat. 4, PL e in accordance with EN ISO 13849, 2 N/O contacts, TBUS interface, automatic or manual activation, pluggable Push-in terminal block

Your advantages

- Up to Cat. 4/PL e in accordance with ISO 13849-1, SIL 3 in accordance with EN IEC 62061, SIL 3 in accordance with IEC 61508
- Modular system with TBUS extension
- For emergency stop and safety door monitoring, plus evaluation of light grids
- 2 enabling current paths, 1 signaling current path
- 1- and 2-channel control

Commercial data

| | |
|--------------------------------------|---------------------|
| Item number | 2981499 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | DN01 |
| Product key | DNA211 |
| Catalog page | Page 231 (C-6-2019) |
| GTIN | 4046356051699 |
| Weight per piece (including packing) | 228 g |
| Weight per piece (excluding packing) | 197.9 g |
| Customs tariff number | 85371098 |
| Country of origin | DE |

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Technical data

Product properties

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

Electrical properties

| | |
|---|-----------------------|
| Maximum power dissipation for nominal condition | 1.68 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 isolation, (safe isolation, reinforced insulation and 6 kV between input circuit and enabling current paths.) |

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 | 70 mA |
| Voltage at input/start and feedback circuit | approx. 24 V DC |
| Typical response time | 20 ms (manual start) |
| | 150 ms (automatic start) |
| Typical release time | 10 ms |
| Recovery time | 1 s |
| Max. permissible overall conductor resistance | 50 Ω (Input and start circuits at U_S) |

Output data

| | |
|-----------------------------|--------------------------------------|
| Contact switching type | 2 enabling current paths |
| | 1 semiconductor signaling output |
| Contact material | AgSnO ₂ |
| Maximum switching voltage | 250 V AC/DC (Enabling current paths) |
| | 24 V (signal output) |
| Minimum switching voltage | 15 V AC/DC (Enabling current paths) |
| Limiting continuous current | 6 A (Enabling current paths) |
| | 100 mA (signal output) |
| Maximum inrush current | 6 A |

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| | |
|--|--|
| Inrush current, minimum | 25 mA (Enabling current paths) |
| Sq. Total current | $72 \text{ A}^2 (I_{TH}^2 = I_1^2 + I_2^2)$ |
| Interrupting rating (ohmic load) max. | 144 W (24 V DC, $\tau = 0 \text{ ms}$) |
| | 288 W (48 V DC, $\tau = 0 \text{ ms}$) |
| | 77 W (110 V DC, $\tau = 0 \text{ ms}$) |
| | 88 W (220 V DC, $\tau = 0 \text{ ms}$) |
| | 1500 VA (250 V AC, $\tau = 0 \text{ ms}$) |
| Maximum interrupting rating (inductive load) | 48 W (24 V DC, $\tau = 40 \text{ ms}$) |
| | 40 W (48 V DC, $\tau = 40 \text{ ms}$) |
| | 35 W (110 V DC, $\tau = 40 \text{ ms}$) |
| | 33 W (220 V DC, $\tau = 40 \text{ ms}$) |
| Switching capacity | min. 0.4 W (Enabling current paths) |
| Switching capacity (360/h cycles) | 6 A (24 V DC) |
| | 5 A (230 V (AC15)) |
| Switching capacity (3600/h cycles) | 3 A (24 V (DC13)) |
| | 3 A (230 V (AC15)) |
| Output fuse | 10 A gL/gG NEOZED (Enabling current paths) |
| | Miniature circuit breaker C6 (24 V / 20 A power supply unit) |

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 |
| 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

| | |
|------------------|-------------------|
| Color (Housing) | yellow (RAL 1018) |
| Housing material | Polyamide |

Characteristics

Safety data

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| | |
|--------------------------------------|------------------------|
| Stop category | 0 |
| Safety data: EN ISO 13849 | |
| Category | 4 (Undelayed contacts) |
| Performance level (PL) | e |
| Safety data: IEC 61508 - High demand | |
| Safety Integrity Level (SIL) | 3 |
| Safety data: IEC 61508 - Low demand | |
| 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 ... 55 °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) |

Standards and regulations

Air clearances and creepage distances between the power circuits

| | |
|-----------------------|-------------|
| Standards/regulations | IEC 60664-1 |
|-----------------------|-------------|

Mounting

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

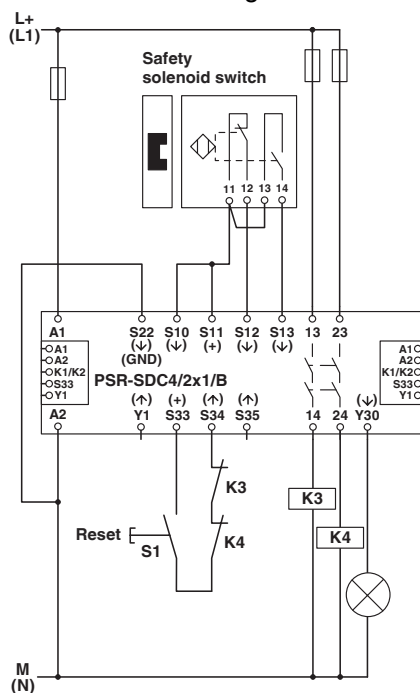
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Drawings

Circuit diagram

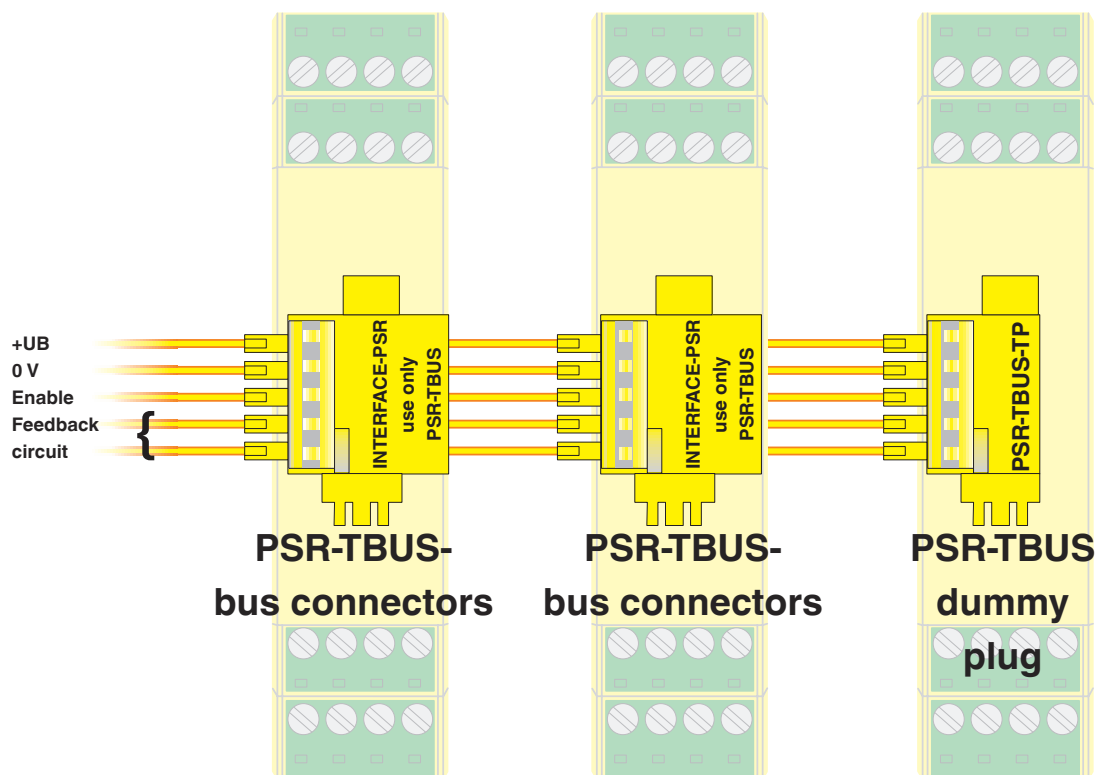


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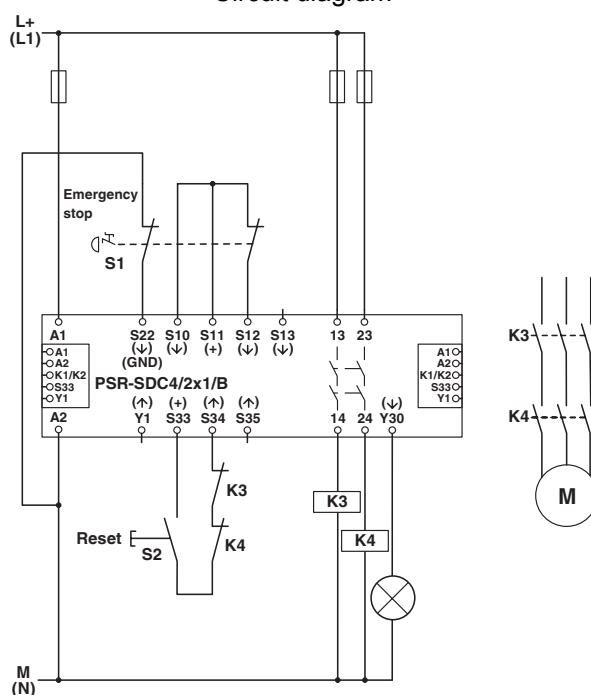
<https://www.phoenixcontact.com/us/products/2981499>

Connection diagram



PSR-TBUS DIN rail connectors are used for cross-wiring between the modules.

Circuit diagram

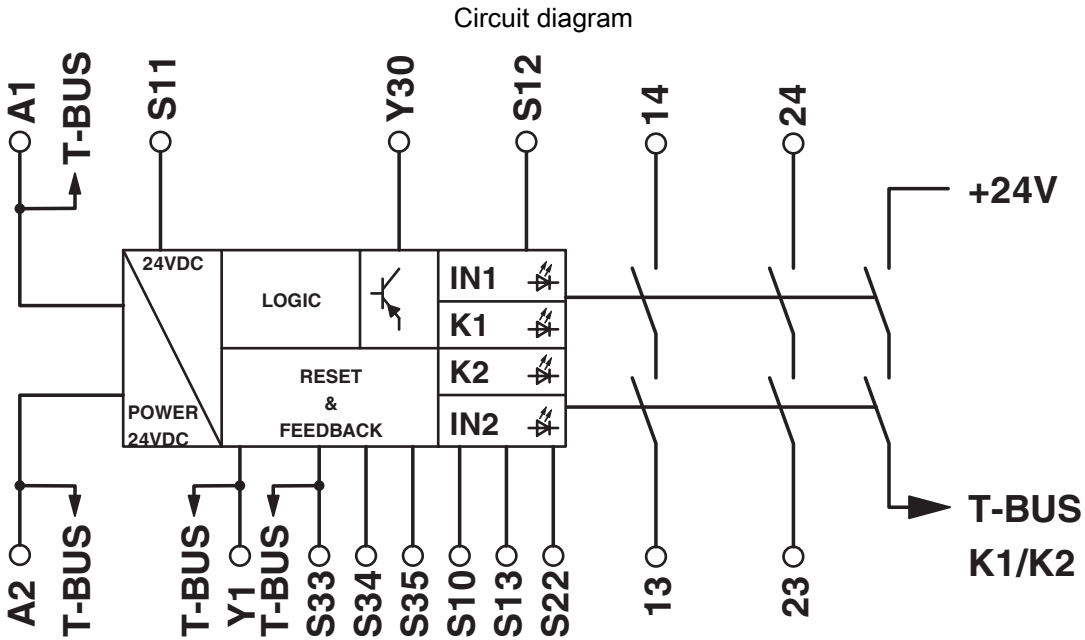
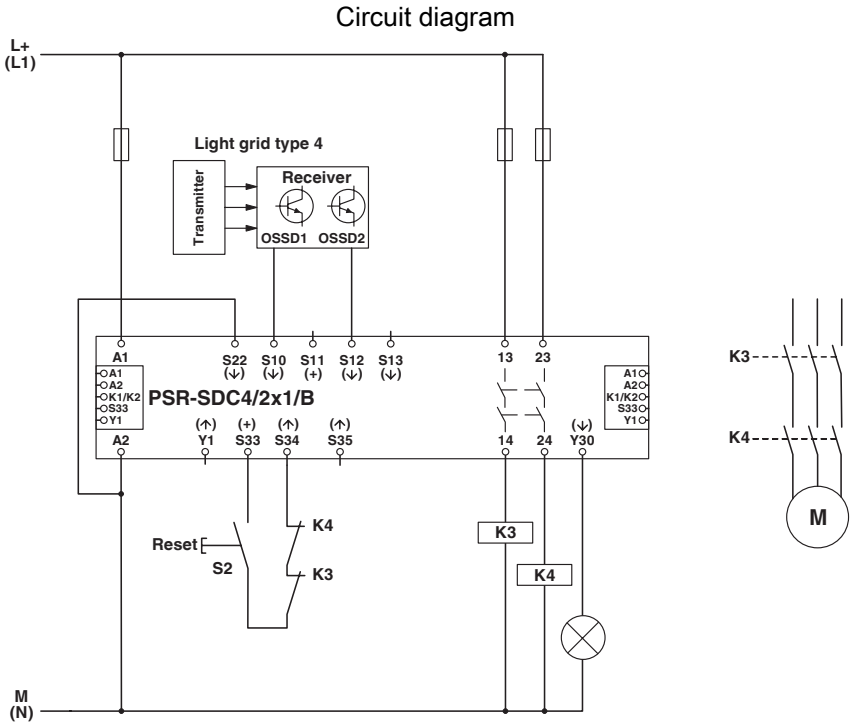


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Approvals


To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2981499>




EAC
Approval ID: RU C-DE.A*30.B.01082




UL Listed
Approval ID: FILE E 140324



cUL Listed
Approval ID: FILE E 140324



Functional Safety
Approval ID: 01/205/0660.03/22



Functional Safety
Approval ID: 968/EZ 369.05/22

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

UNSPSC

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

Environmental product compliance

| | |
|---|---|
| EU RoHS | |
| Fulfills EU RoHS substance requirements | Yes |
| Exemption | 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.) | Lead(CAS: 7439-92-1) |
| SCIP | 3ffe7659-7c07-4479-bf6c-1b797cdb1c40 |

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Accessories

PSR-TBUS - DIN rail bus connectors

2890425

<https://www.phoenixcontact.com/us/products/2890425>

DIN rail connector for safety switching devices, for supplying/controlling/monitoring (depending on the module)



PSR-TBUS-TP - DIN rail bus connectors

2981716

<https://www.phoenixcontact.com/us/products/2981716>

Blind plug for the PSR-TBUS DIN rail connector used with the modular safety relay system (PSR-SDC4)



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PSR-TBUS - 1PCS - DIN rail bus connectors

1326060

<https://www.phoenixcontact.com/us/products/1326060>

DIN rail connector for safety switching devices, for supplying/controlling/monitoring (depending on the module)



CRIMPFOX 6 - Crimping pliers

1212034

<https://www.phoenixcontact.com/us/products/1212034>



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 mm² ... 6.0 mm², lateral entry, trapezoidal crimp

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