

PSR-PC50-1NO-1DO-24DC-SP - Coupling relay



2904665

<https://www.phoenixcontact.com/us/products/2904665>

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The figure shows a version with a screw connection

Coupling relay for SIL 3 low-demand applications, couples digital output signals to the I/O, 1 enabling current path, module for F&G applications, test pulse filter, width: 17.5 mm, pluggable Push-in terminal block

Your advantages

- Up to SIL 3 in accordance with IEC 61508
- Easy proof test according to IEC 61508 thanks to integrated signal contact
- Installation in zone 2 permitted
- Couples digital output signals from failsafe controllers to I/O devices (valves, etc.) for electrical isolation and power adaptation

Commercial data

| | |
|--------------------------------------|---------------|
| Item number | 2904665 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | DN01 |
| Product key | DNA182 |
| GTIN | 4046356919920 |
| Weight per piece (including packing) | 221.2 g |
| Weight per piece (excluding packing) | 212.4 g |
| Customs tariff number | 85364900 |
| Country of origin | DE |

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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 on Low demand Ex |
| Environment | IP 54 |
| Control | 1-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 | 30 ms (when controlled via A1) |
| Typical release time | 30 ms (when controlled via A1) |
| Recovery time | 1 s |

Electrical properties

| | |
|---|--|
| Maximum power dissipation for nominal condition | 1.56 W |
| Nominal operating mode | 100% operating factor |
| Rated insulation voltage | 250 V AC |
| Rated surge voltage/insulation | 6 kV/safe isolation (through protective impedance) |

Supply

| | |
|--|--|
| Designation | A1/A2 (A1'/A2') |
| Rated control circuit supply voltage U_s | 20.4 V DC ... 26.4 V DC |
| Rated control circuit supply voltage U_s | 24 V DC -15 % / +10 % |
| Rated control supply current I_s | typ. 65 mA |
| Inrush current | ≤ 200 mA |
| Filter time | < 2 ms (Test pulse duration) ≥ 100 ms (Test pulse rate) |
| Protective circuit | Overload protection; Suppressor diode |

Supply

| | |
|---------------------------------|-----------------------|
| Designation | 24V/A2 |
| Diagnostic supply voltage U_D | 24 V DC -15 % / +10 % |

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| | |
|-------------------------|---|
| Input current at U_D | typ. 15 mA (24V/A2; depending on load M1 +100 mA) |
| Inrush current at U_D | 2.5 A (24V/A2; for 10 μ s) |
| Protective circuit | Overload protection; Suppressor diode |

Input data

Digital: Test points for proof test (T1, T2, T3)

| | |
|---------------------|----------------------------------|
| Number of inputs | 3 |
| Inrush current | 200 mA (Inputs TP1, TP2 and TP3) |
| Current consumption | typ. 20 mA (Input TP1) |
| | typ. 18 mA (Input TP2) |
| | typ. 35 mA (Input TP3) |

Output data

Relay: Enabling current path (L-LO-NI-N / L'-LO'-NI'-N')

| | |
|---|---|
| Output description | safety-related N/O contacts |
| Number of outputs | 1 (undelayed) |
| Contact switching type | 1 enabling current path |
| Contact material | AgNi, gold-flashed |
| Switching voltage | min. 15 V AC/DC (without diagnostics) |
| | min. 20 V AC/DC (with diagnostics) |
| | max. 250 V AC |
| | max. 125 V DC |
| Switching power | min. 1.5 W |
| Inrush current | min. 100 mA |
| | max. 5 A |
| Max. permissible overall conductor resistance | < 10 Ω (Max. line resistance in the event of a short circuit of the load between LO and NI (or LO' and NI')) |
| Limiting continuous current | 5 A |
| Switching frequency | max. 0.5 Hz |
| Diagnostic threshold | 20 Ω ... 18 k Ω (lower/upper) |
| Mechanical service life | approx. 5×10^7 cycles |

Signal: M1

| | |
|--------------------------|--------------------|
| Output description | non-safety-related |
| Number of outputs | 1 (digital) |
| Voltage | 23 V DC |
| Current | max. 100 mA |
| Short-circuit protection | no |
| Output fuse | 150 mA fast blow |

Connection data

Connection technology

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

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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 |

Signaling

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

Dimensions

| | |
|--------|----------|
| Width | 17.5 mm |
| Height | 117.4 mm |
| Depth | 114.5 mm |

Material specifications

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

Characteristics

Safety data: IEC 61508 - Low demand

| | |
|------------------------------|-----------------------|
| Safety Integrity Level (SIL) | 3 (15 % of total SIL) |
|------------------------------|-----------------------|

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 ... 65 °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) | 2g |

Approvals

ATEX

| | |
|----------------|----------------------------|
| Identification | Ⓜ II 3G Ex ec nC IIC T4 Gc |
|----------------|----------------------------|

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

DNV

| | |
|----------------|-------------|
| Identification | C, EMC2 |
| Certificate | 11253-14 HH |

Mounting

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

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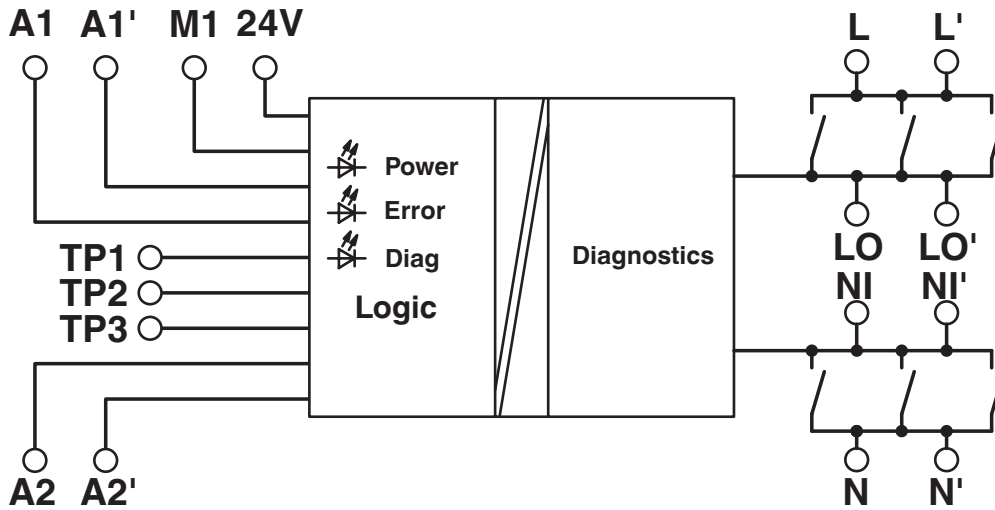


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Drawings

Block diagram



Block diagram

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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2904665>



DNV GL

Approval ID: TAA00002VZ



cULus Listed

Approval ID: E140324



Functional Safety

Approval ID: 968_FSP_1011_03_25



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 | 39122200 |
|-------------|----------|

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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 | e290d4ea-d549-4e8a-a18e-568b46b2bf05 |

EF3.1 Climate Change

| | |
|---------|---------------|
| CO2e kg | 4.795 kg CO2e |
|---------|---------------|

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