

PSR-PS23-1NO-1NC-24VDC-SC - Coupling relay



2702663

<https://www.phoenixcontact.com/us/products/2702663>

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Coupling relay for SIL 3 high and low-demand applications, couples digital output signals to the I/O, 1 enabling current path, 1 confirmation current path, safe state off applications, test pulse filter, fixed screw terminal block

Your advantages

- Force-guided contacts in accordance with EN 50205
- Easy proof test according to IEC 61508
- Suitable for high and low-demand applications up to SIL 3 in accordance with IEC 61508, IEC 61511, and EN 50156
- Low housing width of just 6.8 mm
- Long service life thanks to filtering of controller test pulses
- 1 enabling current path, 1 diagnostic current path
- Integrated DCS test pulse filter
- Corrosion protection through protective coating on the PCB

Commercial data

| | |
|--------------------------------------|---------------|
| Item number | 2702663 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | DN01 |
| Product key | DNA172 |
| GTIN | 4055626280233 |
| Weight per piece (including packing) | 103.53 g |
| Weight per piece (excluding packing) | 69.368 g |
| Customs tariff number | 85364900 |
| Country of origin | DE |

Technical data

Notes

Note on application

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

Product properties

| | |
|----------------|--|
| Product type | Coupling relay |
| Product family | PSRmini |
| Application | Safe switch off |
| | High demand |
| | Low demand |
| | Ex |
| Control | 1 and 2 channel |
| 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 | < 70 ms (with U_s when controlled via A1) |
| Typical release time | < 10 ms (when controlled via A1) |
| Recovery time | 500 ms |

Electrical properties

| | |
|---|--|
| Maximum power dissipation for nominal condition | 3.49 W ($I_L^2 = 36 \text{ A}^2$) |
| Nominal operating mode | 100% operating factor |
| Rated insulation voltage | 250 V AC |
| Rated surge voltage/insulation | Basic insulation 4 kV between all current paths and housing |
| | Safe isolation, 6 kV reinforced insulation from the control circuit and confirmation current path to the enabling current path |

Supply

| | |
|--|---|
| Designation | A1/A2 |
| Rated control circuit supply voltage U_s | 19.2 V DC ... 30 V DC |
| Rated control circuit supply voltage U_s | 24 V DC -20 % / +25 % |
| Rated control supply current I_s | typ. 45 mA |
| Power consumption at U_s | typ. 1.08 W |
| Inrush current | typ. 120 mA ($\Delta t < 10 \text{ ms}$ at U_s) |
| Filter time | max. 2 ms (at A1-A2 in the event of voltage dips at U_s) |
| | max. 2 ms (at A1-A2; low test pulse width) |
| | > 30 ms (at A1-A2; low test pulse rate) |
| | max. 2 ms (at A1-A2; high test pulse width) |

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| | |
|--------------------|--|
| | > 1 s (at A1-A2; high test pulse rate) |
| Protective circuit | Serial protection against polarity reversal; 35 V suppressor diode |

Output data

Relay: Enabling current path (13/14)

| | |
|-----------------------------|--|
| Output description | 2 N/O contacts in series, without delay, floating |
| Number of outputs | 1 (safety-related) |
| Contact switching type | 1 enabling current path |
| Contact material | AgSnO ₂ |
| Switching voltage | min. 12 V AC/DC max. 250 V AC/DC |
| Switching power | min. 60 mW |
| Inrush current | min. 3 mA max. 6 A |
| Switching capacity | 4 A (24 V (DC13)) 5 A (250 V (AC15)) |
| Limiting continuous current | 6 A (High demand) 4 A (Low demand) |
| Sq. Total current | 36 A ² (observe derating) |
| Switching frequency | max. 0.1 Hz |
| Mechanical service life | 10x 10 ⁶ cycles |
| Output fuse | 6 A gL/gG 4 A gL/gG (for low-demand applications) |

Relay: Confirmation current path (21/22)

| | |
|-----------------------------|---|
| Output description | 2 N/C contacts in series, without delay, floating |
| Number of outputs | 1 (safety-related) |
| Contact switching type | 1 confirmation current path |
| Contact material | AgCuNi, + Au |
| Switching voltage | min. 5 V DC max. 30 V DC |
| Switching power | min. 20 mW |
| Inrush current | min. 1 mA max. 100 mA |
| Limiting continuous current | 100 mA |
| Switching frequency | max. 0.1 Hz |
| Mechanical service life | 10x 10 ⁶ cycles |
| Output fuse | 150 mA Fast-blow |

Connection data

Connection technology

| | |
|-----------|----|
| pluggable | no |
|-----------|----|

Conductor connection

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| | |
|----------------------------------|---|
| Connection method | Screw connection |
| Conductor cross-section rigid | 0.2 mm ² ... 2.5 mm ² |
| Conductor cross-section flexible | 0.2 mm ² ... 2.5 mm ² |
| Conductor cross-section AWG | 26 ... 12 |
| Stripping length | 12 mm |
| Screw thread | M3 |
| Tightening torque | 0.5 Nm ... 0.6 Nm |

Signaling

| | |
|---------------------------|------------------|
| Status display | 1 x LED (green) |
| Operating voltage display | 1 x LED (yellow) |

Dimensions

| | |
|--------|----------|
| Width | 6.8 mm |
| Height | 93.1 mm |
| Depth | 102.5 mm |

Material specifications

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

Characteristics

Safety data

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

Safety data: EN 50156-2

| | |
|------------------------------|-------------------------|
| Safety Integrity Level (SIL) | 3 (Reference IEC 61508) |
|------------------------------|-------------------------|

Safety data: IEC 61508 - High demand

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

Safety data: IEC 61508 - Low demand

| | |
|------------------------------|---|
| 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) | -40 °C ... 70 °C (observe derating) |
| Ambient temperature (storage/transport) | -40 °C ... 85 °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

ATEX

| | |
|----------------|----------------------------|
| Identification | Ⓜ II 3G Ex ec nC IIC T4 Gc |
| Certificate | UL 22 ATEX 2912X |

IECEX

| | |
|----------------|--------------------|
| Identification | Ex ec nC IIC T4 Gc |
| Certificate | IECEX UL 22.0037X |

UL, USA/Canada

| | |
|----------------|---------|
| Identification | cULus |
| Certificate | E140324 |

UL Ex, USA / Canada

| | |
|----------------|--|
| Identification | Class I, Zone 2, AEx ec nC IIC T4 / Ex ec nC IIC Gc T4 X |
| | Class I, Div. 2, Groups A, B, C, D, T4 |
| Certificate | E360692 |

CE

| | |
|----------------|--------------|
| Identification | CE-compliant |
|----------------|--------------|

Environmental simulation test

| | |
|----------------|------------|
| Identification | G3 |
| Certificate | ISA-S71.04 |

CCC / China-Ex

| | |
|----------------|--------------------|
| Identification | Ex ec nC IIC T4 Gc |
| Certificate | 2022122304115695 |

Mounting

| | |
|-------------------|------------------------|
| Mounting type | DIN rail mounting |
| Assembly note | See derating curve |
| Mounting position | vertical or horizontal |

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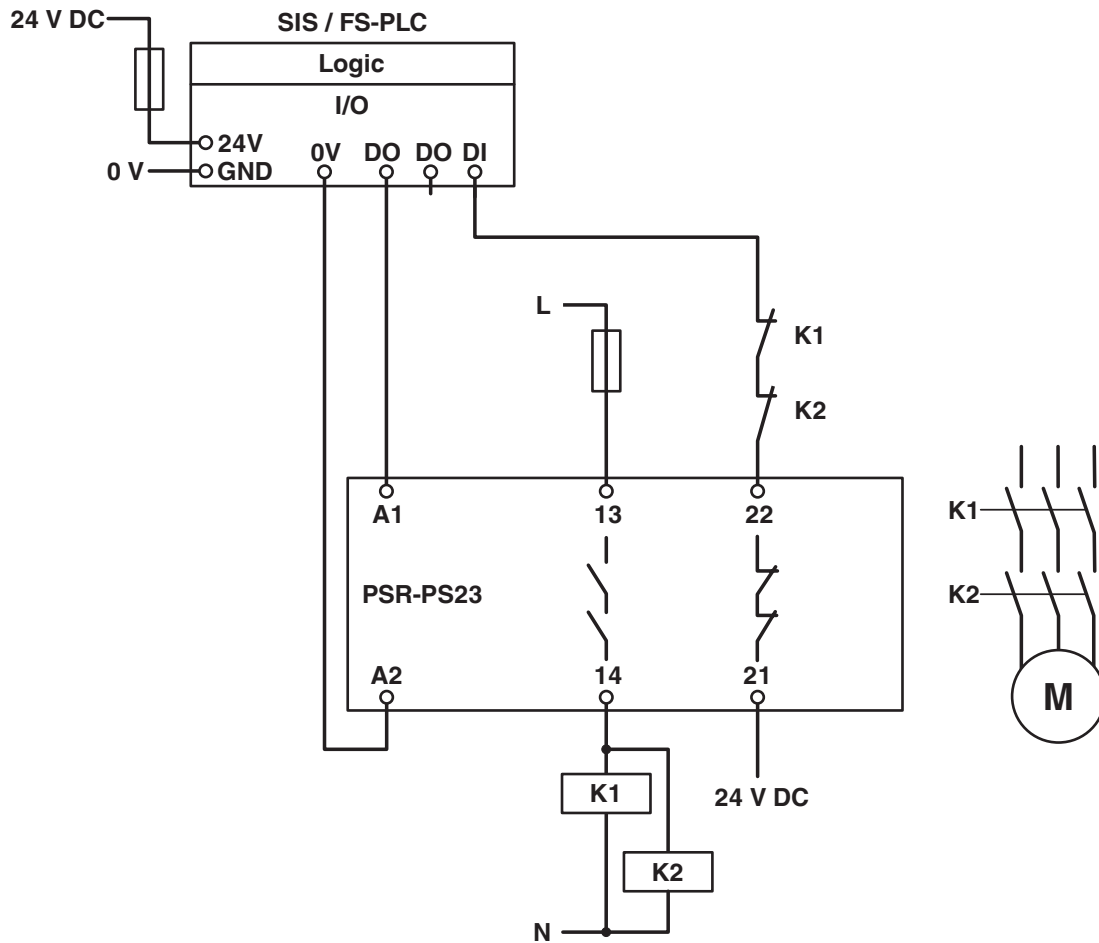


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Drawings

Circuit diagram



Example application

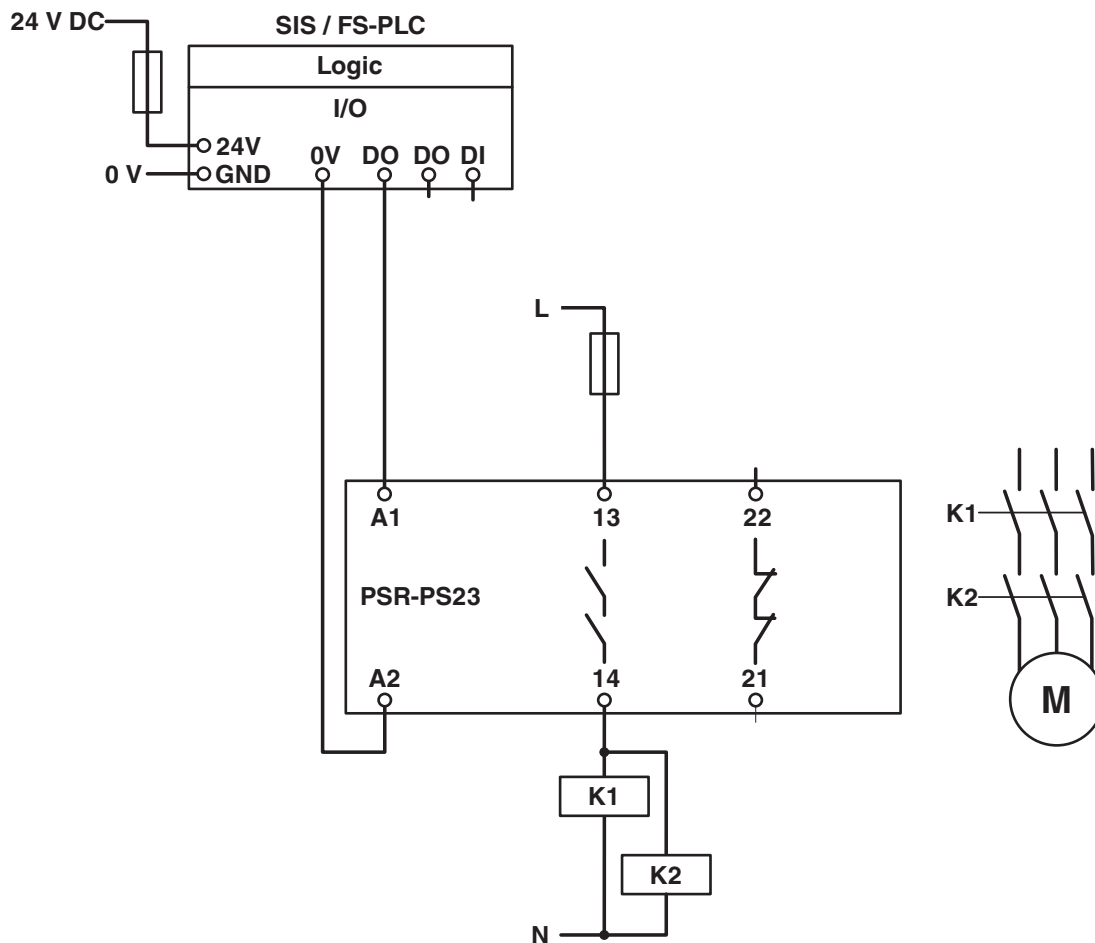
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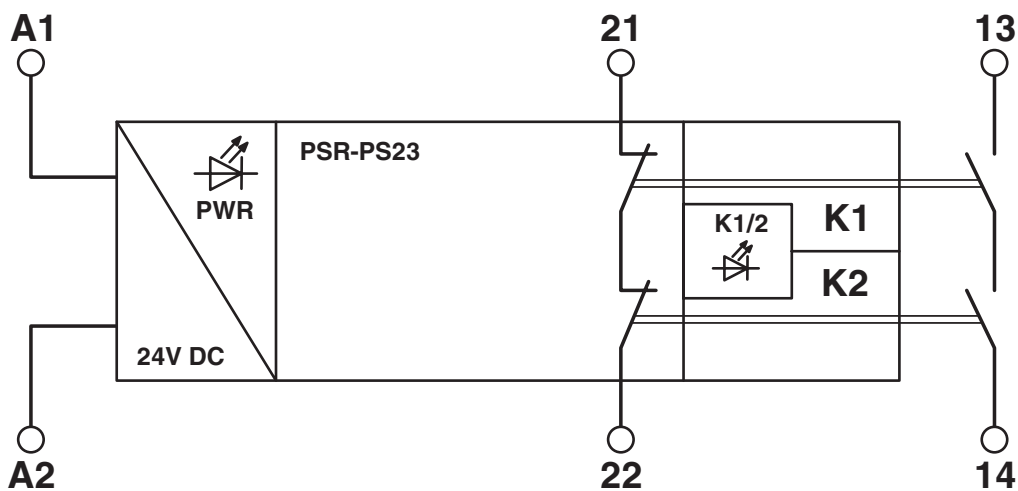
<https://www.phoenixcontact.com/us/products/2702663>

Circuit diagram



Example application

Block diagram



Block diagram

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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2702663>



Functional Safety

Approval ID: 44 780 15124307



cULus Listed

Approval ID: E140324



IECEX

Approval ID: IECEX ULD 22.0037X



ATEX

Approval ID: UL 22 ATEX 2912X



cULus Listed

Approval ID: E360692



CCC

Approval ID: 2022122304115695

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Classifications

ECLASS

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

ETIM

| | |
|-----------|----------|
| ETIM 10.0 | EC001449 |
|-----------|----------|

UNSPSC

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

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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 | 9992fd73-714a-4a39-bf9e-3b269187e7e2 |

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