# PSR-SPP- 24DC/FSP/1X1/1X2 - Coupling relay

2981981

https://www.phoenixcontact.com/us/products/2981981

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 with a screw connection

Safe coupling relay for SIL 3 high- and low-demand applications, couples digital output signals to the periphery, one enabling current path, one signal contact, module for safe state off applications, test pulse filter, fuse, plug-in Push-in connection, width: 17.5 mm

## Your advantages

- Narrow 17.5 mm housing
- Up to SIL 3 in accordance with IEC 61508
- With built-in, replaceable fuse in the enabling current path
- Easy proof test according to IEC 61508 thanks to integrated signal contact
- Long service life thanks to filtering of controller test pulses
- Force-guided contacts in accordance with EN 50205
- 1 enabling current path
- Couples digital output signals from failsafe controllers to I/O devices (valves, etc.) for electrical isolation and power adaptation

ELEKTROGERÄTE RÜCKNAHME

## Commercial data

| | |
|---|---|
| Item number | 2981981 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | DN01 |
| Product key | DNA161 |
| GTIN | 4046356448345 |
| Weight per piece (including packing) | 149.58 g |
| Weight per piece (excluding packing) | 128.79 g |

| | |
|---|---|
| Customs tariff number | 85364900 |
| Country of origin | DE |

# Technical data

## Product properties

| | |
|---|---|
| Product type | Coupling relay |
| Product family | PSRclassic |
| Application | Safe switch off |
| | High demand |
| | Low demand |
| Control | 1-channel |
| Mechanical service life | 10x $10^6$ cycles |
| Relay type | Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3 |

### Insulation characteristics

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

### Times

| | |
|---|---|
| Typ. starting time with $U_s$ | 50 ms (with $U_s$ when controlled via A1) |
| Typical release time | 50 ms (with $U_s$ when controlled via A1) |
| Recovery time | 1 s |

## Electrical properties

| | |
|---|---|
| Maximum power dissipation for nominal condition | 2.4 W |
| Nominal operating mode | 100% operating factor |
| Rated insulation voltage | 250 V AC |
| Rated surge voltage/insulation | Safe isolation, reinforced insulation 6 kV between the control circuits (A1/A2), (21/22), (13/14) |

### Supply

| | |
|---|---|
| Designation | A1/A2 |
| Rated control circuit supply voltage $U_S$ | 24 V DC -15 % / +10 % |
| Rated control supply current $I_S$ | typ. 55 mA (at $U_S$) |
| Power consumption at $U_S$ | typ. 1.32 W |
| Inrush current | max. 100 mA |
| Filter time | max. 5 ms (at A1 in the event of voltage dips at $U_s$) |
| | max. 2 ms (Test pulse width; high test pulse at A1/A2) |
| | ≥ 100 ms (Test pulse width; high test pulse at A1/A2) |
| | Test pulse rate = 80 x Test pulse width |
| | max. 5 ms (Test pulse width; low test pulse at A1/A2) |
| | ≥ 50 ms (Test pulse rate; low test pulse at A1/A2) |
| | Test pulse rate = 15 x Test pulse width |
| Protective circuit | Surge protection; Suppressor diode, 33 V (A1 - A2) |

## Output data

Relay: Enabling current path (13/14)

| | |
|---|---|
| Output description | 1 NO, undelayed |
| Number of outputs | 1 |
| Contact switching type | 1 enabling current path |
| Contact material | AgCuNi, + 0.2 µm Au |
| Switching voltage | min. 15 V AC/DC |
| | max. 250 V AC/DC |
| Switching power | min. 75 mW |
| Inrush current | min. 5 mA |
| | max. 5 A |
| Switching capacity | 5 A (24 V (DC13)) |
| | 5 A (230 V (AC15)) |
| Limiting continuous current | 5 A (N/O contact, pay attention to the derating) |
| Sq. Total current | 25 $A^2$ (observe derating) |
| Switching frequency | max. 0.5 Hz |
| Interrupting rating (ohmic load) max. | see load limit curve |
| Maximum interrupting rating (inductive load) | see load limit curve |
| Output fuse | 5 A T fuse |

Relay: Confirmation current path (21/22)

| | |
|---|---|
| Output description | 1 N/C signal contact |
| Number of outputs | 1 |
| Contact switching type | 1 confirmation current path |
| Contact material | AgCuNi, + 0.2 µm Au |
| Switching voltage | min. 15 V AC/DC |
| | max. 250 V AC/DC |
| Switching power | min. 75 mW |
| Inrush current | 5 mA |
| | max. 100 mA |
| Switching capacity | 5 A (24 V (DC13)) |
| | 5 A (230 V (AC15)) |
| Limiting continuous current | 100 mA |
| Output fuse | 150 mA Fast-blow |

## Connection data

Connection technology

| | |
|---|---|
| pluggable | yes |

Conductor connection

| | |
|---|---|
| Connection method | Push-in connection |
| Conductor cross-section rigid | 0.2 mm² ... 1.5 mm² |
| Conductor cross-section flexible | 0.2 mm² ... 1.5 mm² |
| Conductor cross-section, flexible, with ferrule, with plastic sleeve | 0.25 mm² ... 1.5 mm² (only together with CRIMPFOX 6) |
| Conductor cross-section, flexible, with ferrule, without plastic | 0.25 mm² ... 1.5 mm² (only together with CRIMPFOX 6) |

| | |
|---|---|
| sleeve | |
| Conductor cross-section AWG | 24 ... 16 |
| Stripping length | 8 mm |

## Signaling

| | |
|---|---|
| Operating voltage display | 1 x yellow LED |

## Dimensions

| | |
|---|---|
| Width | 17.5 mm |
| Height | 112 mm |
| Depth | 114.5 mm |

## Material specifications

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

## Characteristics

### Safety data

| | |
|---|---|
| Stop category (EN 60204-1) | 0 |

### Safety data: EN ISO 13849

| | |
|---|---|
| Performance level (PL) | e (Diagnostic coverage (DC) of the control unit at A1/A2 must be ≥ 99%) |

### Safety data: EN 50156

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

### Safety data: IEC 61508 - High demand

| | |
|---|---|
| Safety Integrity Level (SIL) | 3 (max. 10% of the entire SIL; diagnostic coverage (DC) of the control unit at A1/A2 must be ≥ 90% ) |

### Safety data: IEC 61508 - Low demand

| | |
|---|---|
| Safety Integrity Level (SIL) | 3 (max. 10% of the entire SIL; diagnostic coverage (DC) of the control unit at A1/A2 must be ≥ 90% ) |

### Safety data: EN IEC 62061

| | |
|---|---|
| Safety Integrity Level (SIL) | 3 (max. 10% of the entire SIL; diagnostic coverage (DC) of the control unit at A1/A2 must be ≥ 90% ) |

## 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 (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

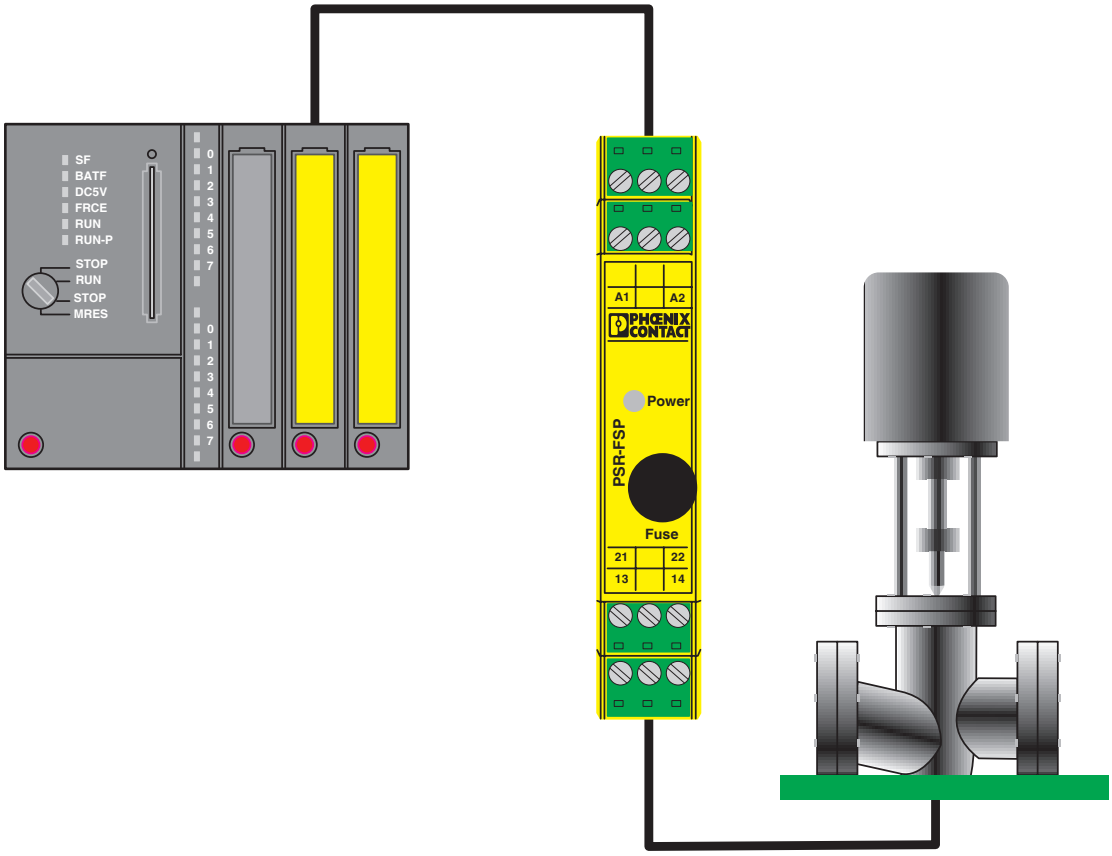
| | |
|---|---|
| Certificate | CE-compliant |

## Mounting

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

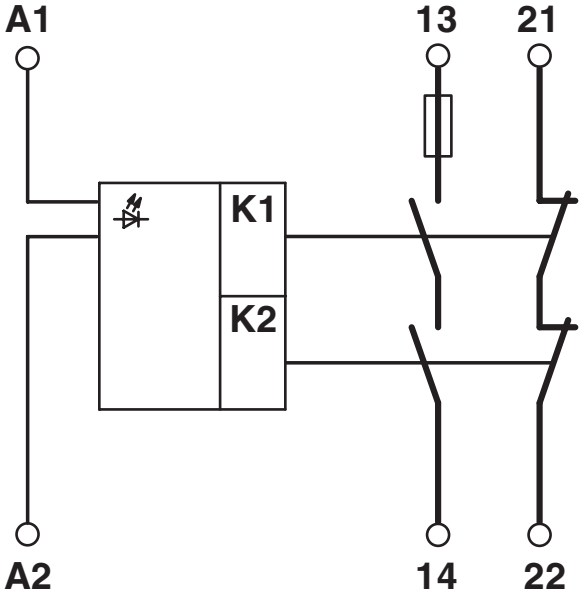
## Drawings

Application drawing



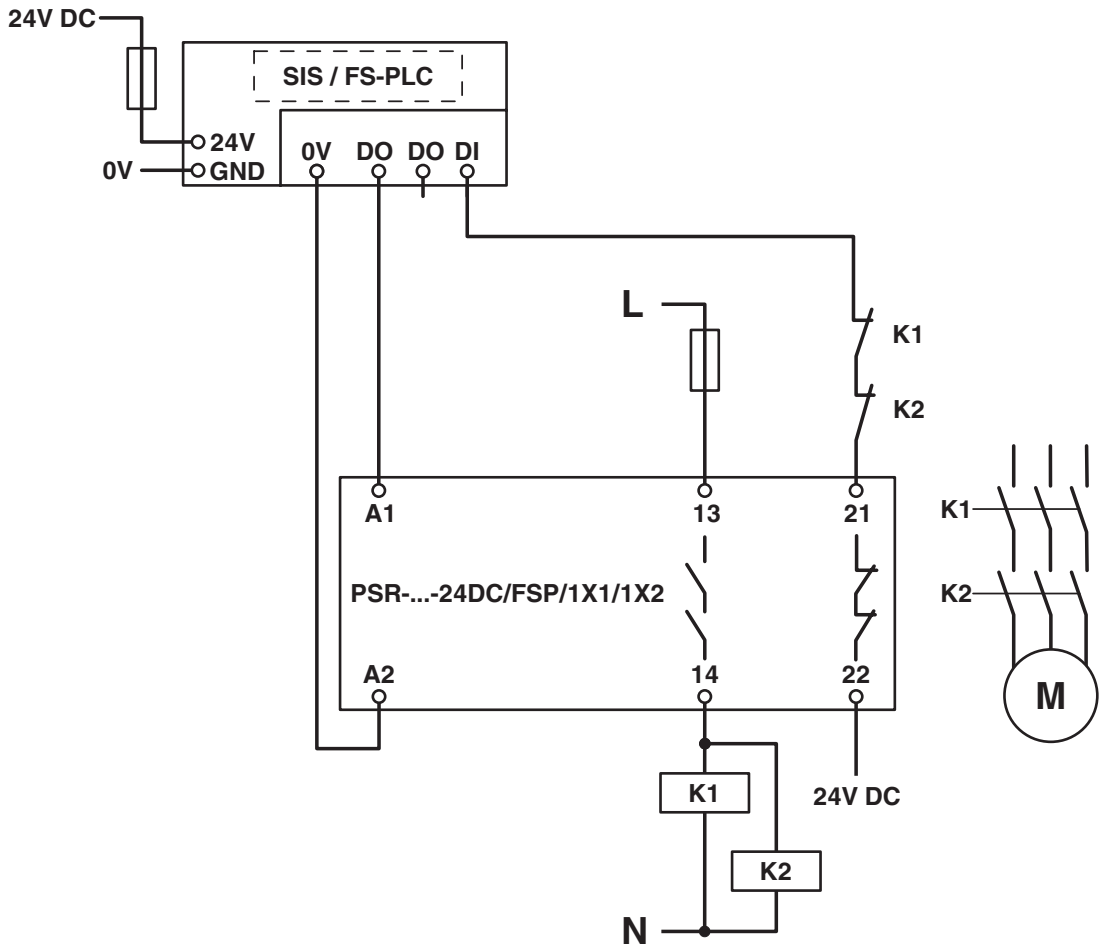

Example of electrical isolation of a safety PLC output from the field.

Circuit diagram



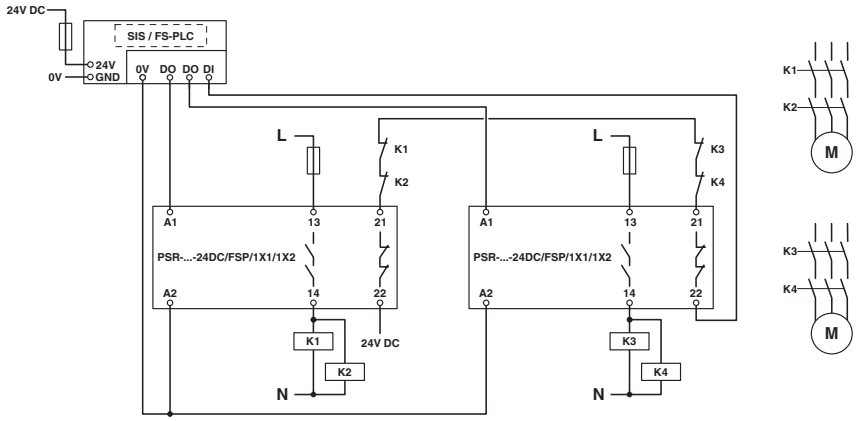

Block diagram

Circuit diagram




Single-channel connection with integration of the confirmation current path

Circuit diagram




Two-channel connection with integration of the confirmation current path

## Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/2981981

**DNV GL**
Approval ID: TAA00002UC

**cULus Listed**
Approval ID: E140324

**Functional Safety**
Approval ID: 968/EZ 365.12/24

## Classifications

### ECLASS

| | |
|---|---|
| ECLASS-13.0 | 27371819 |
| ECLASS-15.0 | 27371819 |

### ETIM

| | |
|---|---|
| ETIM 10.0 | 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 | 1df8785d-9c3e-4974-bbf0-9660da3d3e01 |

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