

# REL-MR- 12DC/21-21AU - Single relay



2961299

<https://www.phoenixcontact.com/us/products/2961299>

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Plug-in miniature power relay, with multi-layer gold contact, 2 changeover contacts, input voltage 12 V DC

## Your advantages

- RT III-proof (wash-proof)

## Commercial data

|                                      |                     |
|--------------------------------------|---------------------|
| Item number                          | 2961299             |
| Packing unit                         | 10 pc               |
| Minimum order quantity               | 10 pc               |
| Sales key                            | C460                |
| Product key                          | CK6936              |
| Catalog page                         | Page 290 (C-5-2019) |
| GTIN                                 | 4017918164041       |
| Weight per piece (including packing) | 16.34 g             |
| Weight per piece (excluding packing) | 14.98 g             |
| Customs tariff number                | 85364900            |
| Country of origin                    | AT                  |

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## Technical data

### Product properties

|                         |                        |
|-------------------------|------------------------|
| Product type            | Single relay           |
| Operating mode          | 100% operating factor  |
| Mechanical service life | $3 \times 10^7$ cycles |

### Insulation characteristics

|            |                  |
|------------|------------------|
| Insulation | Basic insulation |
|------------|------------------|

### Insulation characteristics

|                      |                  |
|----------------------|------------------|
| Insulation           | Basic insulation |
| Overvoltage category | III              |
| Pollution degree     | 3                |

### Electrical properties

|                                                 |                                            |
|-------------------------------------------------|--------------------------------------------|
| Service life electrical                         | see diagram                                |
| Maximum power dissipation for nominal condition | 0.4 W                                      |
| Test voltage (Winding/contact)                  | 5 kV AC (50 Hz, 1 min., winding/contact)   |
| Test voltage (Contact/contact)                  | 2.5 kV AC (50 Hz, 1 min., contact/contact) |

### Input data

#### Coil side

|                                |                                   |
|--------------------------------|-----------------------------------|
| Nominal input voltage $U_N$    | 12 V DC                           |
| Input voltage range            | 7.8 V DC ... 29.76 V DC           |
| Drive and function             | monostable                        |
| Drive (polarity)               | non-polarized                     |
| Typical input current at $U_N$ | 33 mA                             |
| Typical response time          | 7 ms                              |
| Typical release time           | 3 ms                              |
| Coil resistance                | $360 \Omega \pm 10 \%$ (at 20 °C) |

### Output data

#### Switching

|                             |                        |
|-----------------------------|------------------------|
| Contact switching type      | 2 changeover contacts  |
| Type of switch contact      | Single contact         |
| Contact material            | AgNi, hard gold-plated |
| Maximum switching voltage   | 30 V AC                |
|                             | 36 V DC                |
| Minimum switching voltage   | 100 mV (at 10 mA)      |
| Limiting continuous current | 50 mA                  |
| Maximum inrush current      | 50 mA                  |
| Min. switching current      | 1 mA (at 24 V)         |

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|                                       |                    |
|---------------------------------------|--------------------|
| Interrupting rating (ohmic load) max. | 1.2 W (at 24 V DC) |
| Switching capacity min.               | 0.12 W             |

Switching: when the gold layer is destroyed

|                                       |                                                                                                                                                |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Note                                  | the following values are applicable if a gold layer is destroyed                                                                               |
| Contact material                      | AgNi                                                                                                                                           |
| Maximum switching voltage             | 250 V                                                                                                                                          |
| Minimum switching voltage             | 5 V (at 10 mA)                                                                                                                                 |
| Limiting continuous current           | 8 A                                                                                                                                            |
| Maximum inrush current                | 15 A (300 ms)                                                                                                                                  |
| Min. switching current                | 10 mA (At 5 V)                                                                                                                                 |
| Interrupting rating (ohmic load) max. | 190 W (at 24 V DC)<br>85 W (at 48 V DC)<br>60 W (at 60 V DC)<br>44 W (at 110 V DC)<br>60 W (at 220 V DC)<br>2000 VA (for 250 V AC)             |
| Switching capacity                    | 2 A (at 24 V, DC13)<br>0.2 A (at 110 V, DC13)<br>0.2 A (at 250 V, DC13)<br>2 A (at 24 V, AC15)<br>2 A (at 120 V, AC15)<br>2 A (at 250 V, AC15) |

## Connection data

|                   |                          |
|-------------------|--------------------------|
| Connection method | Plug / solder connection |
|-------------------|--------------------------|

## Dimensions

|                     |         |
|---------------------|---------|
| Dimensional drawing |         |
| Width               | 12.7 mm |
| Height              | 29 mm   |
| Depth               | 15.7 mm |

## Material specifications

|       |                  |
|-------|------------------|
| Color | white (RAL 9010) |
|-------|------------------|

## Environmental and real-life conditions

Ambient conditions

|                      |        |
|----------------------|--------|
| Degree of protection | RT III |
|----------------------|--------|

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|                                         |                  |
|-----------------------------------------|------------------|
| Ambient temperature (operation)         | -40 °C ... 85 °C |
| Ambient temperature (storage/transport) | -40 °C ... 85 °C |

## Approvals

|                    |                            |
|--------------------|----------------------------|
| Corrosive gas test |                            |
| Identification     | ISA-S71.04. G3 Harsh Group |
|                    | EN 60068-2-60              |

## Standards and regulations

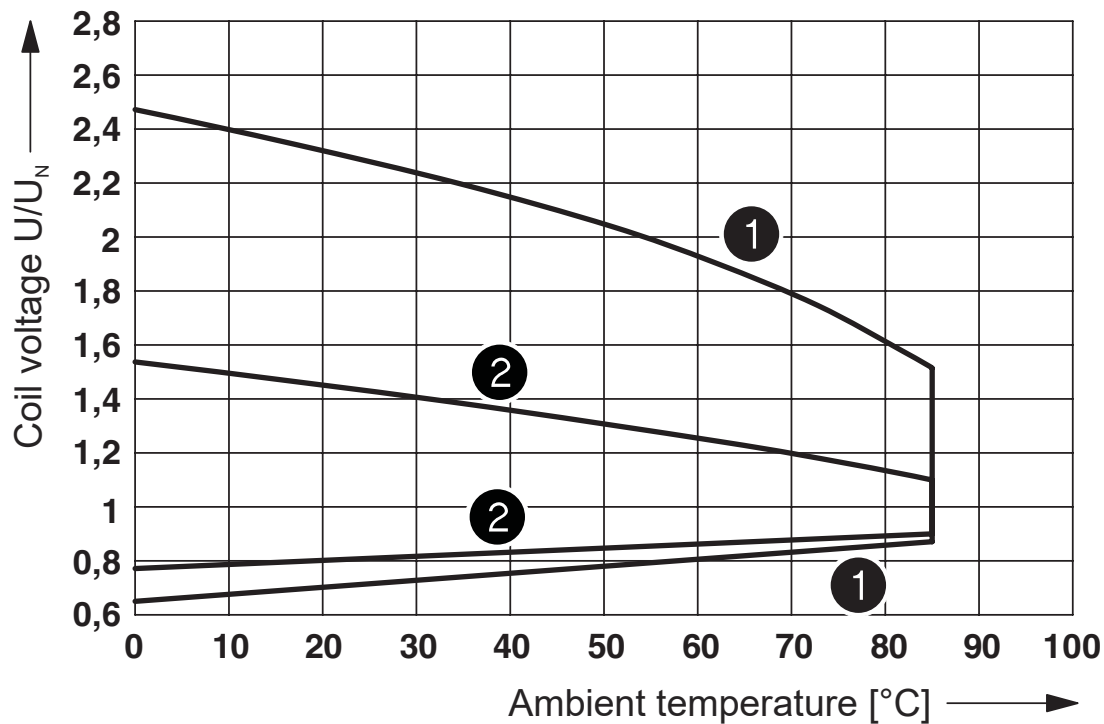
|                       |            |
|-----------------------|------------|
| Standards/regulations | IEC 60664  |
|                       | EN 50178   |
|                       | EN 61810-1 |

## Mounting

|                   |                                                   |
|-------------------|---------------------------------------------------|
| Assembly note     | Can be aligned without spacing (> 70 °C ≥ 2.5 mm) |
| Mounting position | any                                               |

## Drawings

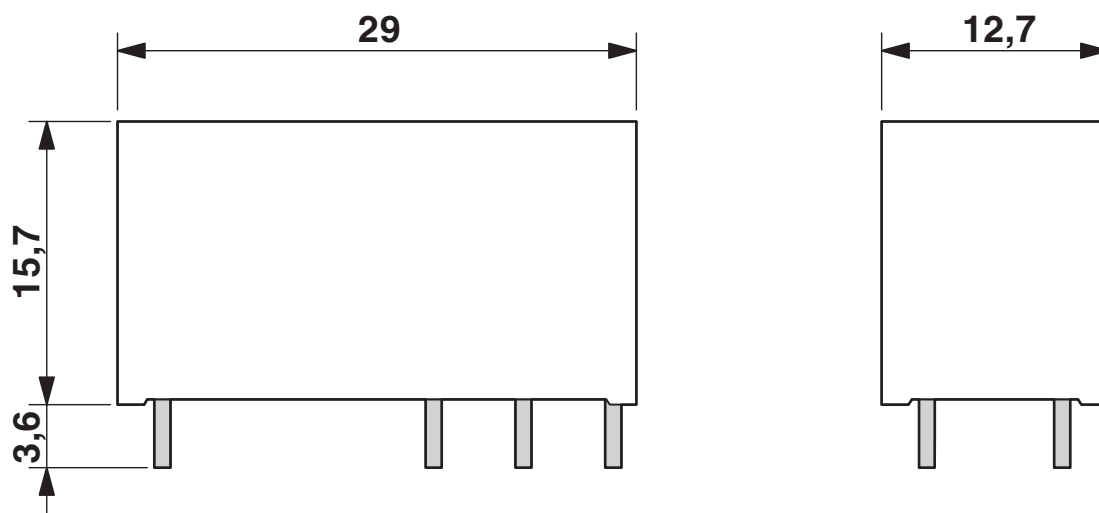
Diagram



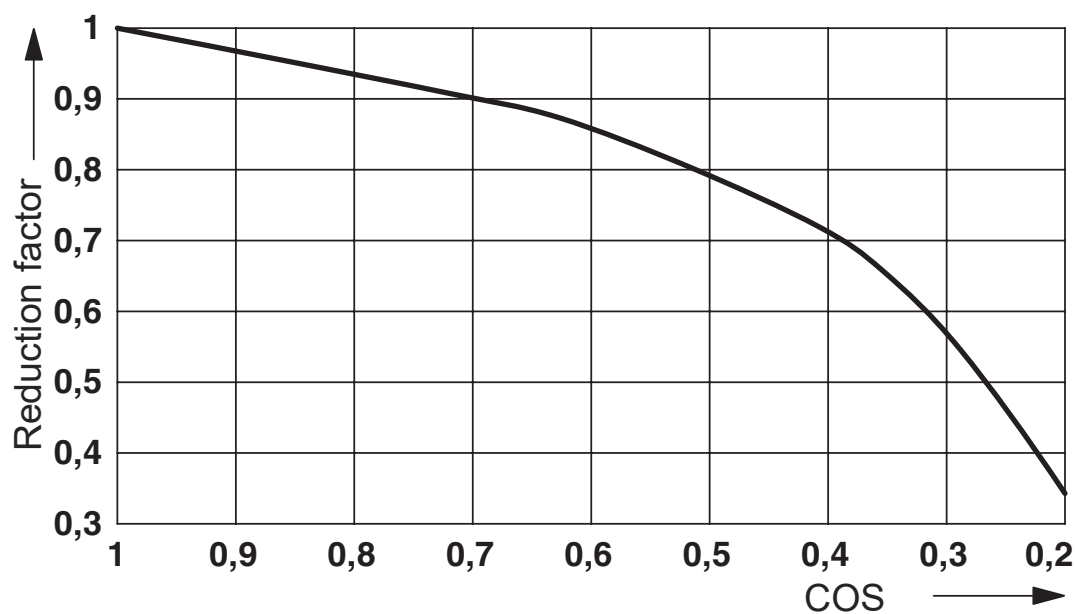
- ① DC coils
- ② AC coils

Operating voltage range

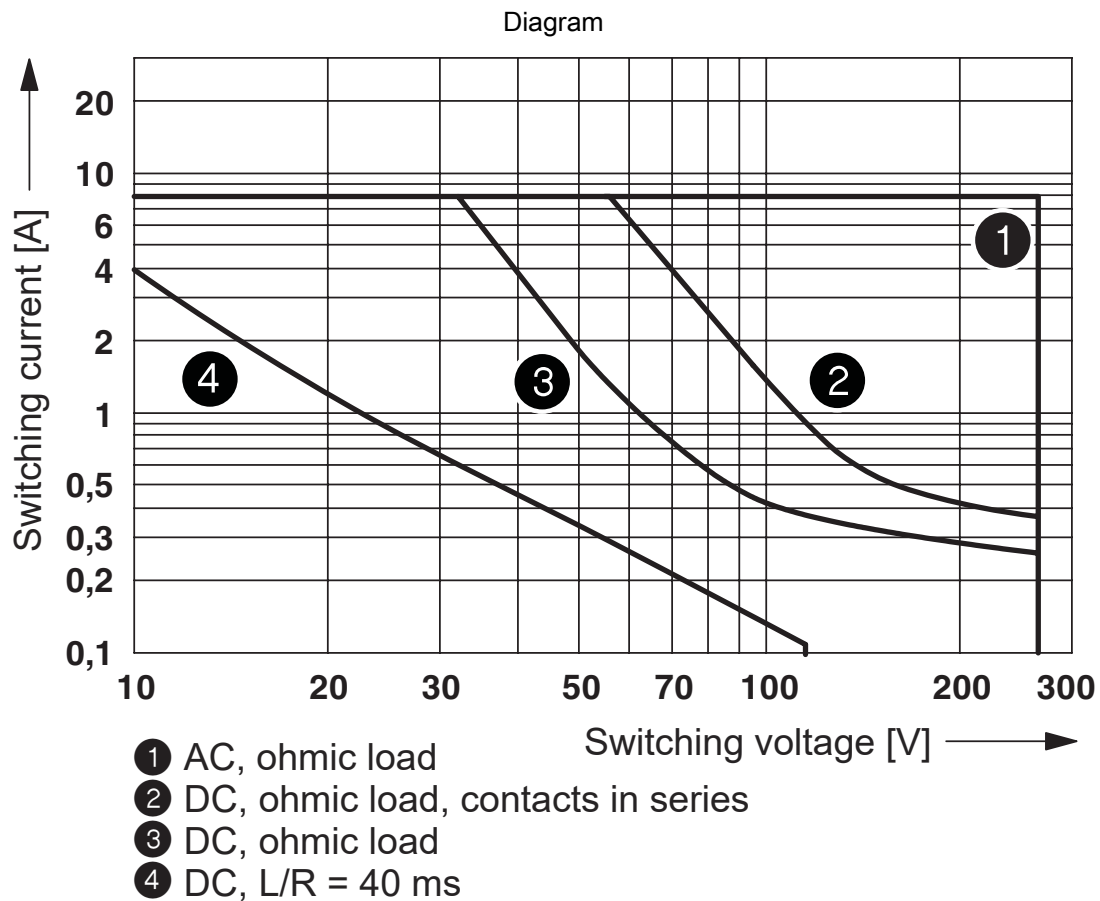
Dimensional drawing



Diagram

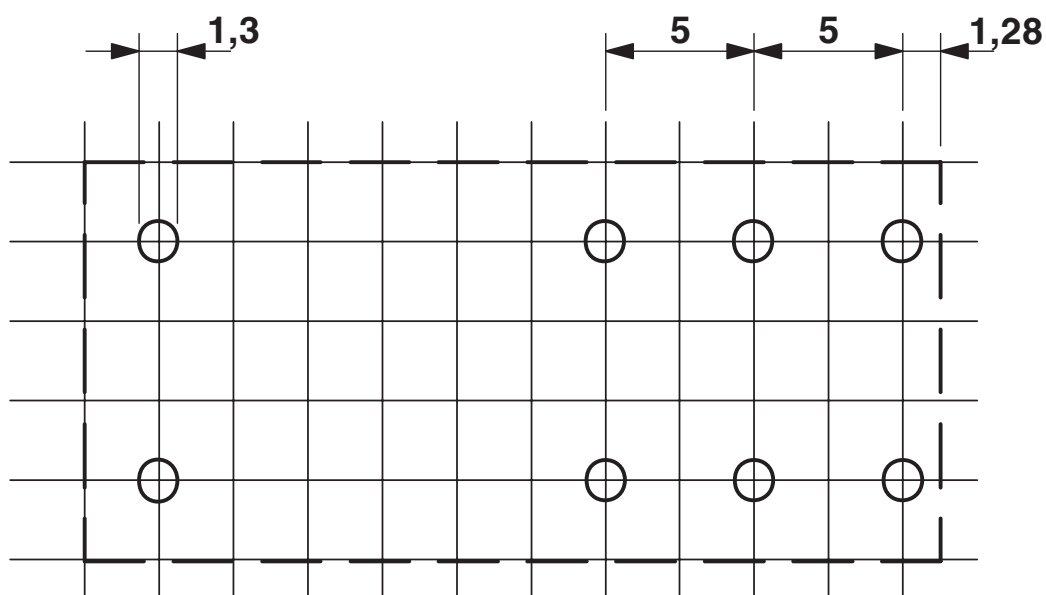


Service life reduction factor with various cos phi

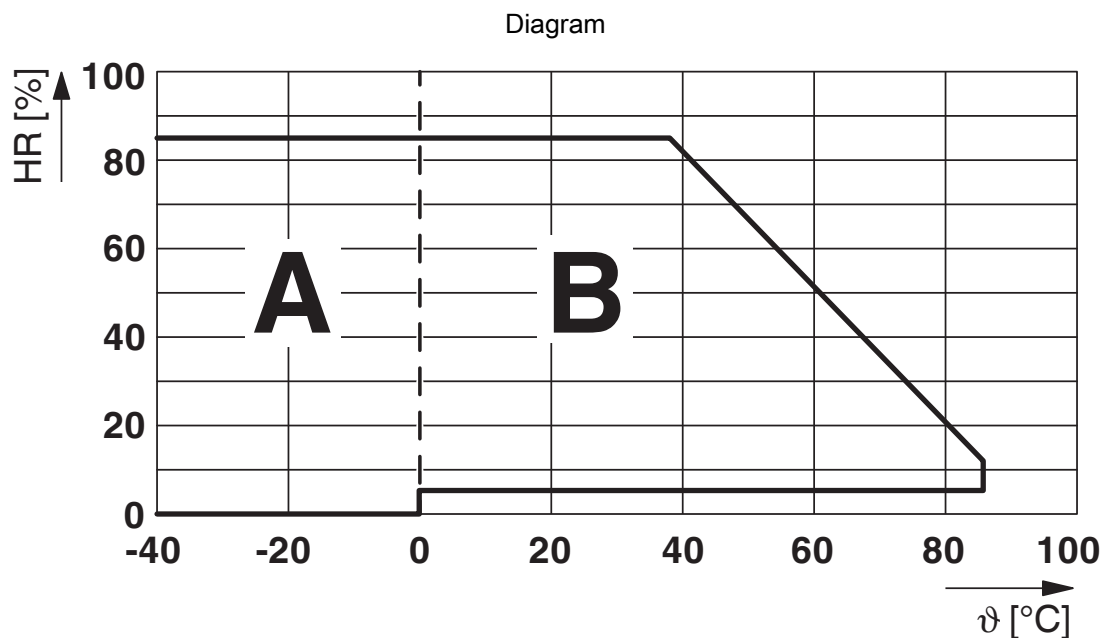


Interrupting rating

Drilling plan/solder pad geometry



a = pitch division 2.5 mm



Permissible humidity for operation and storage.

The maximum permissible ambient temperature as specified in the data sheet must be observed.

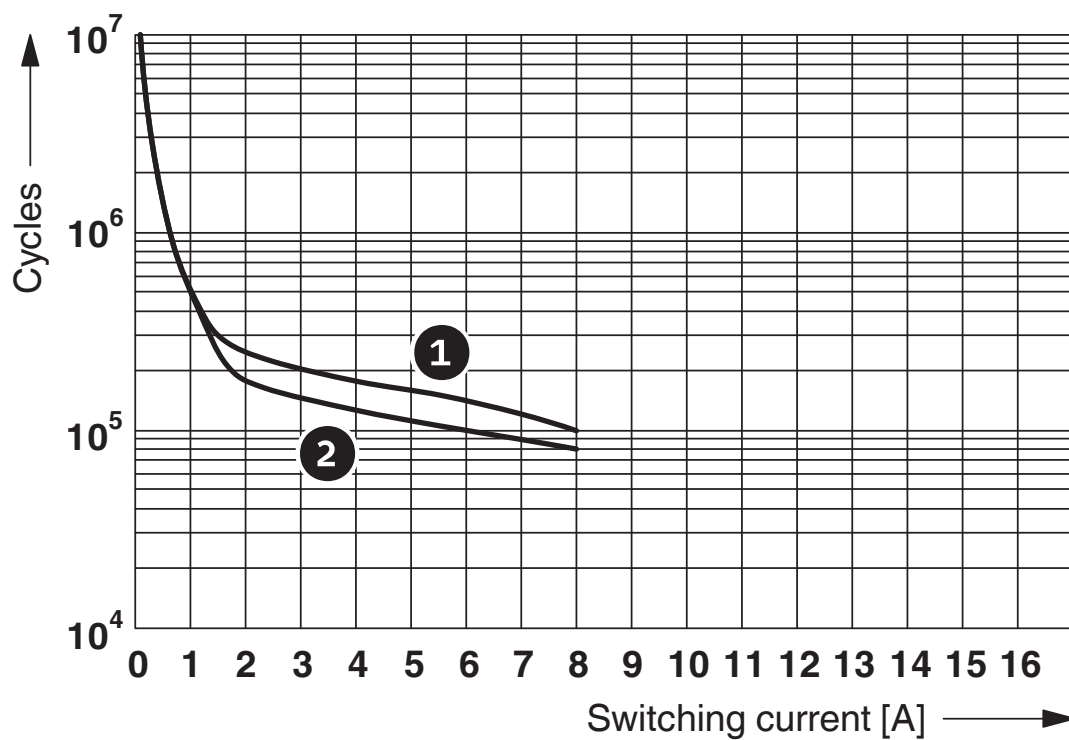
Area A: Ice buildup at ambient temperatures  $\leq 0^{\circ}\text{C}$  must be prevented

Area B: Condensation at ambient temperatures  $> 0^{\circ}\text{C}$  must be prevented

On 30 full days that are naturally distributed across an entire year, a humidity level of 95% is permissible at an ambient temperature  $\leq 25^{\circ}\text{C}$ .



Diagram

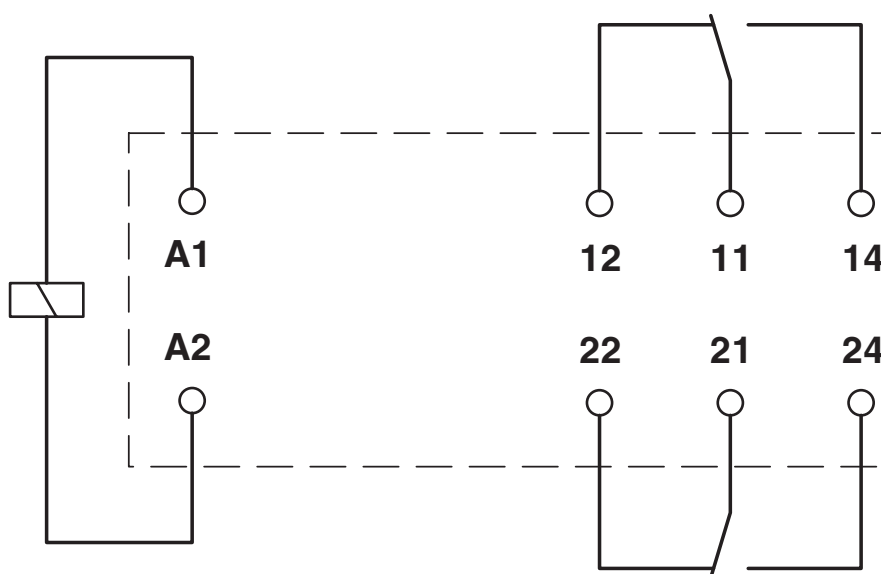


① 250 V AC, ohmic load (DC coils)

② 250 V AC, ohmic load (AC coils)

Electrical service life

Circuit diagram



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2961299>



**cUL Recognized**  
Approval ID: FILE E 228652



**UL Recognized**  
Approval ID: FILE E 228652



**EAC**  
Approval ID: TR\_TS\_D\_00573\_c



**UL Recognized**  
Approval ID: FILE E 228652



**EAC**  
Approval ID: RU\*C-DE.\*08.B.00010



**VDE Zeichengenehmigung**  
Approval ID: 40007758



**VDE Zeichengenehmigung**  
Approval ID: 40048281



**cUL Recognized**  
Approval ID: FILE E 228652

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-11.0 | 27371601 |
| ECLASS-12.0 | 27371601 |
| ECLASS-13.0 | 27371601 |

### ETIM

|          |          |
|----------|----------|
| ETIM 9.0 | EC001437 |
|----------|----------|

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 21.0 | 39122300 |
|-------------|----------|

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## Environmental product compliance

### EU RoHS

|                                         |                    |
|-----------------------------------------|--------------------|
| Fulfills EU RoHS substance requirements | Yes, No exemptions |
|-----------------------------------------|--------------------|

### China RoHS

|                                        |                                          |
|----------------------------------------|------------------------------------------|
| Environment friendly use period (EFUP) | EFUP-E                                   |
|                                        | No hazardous substances above the limits |

### EU REACH SVHC

|                                     |                            |
|-------------------------------------|----------------------------|
| REACH candidate substance (CAS No.) | No substance above 0.1 wt% |
|-------------------------------------|----------------------------|

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## Mandatory accessories

### RIF-1-BPT/2X21 - Relay base

2900931

<https://www.phoenixcontact.com/us/products/2900931>



Relay base RIF-1..., for miniature power relay with 1 or 2 changeover contacts or solid-state relays of the same design, Push-in connection, plug-in option for input/interference suppression modules, for mounting on NS 35/7,5

### RIF-1-BSC/2X21 - Relay base

2900930

<https://www.phoenixcontact.com/us/products/2900930>



RIF-1... relay base, for miniature power relay with 1 or 2 changeover contacts or identical solid-state relays, screw connection, plug-in option for input/interference suppression modules, for mounting on NS 35/7,5

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