# Power PCB Relay RT1 Inrush

- **1 pole 16 A, 1 CO or 1 NO contact**
- **For inrush peak currents up to 80 A**
- **Sensitive coil 400 mW**
- **5 kV / 10 mm coil-contact**
- **Reinforced insulation**
- **Ambient temperature 85°C**
- **RoHS compliant (Directive 2002/95/EC) as per product date code 0413**

F0177-B

**Applications**

**Domestic appliances, heating control, lighting control**

## Approvals

VDE REG.-Nr. 6106, c UL us E214025, c CSA us 14385
Technical data of approved types on request

## Contact data

| | |
|---|---|
| Contact configuration | 1 CO or 1 NO |
| Contact set | single contact |
| Type of interruption | micro disconnection |
| Rated current | 16 A |
| Rated voltage / max.switching voltage AC | 250/400 VAC |
| Limiting continuous current | UL: 20 A |
| Maximum breaking capacity AC | 4000 VA |
| Limiting making capacity, max 4 s, duty factor 10%<br>max 20 ms (incandescent lamps) | 30 A<br>80 A |
| Contact material | AgNi 90/10, $AgSnO_2$ |
| Mechanical endurance | > 30 x $10^6$ cycles |
| Rated frequency of operation with / without load | 6 / 1200 $min^{-1}$ |

### Contact ratings

| Type | Load | Cycles |
|---|---|---|
| RT31K | 1000 W incandescent lamp, 250 VAC, NO contact | $9x10^4$ |
| RT31L | 1000 W incandescent lamp, 250 VAC, NO contact | $8x10^4$ |
| RT31K | 16 A, 240 VAC, NO contact, 85°C, VDE/UL508 | $3x10^4$ |
| RT31L | 16 A, 240 VAC, NO contact, 85°C, VDE/UL508 | $5x10^4$ |
| RT31L | 21/3.5 A, 230 VAC, compressor, cosφ=0.5, NO contact | $2{,}3x10^5$ |

## Coil data, DC-coil

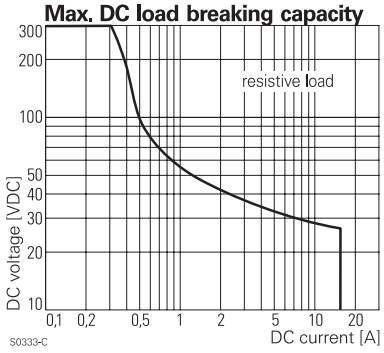
| | |
|---|---|
| Rated coil voltage range | 5...110 VDC |
| Coil power | typ 400 mW |
| Operative range | 2 |
| Coil insulation system according UL1446 | class F |

### Coil versions, DC-coil

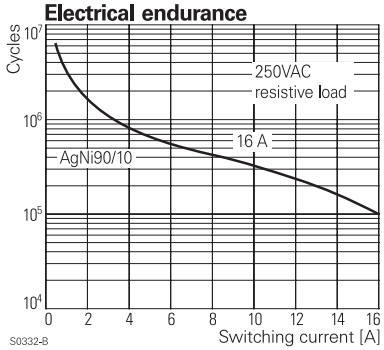
| Coil code | Rated voltage VDC | Operate voltage VDC | Release voltage VDC | Coil resistance Ω | Rated coil power mW |
|---|---|---|---|---|---|
| **012** | **12** | **8.4** | **1.2** | **360±10%** | **400** |
| **024** | **24** | **16.8** | **2.4** | **1440±10%** | **400** |
| 048 | 48 | 33.6 | 4.8 | 5520±10% | 417 |
| 060 | 60 | 42.0 | 6.0 | 8570±12% | 420 |

All figures are given for coil without preenergization, at ambient temperature +23°C
Other coil voltages on request

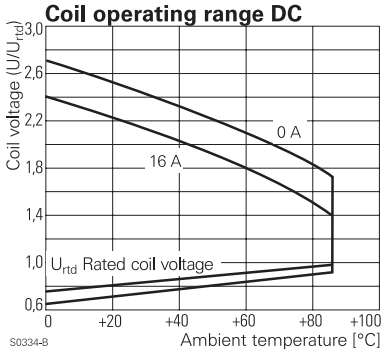
**Max. DC load breaking capacity**




**Electrical endurance**




**Coil operating range DC**



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Specifications subject to change.

## Power PCB Relay RT1 Inrush (Continued)

| Coil data, bistable coils | 1 coil | 2 coils |
|---|---|---|
| Rated coil voltage range | 5...24 VDC | |
| Coil power | typ 400 mW | typ 600 mW |
| Operative range | 2 | |
| Limiting voltage, % of rated coil voltage | 120% | 150% |
| Minimum energization duration | 30 ms | |
| Maximum energization duration | 1 min at < 10% DF | |
| Coil insulation system according UL1446 | class F | |

**Coil versions, bistable coil**

| Coil code | Rated voltage VDC | Operate voltage VDC | Reset voltage VDC | Coil resistance Ω | Rated coil power mW |
|---|---|---|---|---|---|
| **bistable, 1 coil** | | | | | |
| A05 | 5 | 3.5 | 2.8 | 62±10% | 403 |
| A06 | 6 | 4.2 | 3.3 | 90±10% | 400 |
| **A12** | **12** | **8.4** | **6.6** | **360±10%** | **400** |
| **A24** | **24** | **16.8** | **13.2** | **1440±10%** | **400** |
| **bistable, 2 coils** | | | | | |
| F05 | 5 | 3.5 | 2.8 | 42±10% | 595 |
| F06 | 6 | 4.2 | 3.3 | 55±10% | 655 |
| **F12** | **12** | **8.4** | **6.6** | **240±10%** | **600** |
| **F24** | **24** | **16.8** | **13.2** | **886±10%** | **650** |

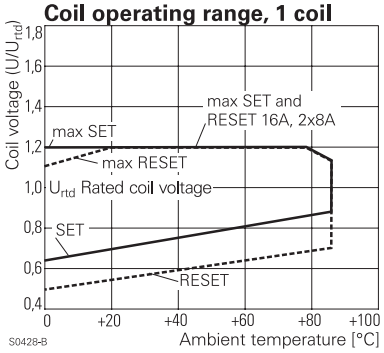
All figures are given for coil without preenergization, at ambient temperature +23°C
Other coil voltages on request

**Coils - operation**

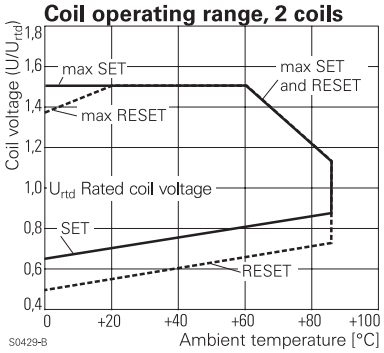
| Version | 1 coil | | 2 coils | | |
|---|---|---|---|---|---|
| Coil terminals | A1 | A2 | A1 | A3 | A2 |
| Pull-in | + | - | | + | - |
| Reset | - | + | - | + | |

Contact position not defined at delivery

**Coil operating range, 1 coil**




**Coil operating range, 2 coils**




### Insulation

| | | |
|---|---|---|
| Dielectric strength coil-contact circuit | 5000 V$_{rms}$ | |
| open contact circuit | 1000 V$_{rms}$ | |
| Clearance / creepage coil-contact circuit | ≥ 10 / 10 mm | |
| Material group of insulation parts | IIIa | |
| Tracking index of relay base | PTI 250 V | |
| Insulation to IEC 60664-1 | | |
| Type of insulation coil-contact circuit | reinforced | |
| open contact circuit | micro disconnection | |
| Rated insulation voltage | 250 V | |
| Pollution degree | 3 | 2 |
| Rated voltage system | 250 V | 400 V |
| Overvoltage category | III | |

### Other data

| | |
|---|---|
| RoHS - Directive 2002/95/EC | compliant as per product date code 0413 |
| Ambient temperature range DC coil | -40...+85°C |
| bistable 1 coil | -10...+85°C |
| bistable 2 coils | -40...+85°C |
| Operate- / release time DC coil | typ 8 / 3 ms |
| Operate- / reset time bistable | typ 5 / 4 ms |
| Bounce time NO / NC contact | typ 2 / 3 ms |
| Vibration resistance DC coil (function) NO / NC contact | 20 / 5 g, 30 ... 500 Hz |
| Shock resistance (destruction) | 100 g |
| Category of protection | RTII - flux proof |
| Mounting | pcb or on socket *) |
| Mounting distance | 0 mm |
| Resistance to soldering heat flux-proof version | 270 °C / 10 s |
| Relay weight | 14 g |
| Packaging unit DC coil, bistable 1 coil | 20 / 500 pcs |
| bistable 2 coils | 100 pcs |

*) socket available for 1 coil version only, see Accessories

### Accessories

| | |
|---|---|
| For details see datasheet | Accessories Power Relay RT |



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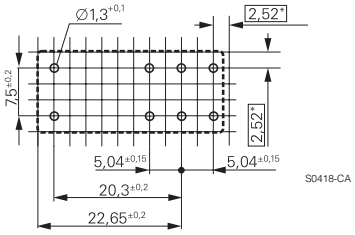
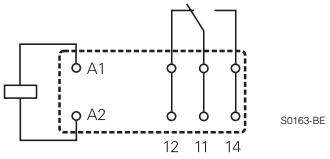
## Power PCB Relay RT1 Inrush (Continued)

**PCB layout / terminal assignment**
Bottom view on solder pins

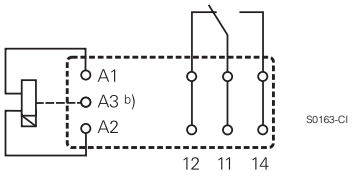
16 A, 1 CO contact, pinning 5 mm



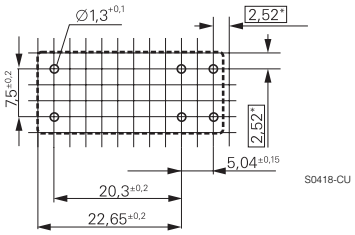

monostable version



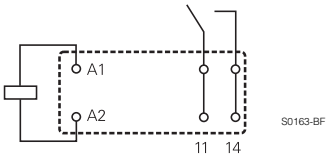

bistable version a)



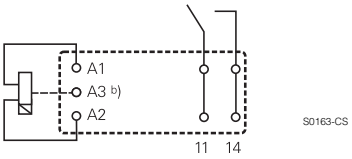

16 A, 1 NO contact, pinning 5 mm




monostable version




bistable version a)

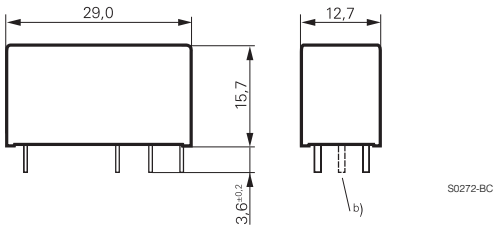



*) With the recommended PCB hole sizes a grid pattern from 2.5 mm to 2.54 mm can be used.

a) Indicated contact position during or after coil energization with reset voltage.

b) for 2 coil version only

**Dimensions**




**Product key**

| R | T | 3 | | | | | |
|---|---|---|---|---|---|---|---|

Type

Version
**3** 16 A, pinning 5 mm, flux proof

Contact configuration
**1** 1 CO contact **3** 1 NO contact

Contact material
**K** AgNi 90/10 **L** $AgSnO_2$

Coil
Coil code: please refer to coil versions table, preferred types in bold print

| Product key | Version | Contacts | Contact material | Coil | Part number |
|---|---|---|---|---|---|
| RT33K012 | 16 A | 1 NO contact | AgNi 90/10 | 12 VDC | 2-1393240-3 |
| RT33K024 | pinning 5 mm | | | 24 VDC | 2-1393240-4 |
| RT33K048 | | | | 48 VDC | 2-1393240-5 |
| RT33L012 | | | $AgSnO_2$ | 12 VDC | 3-1393240-3 |
| RT33L024 | | | | 24 VDC | 3-1393240-5 |
| RT33L048 | | | | 48 VDC | 3-1393240-6 |



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