

# PSR-SCP- 24DC/ESD/4X1/30 - Safety relays



2981800

<https://www.phoenixcontact.com/us/products/2981800>

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Safety relay for emergency stop and safety door monitoring up to SIL 3 or Cat. 4, PL e in accordance with EN ISO 13849, automatic or manual activation, 2 N/O contacts with a dropout delay of 0.1 s ... 30 s, plug-in screw connection terminal block

## Your advantages

- Maximum of 3 undelayed and 2 dropout delay contacts
- Manually monitored and automatic activation
- Up to Cat. 3/4 and PL d/e in accordance with EN ISO 13849-1, SIL 3 in accordance with EN IEC 62061, SIL 3 in accordance with IEC 61508
- For emergency stop and safety door monitoring, plus evaluation of light grids
- 1- and 2-channel control
- Protective labels to prevent manipulation of the set time (PSR-ESD-300) or electronic protection against manipulation (PSR-ESD-30)
- Fixed delay times of 0.1 s ... 300 s

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 2981800       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | DN01          |
| Product key                          | DNA131        |
| GTIN                                 | 4046356117968 |
| Weight per piece (including packing) | 229.3 g       |
| Weight per piece (excluding packing) | 198.9 g       |
| Customs tariff number                | 85371098      |
| Country of origin                    | DE            |

## Technical data

### Notes

#### Note on application

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

### Product properties

|                         |                                                                                      |
|-------------------------|--------------------------------------------------------------------------------------|
| Product type            | Safety relays                                                                        |
| Product family          | PSRclassic                                                                           |
| Application             | Emergency stop                                                                       |
|                         | Safety door                                                                          |
|                         | Light grid                                                                           |
| Set comprises           | 1217839 PSR-SCP-24DC/ESD/4X1/30-SET35                                                |
| Control                 | 1 and 2 channel                                                                      |
| Mechanical service life | approx. 10 <sup>7</sup> cycles                                                       |
| Relay type              | Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3 |

#### Insulation characteristics

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

#### Times

|                       |                                          |
|-----------------------|------------------------------------------|
| Typical response time | 150 ms (Monitored/manual and auto-start) |
| Typical release time  | 20 ms (Undelayed contacts)               |
|                       | 100 ms (delayed contacts)                |
| Delay time range      | 0.1 s ... 30 s ±30 % (adjustable)        |
| Recovery time         | 330 ms (Restart)                         |
|                       | 1 s (Electric torque)                    |

### Electrical properties

|                                                 |                         |
|-------------------------------------------------|-------------------------|
| Maximum power dissipation for nominal condition | 1.8 W                   |
| Nominal operating mode                          | 100% operating factor   |
| Rated insulation voltage                        | 250 V                   |
| Rated surge voltage/insulation                  | 4 kV / basic insulation |

#### Supply

|                                                     |             |
|-----------------------------------------------------|-------------|
| Rated control circuit supply voltage U <sub>S</sub> | 24 V DC     |
| Inrush current                                      | typ. 250 mA |

### Input data

#### General

|                                                    |              |
|----------------------------------------------------|--------------|
| Nominal input voltage U <sub>N</sub>               | 24 V DC      |
| Input voltage range in reference to U <sub>N</sub> | 0.85 ... 1.1 |

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|                                               |                                                  |
|-----------------------------------------------|--------------------------------------------------|
| Typical input current at $U_N$                | 75 mA DC                                         |
| Voltage at input/start and feedback circuit   | approx. 24 V DC                                  |
| Typical response time                         | 150 ms (Monitored/manual and auto-start)         |
| Typical release time                          | 20 ms (Undelayed contacts)                       |
|                                               | 100 ms (delayed contacts)                        |
| Typical release time range                    | 0.1 s ... 30 s                                   |
| Recovery time                                 | 330 ms (Restart)                                 |
|                                               | 1 s (Electric torque)                            |
| Protective circuit                            | Suppressor diode, 33 V DC                        |
| Max. permissible overall conductor resistance | 500 $\Omega$ (Input and reset circuit at $U_N$ ) |
| Operating voltage display                     | Green LED                                        |
| Status display                                | LED K1/K2 and K3(t)/K4(t), green                 |

## Output data

|                                              |                                      |
|----------------------------------------------|--------------------------------------|
| Contact switching type                       | 4 enabling current paths             |
| Contact material                             | AgSnO <sub>2</sub>                   |
| Maximum switching voltage                    | 250 V AC/DC                          |
| Minimum switching voltage                    | 15 V AC/DC                           |
| Limiting continuous current                  | 6 A (N/O contact)                    |
| Maximum inrush current                       | 6 A                                  |
| Inrush current, minimum                      | 25 mA                                |
| Sq. Total current                            | 120 A <sup>2</sup> (see to derating) |
| Interrupting rating (ohmic load) max.        | 144 W (24 V DC, $\tau = 0$ ms)       |
|                                              | 288 W (48 V DC, $\tau = 0$ ms)       |
|                                              | 90 W (110 V DC, $\tau = 0$ ms)       |
|                                              | 88 W (220 V DC, $\tau = 0$ ms)       |
|                                              | 1500 VA (250 V AC, $\tau = 0$ ms)    |
| Maximum interrupting rating (inductive load) | 42 W (24 V DC, $\tau = 40$ ms)       |
|                                              | 33 W (48 V DC, $\tau = 40$ ms)       |
|                                              | 25 W (110 V DC, $\tau = 40$ ms)      |
|                                              | 23 W (220 V DC, $\tau = 40$ ms)      |
| Switching capacity min.                      | 0.4 W                                |
| Switching capacity (360/h cycles)            | on request                           |
| Switching capacity (3600/h cycles)           | 3 A (24 V (DC13))                    |
|                                              | 3 A (230 V (AC15))                   |
| Output fuse                                  | 10 A gL/gG NEOZED (N/O contact)      |

## Connection data

### Connection technology

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

### Conductor connection

|                               |                                             |
|-------------------------------|---------------------------------------------|
| Connection method             | Screw connection                            |
| Conductor cross-section rigid | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> |

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|                                  |                     |
|----------------------------------|---------------------|
| Conductor cross-section flexible | 0.2 mm² ... 2.5 mm² |
| Conductor cross-section AWG      | 24 ... 12           |
| Stripping length                 | 7 mm                |
| Screw thread                     | M3                  |

## Dimensions

|        |          |
|--------|----------|
| Width  | 22.5 mm  |
| Height | 99 mm    |
| Depth  | 114.5 mm |

## Material specifications

|                  |    |
|------------------|----|
| Housing material | PA |
|------------------|----|

## Characteristics

### Safety data

|               |   |
|---------------|---|
| Stop category | 0 |
|               | 1 |

### Safety data: EN ISO 13849

|                        |   |
|------------------------|---|
| Category               | 4 |
| Performance level (PL) | e |

### Safety data

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

### Safety data: EN IEC 62061

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

## Environmental and real-life conditions

### Ambient conditions

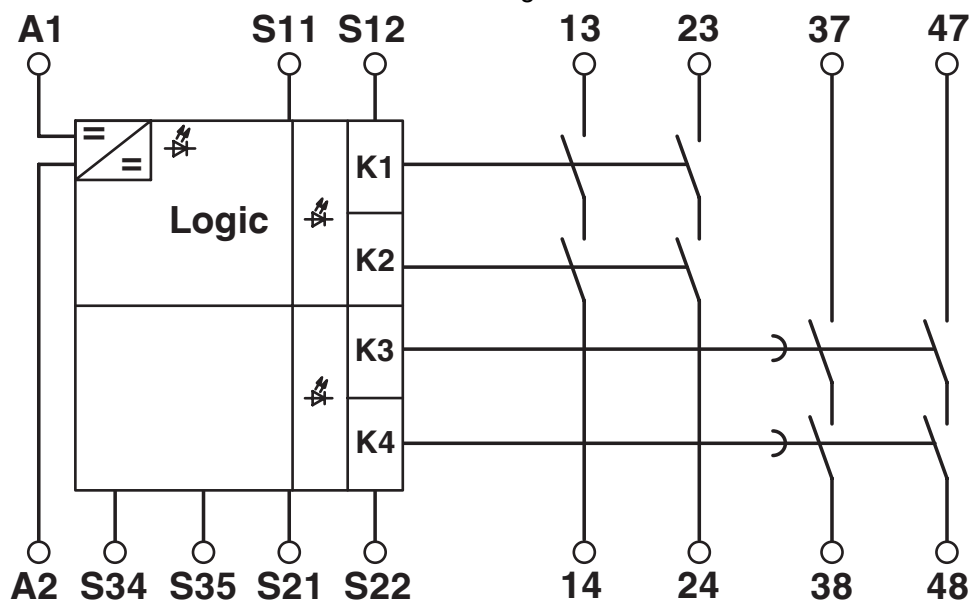
|                                                |                                                     |
|------------------------------------------------|-----------------------------------------------------|
| Degree of protection                           | IP20                                                |
| Min. degree of protection of inst. location    | IP54                                                |
| Ambient temperature (operation)                | -20 °C ... 45 °C                                    |
| 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                                |

## Mounting

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

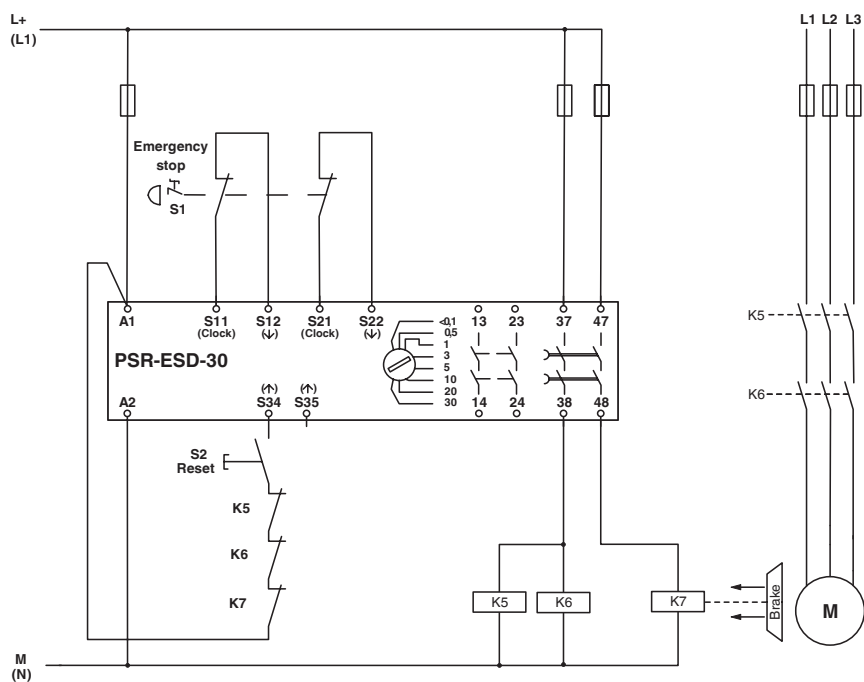
## Drawings

Circuit diagram



Block diagram

Circuit diagram



2-channel emergency stop monitoring

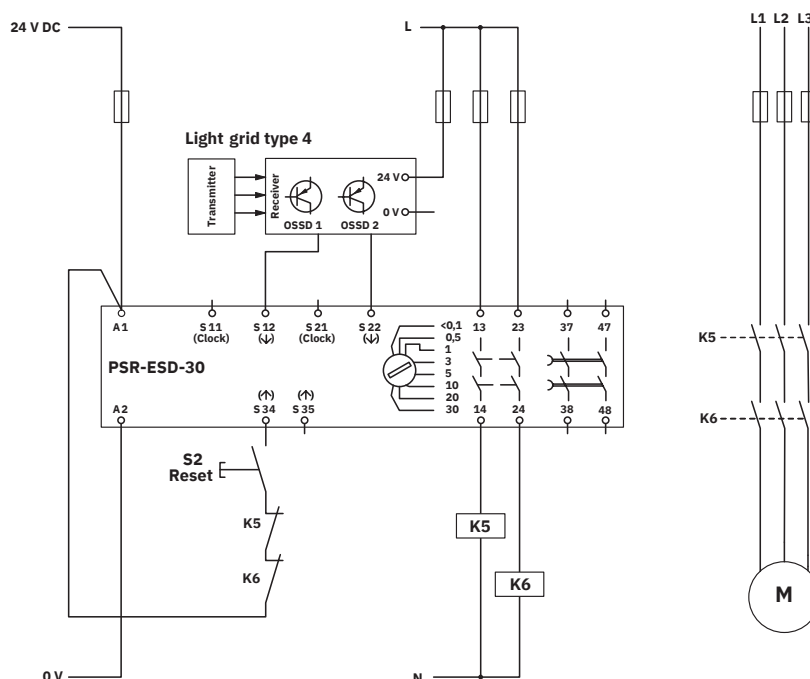
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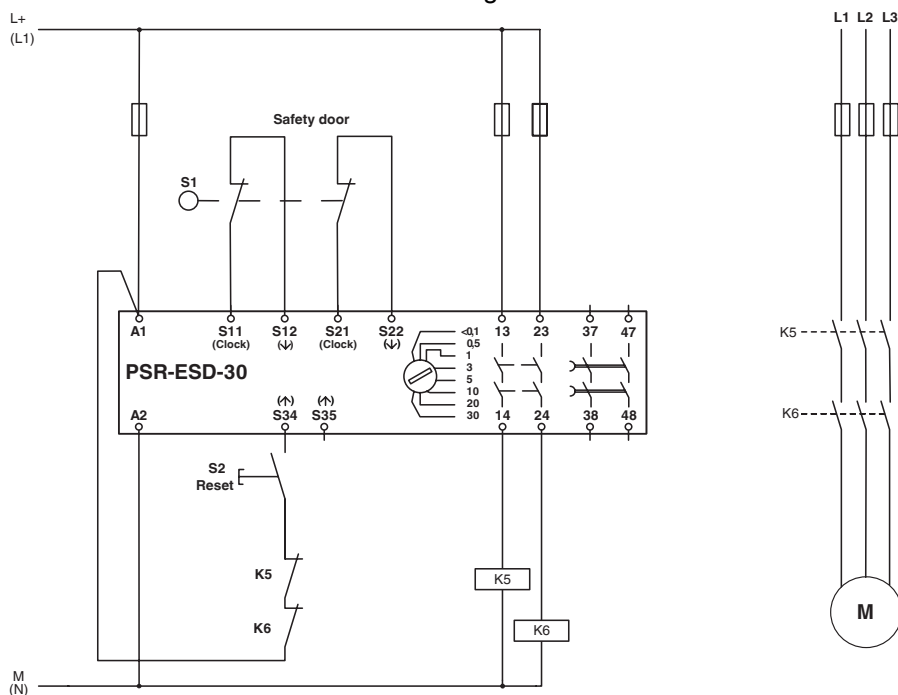
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Circuit diagram



Light grid monitoring

Circuit diagram



Two-channel safety door monitoring

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2981800>

### Functional Safety

Approval ID: 968/EZ322.06/23



### cULus Listed

Approval ID: E140324



### Functional Safety

Approval ID: 01/205/0656.04/23

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## Classifications

### ECLASS

|                   |          |
|-------------------|----------|
| ECLASS-13.0       | 27371819 |
| ECLASS-15.0       | 27371819 |
| ECLASS-15.0 ASSET | 27250101 |

### ETIM

|          |          |
|----------|----------|
| ETIM 9.0 | EC001449 |
|----------|----------|

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 21.0 | 39122200 |
|-------------|----------|

## Environmental product compliance

### EU RoHS

|                                         |                  |
|-----------------------------------------|------------------|
| Fulfills EU RoHS substance requirements | Yes              |
| Exemption                               | 34, 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.) | 1-Methyl-2-pyrrolidone (NMP)(CAS: 872-50-4)                |
|                                     | Lead(CAS: n/a)                                             |
|                                     | 2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol(CAS: n/a) |
| SCIP                                | 96910064-e2e8-4429-9b05-cc7d43907774                       |

### EF3.0 Climate Change

|         |               |
|---------|---------------|
| CO2e kg | 7.768 kg CO2e |
|---------|---------------|