

# PSR-PC52-1NO-1NC-24DC-SP - Coupling relay



1017064

<https://www.phoenixcontact.com/us/products/1017064>

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Coupling relay for electrical isolation and power adaptation for SIL 3 F&G applications, low demand, load diagnostics in the Off and On state for wire break and short circuit, 1 enabling current path, test pulse filter, plug-in Push-in terminal block, width: 17.5 mm

## Your advantages

- Earth leakage monitoring
- Suitable for low-demand applications up to SIL 3 in accordance with IEC 61508, IEC 61511, and EN 50156
- Configurable Off and On state diagnostics
- Active error acknowledgment via A1 at DO
- Integrated DCS test pulse filter
- 1 enabling current path, 1 signaling current path

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 1017064       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | DN01          |
| Product key                          | DNA182        |
| GTIN                                 | 4055626674032 |
| Weight per piece (including packing) | 245.2 g       |
| Weight per piece (excluding packing) | 244.5 g       |
| Customs tariff number                | 85364190      |
| 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 on          |
|                | Low demand              |
|                | Ex                      |
| Control        | 1 and 2 channel         |
| Relay type     | Electromechanical relay |

#### Insulation characteristics

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

#### Times

|                               |  |
|-------------------------------|--|
| Typ. starting time with $U_S$ | typ. 100 ms (when controlled via A1-A2)                        |
| Typical release time          | typ. 30 ms (when controlled via A1-A2)                         |
| Recovery time                 | 1 s (when controlled via A1-A2)                                |
|                               | 3 s (Availability time for diagnostics after $U_D$ is applied) |

### Electrical properties

|   |  |
|---|--|
| Maximum power dissipation for nominal condition | 3.8 W (at $U_B = 26.4$ V DC, $U_{BD} = 26.4$ V DC, $I_L = 3$ A)  |
| 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 (A1/A2, 24V/0V, 21/22, and TP1/TP2/TP3) to the enabling current path (L, L', LO, LO', NI, NI', N,N') |

#### Supply

|  |  |
|--|--|
| Designation                                | A1/A2  |
| Rated control circuit supply voltage $U_S$ | 24 V DC -15 % / +10 %                                  |
| Rated control supply current $I_S$         | typ. 75 mA   |
| Power consumption at $U_S$                 | typ. 2 W (at $U_S/U_D$ ; On state)                     |
| Inrush current                             | max. 100 mA  |
| Filter time                                | 2 ms (at A1-A2 in the event of voltage dips at $U_S$ ) |
|  | max. 2 ms (at A1-A2; low test pulse width)             |
|  | $\geq 100$ ms (at A1-A2; low test pulse rate)          |
|  | max. 17 ms (at A1-A2; high test pulse width)           |
|  | $\geq 800$ ms (at A1-A2; high test pulse rate)         |

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|                                 |   |
|---------------------------------|---|
| Protective circuit              | Surge protection; 36 V suppressor diode |
|                                 | Reverse polarity protection             |
| Supply                          |   |
| Designation                     | 24V/0V                                  |
| Diagnostic supply voltage $U_D$ | 24 V DC -20 % / +25 %                   |
| Input current at $U_D$          | 35 mA (at $U_D = 24$ V)                 |
|                                 | 45 mA (at $U_D = 19$ V)                 |
|                                 | 25 mA (at $U_D = 30$ V)                 |
| Inrush current at $U_D$         | 1.5 A ( $\Delta t < 10$ $\mu$ s)        |
| Power consumption at $U_D$      | typ. 0.9 W (at $U_D$ ; Off state)       |
| Protective circuit              | Surge protection; 33 V suppressor diode |
|                                 | Reverse polarity protection             |

## Input data

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

|                     |   |
|---------------------|---|
| Number of inputs    | 3                                       |
| Inrush current      | typ. 200 mA                             |
| Protective circuit  | Surge protection; 36 V suppressor diode |
| Current consumption | typ. 20 mA (Input TP1)                  |
|                     | typ. 20 mA (Input TP2)                  |
|                     | typ. 30 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, Ag alloy                           |
| Switching voltage           | min. 16 V AC/DC  |
|                             | max. 250 V AC  |
|                             | max. 125 V DC  |
| Switching power             | min. 1 W   |
| Inrush current              | min. 50 mA   |
|                             | max. 5 A ( $\Delta t \leq \text{⌒}$ s)                 |
| Limiting continuous current | 3 A (Observe derating, load type, and on-load voltage) |
| Sq. Total current           | 9 A <sup>2</sup> (observe derating)                    |
| Switching frequency         | max. 0.5 Hz  |
| Mechanical service life     | approx. $5 \times 10^7$ cycles                         |

Relay: Signaling current path (21/22)

|                        |                                |
|------------------------|--------------------------------|
| Output description     | non-safety-related N/C contact |
| Number of outputs      | 1 (without delay, floating)    |
| Contact switching type | 1 signaling current path       |

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|                          |   |
|--------------------------|---|
| Switching current        | max. 100 mA   |
| Inrush current           | ≤ 800 mA ( $\Delta t \leq \text{[Symbol]} \text{ ms}$ ) |
| Short-circuit protection | no  |

## Connection data

### Connection technology

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

### Conductor connection

|   |  |
|---|--|
| Connection method   | Push-in connection   |
| Conductor cross-section rigid   | 0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>                                  |
| Conductor cross-section flexible  | 0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>                                  |
| Conductor cross-section, flexible, with ferrule, with plastic sleeve    | 0.25 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> (only together with CRIMPFOX 6) |
| Conductor cross-section, flexible, with ferrule, without plastic sleeve | 0.25 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> (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 | Frianyl A63 RV0   |

## Characteristics

### Safety data: EN 50156-2

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

### 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)             | -25 °C ... 60 °C (observe derating) |

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|  |   |
|--|---|
| 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, 11 ms  |
| Vibration (operation)                          | 10 Hz ... 150 Hz, 2g                                |
| Air pressure (operation)                       | 79 kPa ... 106 kPa                                  |
| Air pressure (storage/transport)               | 79 kPa ... 106 kPa                                  |

## Approvals

### ATEX

|                |                            |
|----------------|----------------------------|
| Identification | Ⓜ II 3G Ex ec nC IIC T4 Gc |
| Certificate    | DEMKO 19 ATEX 2240X        |

### IECEX

|                |                    |
|----------------|--------------------|
| Identification | Ex ec nC IIC T4 Gc |
| Certificate    | IECEX ULD 19.0023X |

### 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<br>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    | 2022122304115696   |

## Mounting

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

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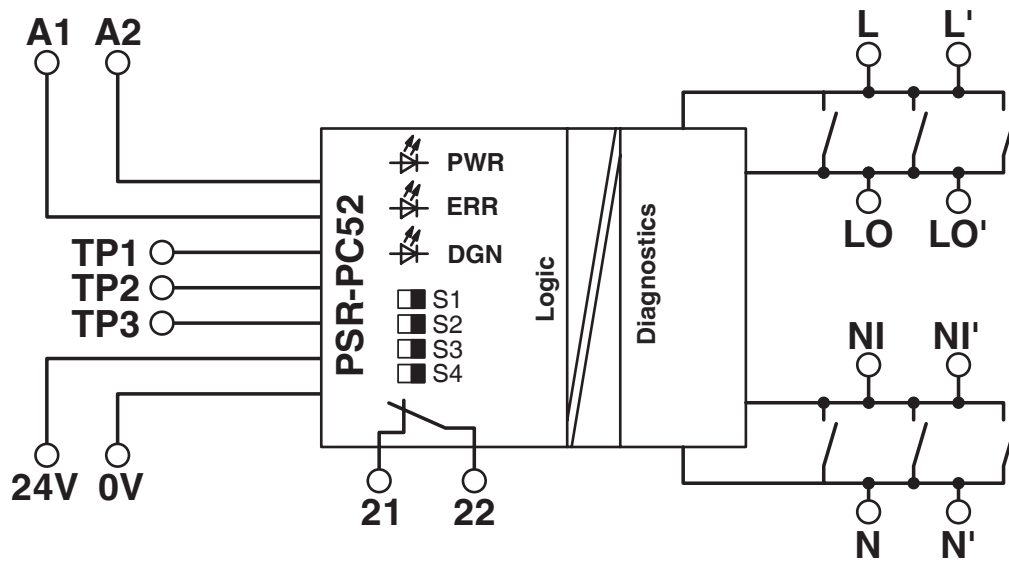


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## Drawings

Block diagram



Block diagram

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1017064>



**cULus Listed**

Approval ID: E140324



**Functional Safety**

Approval ID: 968/FSP 1486.02/22



**IECEx**

Approval ID: IECEx ULD 19.0023X



**ATEX**

Approval ID: DEMKO 19 ATEX 2240X



**cULus Listed**

Approval ID: E360692



**CCC**

Approval ID: 2022122304115696

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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                                | 118daeb7-8af5-4fe7-9f3a-62daa1a4b725 |

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