

## Coupling relay - PSR-PC32-2NO-1NC-24-230UC-SP - 2700582

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Coupling relay for SIL 3 high and low-demand applications, couples digital signals to the I/O, 24 V ... 230 V wide-range input, 2 enabling current paths (1x up to 60 V, 1x up to 250 V) 1 confirmation current path, safe state off applications, pluggable Push-in terminal block

The figure shows a version with a screw connection

### Your advantages

- ✓ Up to SIL 3 according to IEC 61508
- ✓ Forcibly guided contacts according to EN 50205
- ✓ Easy proof test according to IEC 61508
- ✓ Slim design
- ✓ Wide-range input
- ✓ Time saving push-in connection, tools not required
- ✓ Potentials can be easily looped through – ideal for BUS applications
- ✓ Intuitive use through colour coded actuation lever
- ✓ Can be combined with the MSTB 2,5 range
- ✓ Quick and convenient testing using integrated test option



### Key Commercial Data

|                                      |                                                                                                         |
|--------------------------------------|---------------------------------------------------------------------------------------------------------|
| Packing unit                         | 1 pc                                                                                                    |
| GTIN                                 | <br>4 046356 916370 |
| GTIN                                 | 4046356916370                                                                                           |
| Weight per Piece (excluding packing) | 226.500 g                                                                                               |
| Custom tariff number                 | 85364900                                                                                                |
| Country of origin                    | Germany                                                                                                 |

### Technical data

Note

# Coupling relay - PSR-PC32-2NO-1NC-24-230UC-SP - 2700582

## Technical data

### Note

|                         |                                                                           |
|-------------------------|---------------------------------------------------------------------------|
| Utilization restriction | EMC: class A product, see manufacturer's declaration in the download area |
|-------------------------|---------------------------------------------------------------------------|

### Dimensions

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

### Ambient conditions

|                                                |                                                     |
|------------------------------------------------|-----------------------------------------------------|
| Ambient temperature (operation)                | -40 °C ... 70 °C (observe derating)                 |
| Ambient temperature (storage/transport)        | -40 °C ... 85 °C                                    |
| Max. permissible relative humidity (operation) | 75 % (on average, 85% infrequently, non-condensing) |
| Max. permissible humidity (storage/transport)  | 75 % (on average, 85% infrequently, non-condensing) |
| Maximum altitude                               | ≤ 2000 m (Above sea level)                          |

### Power supply

|                                            |                                                            |
|--------------------------------------------|------------------------------------------------------------|
| Rated control circuit supply voltage $U_s$ | 24 V AC/DC ... 230 V AC/DC -15 % ... +10 %                 |
| Rated control supply current $I_s$         | 75 mA (24 V DC)                                            |
|                                            | 34 mA (48 V DC)                                            |
|                                            | 97 mA (42 V AC)                                            |
|                                            | 28 mA (120 V AC)                                           |
|                                            | 16 mA (230 V AC)                                           |
| Power consumption at $U_s$                 | 1.8 W (with DC)                                            |
|                                            | 2.1 W (with AC)                                            |
| Apparent power                             | typ. 4.1 VA                                                |
| Inrush current                             | typ. 16 A ( $\Delta t < 100 \mu s$ at $U_s$ )              |
|                                            | < 5 mA (at terminal blocks 24V/GND at $U_D$ )              |
| Filter time                                | 10 ms (24 V DC, A1 in the event of voltage dips at $U_s$ ) |
|                                            | max. 1.5 ms (at A1-A2; test pulse width; at 24 V DC)       |
|                                            | 7.5 ms (at A1-A2; test pulse rate; at 24 V DC)             |
|                                            | Test pulse rate = 5 x Test pulse width                     |
| Diagnostic supply voltage $U_D$            | 24 V DC -15 % / +10 %                                      |
| Input current at $U_D$                     | < 5 mA (at terminal blocks 24V/GND at $U_D$ )              |
| Protective circuit                         | $U_s$ : surge protection Varistor 275 V                    |
|                                            | $U_D$ : surge protection 33 V suppressor diode             |
|                                            | $U_D$ : Polarity protection                                |

### Relay outputs: enabling current path

|                    |                             |
|--------------------|-----------------------------|
| Output name        | Enabling current path       |
| Output description | safety-related N/O contacts |
| Number of outputs  | 2 (undelayed)               |
| Contact type       | 2 enabling current paths    |
| Contact material   | AgSnO <sub>2</sub>          |

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## Technical data

### Relay outputs: enabling current path

|                                   |                                                  |
|-----------------------------------|--------------------------------------------------|
| Switching voltage                 | min. 12 V AC/DC                                  |
|                                   | max. 250 V AC/DC (13/14, observe the load curve) |
|                                   | max. 60 V AC/DC (93/94, observe the load curve)  |
| Limiting continuous current       | 6 A (observe derating)                           |
| Inrush current                    | min. 3 mA                                        |
|                                   | max. 6 A                                         |
| Sq. Total current                 | 72 A <sup>2</sup> (observe derating)             |
| Switching capacity                | min. 60 mW                                       |
| Switching frequency               | max. 1 Hz                                        |
| Mechanical service life           | 10x 10 <sup>6</sup> cycles                       |
| Switching capacity (360/h cycles) | 4 A (24 V (DC13))                                |
|                                   | 5 A (230 V (AC 15))                              |
| Output fuse                       | 6 A gL/gG                                        |
|                                   | 4 A gL/gG (for low-demand applications)          |

### Relay outputs: return current/signaling current path

|                             |                             |
|-----------------------------|-----------------------------|
| Output name                 | Confirmation current path   |
| Output description          | Safety-related N/C contacts |
| Number of outputs           | 1 (undelayed)               |
| Contact type                | 1 confirmation current path |
| Contact material            | AgCuNi, + Au                |
| Switching voltage           | min. 3.3 V AC/DC            |
|                             | max. 26.4 V DC              |
| Limiting continuous current | 100 mA                      |
| Inrush current              | min. 1 mA                   |
|                             | max. 100 mA                 |
| Switching capacity          | min. 3.3 mW                 |
| Output fuse                 | 150 mA fast blow            |

## Times

|                             |                                                       |
|-----------------------------|-------------------------------------------------------|
| Typical response time at US | < 100 ms (with U <sub>s</sub> when controlled via A1) |
| Typical release time at US  | < 200 ms (with U <sub>s</sub> when controlled via A1) |
| Recovery time               | < 500 ms                                              |

## General

|                        |                                                                                                    |
|------------------------|----------------------------------------------------------------------------------------------------|
| Relay type             | Electromechanical relay with forcibly guided contacts in accordance with IEC/EN 61810-3 (EN 50205) |
| Nominal operating mode | 100% operating factor                                                                              |
| Net weight             | 226.5 g                                                                                            |
| Mounting position      | vertical or horizontal                                                                             |
| Mounting type          | DIN rail mounting                                                                                  |
| Assembly instructions  | See derating curve                                                                                 |

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## Technical data

### General

|                                             |                               |
|---------------------------------------------|-------------------------------|
| Degree of protection                        | IP20                          |
| Min. degree of protection of inst. location | IP54                          |
| Housing material                            | PBT                           |
| Housing color                               | yellow                        |
| Operating voltage display                   | 1 x yellow LED                |
| Status display                              | 1 x green LED, 1 x yellow LED |

### Connection capacity

|                                                                       |                                                      |
|-----------------------------------------------------------------------|------------------------------------------------------|
| Connection method                                                     | Push-in spring connection                            |
| pluggable                                                             | Yes                                                  |
| Conductor cross section solid                                         | 0.2 mm² ... 1.5 mm²                                  |
| Conductor cross section flexible                                      | 0.2 mm² ... 1.5 mm²                                  |
| Conductor cross section AWG / kcmil                                   | 24 ... 16                                            |
| Conductor cross section flexible, with ferrule without plastic sleeve | 0.25 mm² ... 1.5 mm² (only together with CRIMPFOX 6) |
| Conductor cross section, flexible, with ferrule, with plastic sleeve  | 0.25 mm² ... 1.5 mm² (only together with CRIMPFOX 6) |
| Stripping length                                                      | 8 mm                                                 |

### Safety-related characteristic data

|                              |                              |
|------------------------------|------------------------------|
| Stop category                | 0                            |
| Designation                  | IEC 61508 - High demand      |
| Safety Integrity Level (SIL) | 3 (< 15% of the overall SIL) |
| Designation                  | IEC 61508 - Low demand       |
| Safety Integrity Level (SIL) | 3 (< 15% of the overall SIL) |
| Designation                  | EN 50156-2                   |
| Safety Integrity Level (SIL) | 3 (Reference IEC 61508)      |

### Standards and Regulations

|                                |                                                                                                                                                               |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Designation                    | Air clearances and creepage distances between the power circuits                                                                                              |
| Standards/regulations          | DIN EN 50178, EN 60079-15                                                                                                                                     |
| Rated insulation voltage       | 250 V AC                                                                                                                                                      |
| Rated surge voltage/insulation | Basic insulation 4 kV between all current paths and housing                                                                                                   |
|                                | Safe isolation, reinforced insulation 2.5 kV between (93/94) and (31/32, 24V/GND)                                                                             |
|                                | Safe isolation, reinforced insulation 6 kV:<br>between (A1/A2) and (13/14) and (31/32, 24V/GND)<br>between (A1/A2) and (93/94)<br>between (13/14) and (93/94) |
| Degree of pollution            | 2                                                                                                                                                             |
| Overvoltage category           | III                                                                                                                                                           |
| Shock                          | 15g                                                                                                                                                           |
| Vibration (operation)          | 10 Hz ... 150 Hz, 2g                                                                                                                                          |
| Conformance                    | CE-compliant                                                                                                                                                  |
| ATEX                           | # II 3 G Ex nA nC IIC T4 Gc                                                                                                                                   |
| IECEX                          | Ex nA nC IIC T4 Gc                                                                                                                                            |

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### Technical data

#### Standards and Regulations

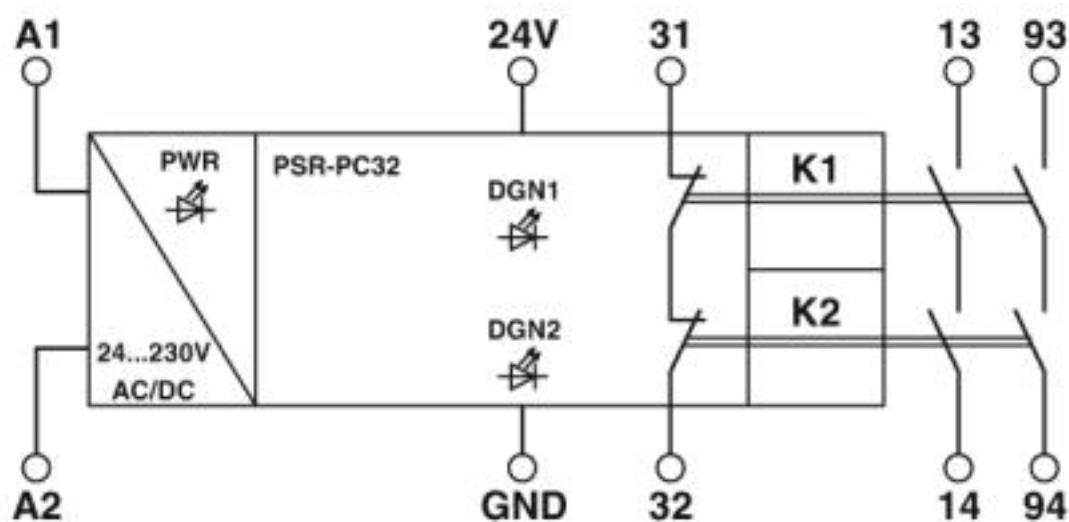
|                               |                                                          |
|-------------------------------|----------------------------------------------------------|
| UL, USA/Canada                | cULus                                                    |
|                               | Class I, Zone 2, AEx nA nC IIC T4 / Ex nA nC IIC Gc T4 X |
|                               | Class I, Div. 2, Groups A, B, C, D, T4                   |
| Environmental simulation test | ISA-S71.04 (G3)                                          |

#### Environmental Product Compliance

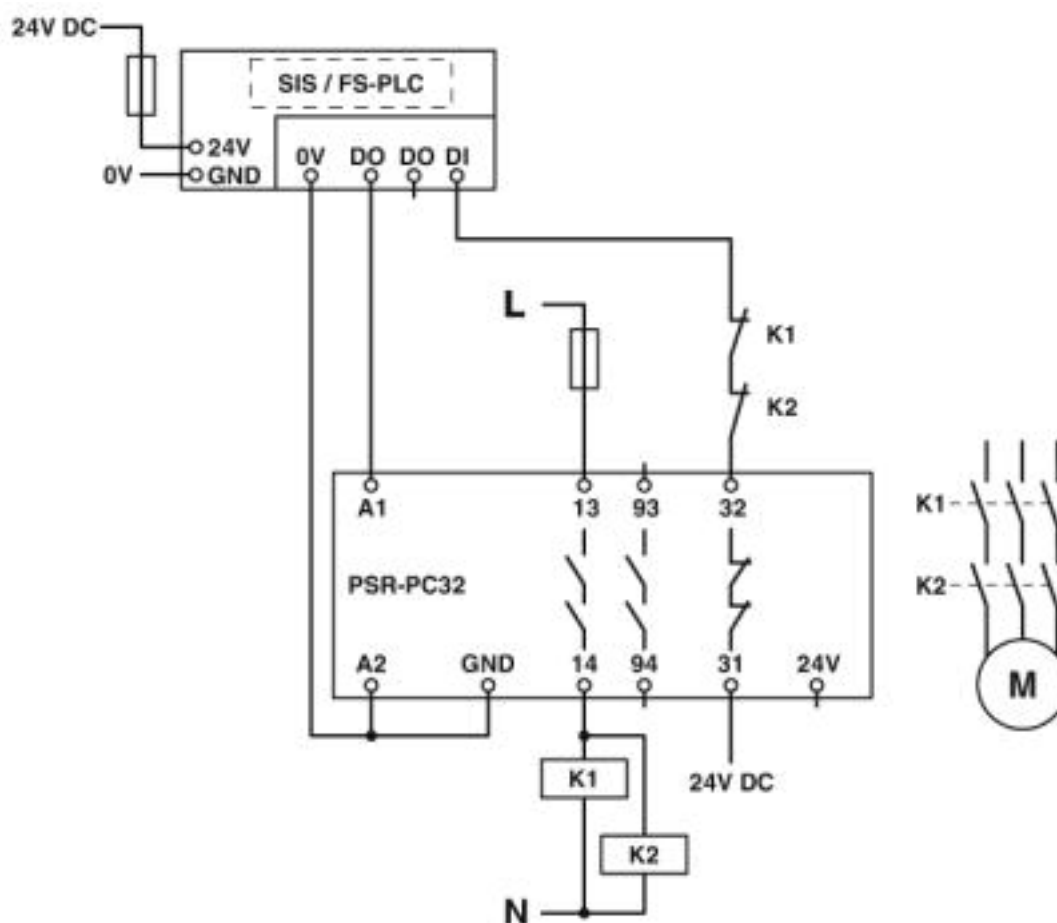
|            |                                                                                                     |
|------------|-----------------------------------------------------------------------------------------------------|
| REACH SVHC | Lead 7439-92-1                                                                                      |
| China RoHS | Environmentally Friendly Use Period = 50                                                            |
|            | For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration" |

### Drawings

Block diagram



### Circuit diagram



eCl@ss

|            |          |
|------------|----------|
| eCl@ss 4.0 | 40020600 |
| eCl@ss 4.1 | 40020600 |
| eCl@ss 5.0 | 27371900 |
| eCl@ss 5.1 | 27371900 |
| eCl@ss 6.0 | 27371800 |
| eCl@ss 7.0 | 27371819 |
| eCl@ss 8.0 | 27371819 |
| eCl@ss 9.0 | 27371819 |

|          |          |
|----------|----------|
| ETIM 5.0 | EC001449 |
| ETIM 6.0 | EC001449 |
| ETIM 7.0 | EC001449 |

## Coupling relay - PSR-PC32-2NO-1NC-24-230UC-SP - 2700582

### Approvals

#### Approvals

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#### Approvals

UL Listed / cUL Listed / Functional Safety / cULus Listed

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#### Ex Approvals

UL Listed / cUL Listed / cULus Listed

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#### Approval details

UL Listed



<http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm>

FILE E 140324

cUL Listed



<http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm>

FILE E 140324

Functional Safety



44-780-15124308

cULus Listed

