

Power PCB Relay RT1 Inrush

- 1 pole 16A, 1 form C (CO) or 1 form A (NO) contact
- For inrush peak currents up to 80A
- Mono- or bistable coil
- 5kV/10mm coil-contact
- Reinforced insulation
- Ambient temperature 85°C
- WG version: product in accordance to IEC 60335-1



Typical applications

Domestic appliances, heating control, lighting control



Approvals

VDE Cert. No. 40007571, UL E214025, cCSAus 1142018, CQC 18002197247 (monostable), 18002197364 (bistable)

Technical data of approved types on request

Contact Data

| | | |
|---|--------------------------------|--|
| Contact arrangement | 1 form C (CO) or 1 form A (NO) | |
| Rated voltage | 250VAC | |
| Max. switching voltage | 400VAC | |
| Rated current | 16A | |
| Limiting continuous current | 16A, UL: 20A (K-version) | |
| Limiting making current, | | |
| max. 4s, df 10% | 30A | |
| max. 20ms (incandescent lamps), RT33L version | 80A | |
| Breaking capacity max. | 4000VA | |
| Contact material | AgNi90/10, AgSnO | |
| Frequency of operation, with/without load | 360/72000h ⁻¹ | |
| Operate/release time max., DC coil | 9/6ms | |
| Operate/Reset time max., bistable version | 10/10ms | |
| Bounce time max., form A/form B | 3/6ms | |

Contact ratings

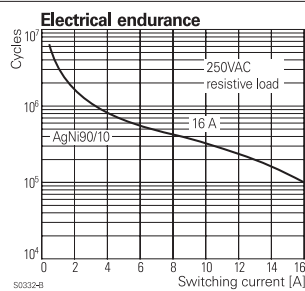
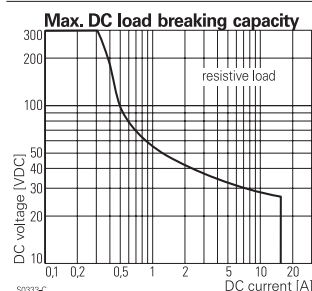
| Type | Contact | Load | Cycles |
|------------------|---------|---|--------------------|
| IEC 61810 | | | |
| RT33L | A (NO) | 16A, 250VAC resistive, 85°C | 50x10 ³ |
| RT33L | A (NO) | 10A, 400VAC resistive, 85°C | 10x10 ³ |
| RT31 | C (CO) | 16A, 250VAC resistive, 85°C | 5x10 ³ |
| RT33K | A (NO) | 16A, 250VAC resistive, 85°C | 30x10 ³ |
| UL 508 | | | |
| RT33K | A (NO) | 20A, 277VAC general purpose, 40°C | 10x10 ³ |
| RT33L | A (NO) | 16A, 250VAC resistive, 85°C | 50x10 ³ |
| RT31 | C (CO) | 16A, 250VAC resistive, 85°C | 6x10 ³ |
| RT33L | A (NO) | 1000W Tungsten, 120VAC, 60 Hz, 40°C | 6x10 ³ |
| RT33L | A (NO) | 1000W standard ballast, 120VAC, 60 Hz, 40°C | 6x10 ³ |

EN 60947-4-1

| | | |
|--------------------|---------------|-------|
| RT31L/RT33L A (NO) | 250V/6A, AC-3 | 6.050 |
|--------------------|---------------|-------|

Mechanical endurance

monostable version >30x10⁶ operations
bistable version >5x10⁶ operations



Coil Data, DC coil

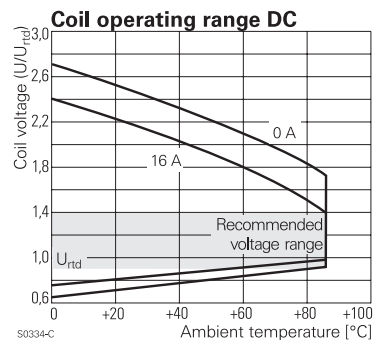
| | |
|-------------------------------------|-------------|
| Coil voltage range | 3 to 110VDC |
| Operative range, IEC 61810 | 2 |
| Coil insulation system according UL | class F |

Coil versions, DC coil

| Coil code | Rated voltage VDC | Operate voltage VDC | Release voltage VDC | Coil resistance Ω±10% ¹⁾ | Rated coil power mW |
|-----------|-------------------|---------------------|---------------------|-------------------------------------|---------------------|
| 003 | 3 | 2.1 | 0.3 | 21.4 | 421 |
| 005 | 5 | 3.5 | 0.5 | 62 | 403 |
| 006 | 6 | 4.2 | 0.6 | 90 | 400 |
| 012 | 12 | 8.4 | 1.2 | 360 | 400 |
| 024 | 24 | 16.8 | 2.4 | 1440 | 400 |
| 048 | 48 | 33.6 | 4.8 | 5520 | 417 |
| 060 | 60 | 42.0 | 6.0 | 8570 ¹⁾ | 420 |

1) Coil resistance ±12%.

All figures are given for coil without pre-energization, at ambient temperature +23°C. Other coil voltages on request.



Power PCB Relay RT1 Inrush (Continued)

| Coil Data, bistable coils | 1 coil | 2 coils |
|---|-------------------------------|---------|
| Magnetic system | polarized, bistable | |
| Coil voltage range | 5 to 24VDC | |
| Operative range, IEC 61810 | 2 | |
| Limiting voltage, % of rated coil voltage | 120% | 150% |
| Min./Max. energization duration | 30ms/1min at <10% duty factor | |
| Coil insulation system according UL | class F | |

Coil Data (continued)

Coil versions, bistable coil

| Coil code | Rated voltage VDC | Set voltage VDC | Reset voltage VDC | Coil resistance $\Omega \pm 10\%$ | Rated coil power mW |
|--------------------------|-------------------|-----------------|-------------------|-----------------------------------|---------------------|
| bistable, 1 coil | | | | | |
| A03 | 3 | 2.1 | 1.7 | 21.4 | 429 |
| A05 | 5 | 3.5 | 2.8 | 62 | 403 |
| A06 | 6 | 4.2 | 3.3 | 90 | 400 |
| A12 | 12 | 8.4 | 6.6 | 360 | 400 |
| A24 | 24 | 16.8 | 13.2 | 1440 | 400 |
| bistable, 2 coils | | | | | |
| F03 | 3 | 2.1 | 1.7 | 15 | 600 |
| F05 | 5 | 3.5 | 2.8 | 42 | 595 |
| F06 | 6 | 4.2 | 3.3 | 55 | 655 |
| F12 | 12 | 8.4 | 6.6 | 240 | 600 |
| F24 | 24 | 16.8 | 13.2 | 886 | 650 |

All figures are given for coil without pre-energization, at ambient temperature +23°C.

Other coil voltages on request.

Bistable coils - operation

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

Contact position not defined at delivery

Insulation Data

| | |
|------------------------------------|----------------------|
| Initial dielectric strength | |
| between open contacts | 1000V _{rms} |
| between contact and coil | 5000V _{rms} |
| Clearance/creepage | |
| between contact and coil | ≥10/10mm |
| Material group of insulation parts | IIIa |
| Tracking index of relay base | PTI 250V |

Other Data

Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at www.te.com/customer-support/rohssupportcenter

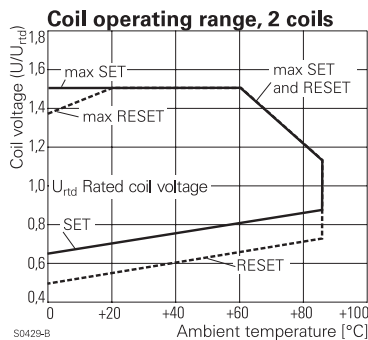
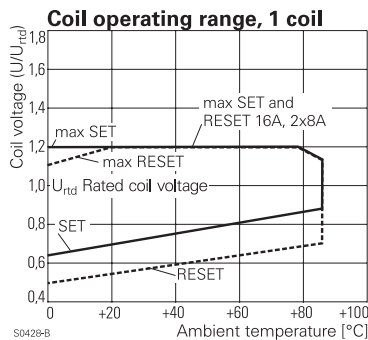
| | |
|--|-------------------------------------|
| Resistance to heat and fire | |
| WG version | according EN60335-1 |
| Ambient temperature | -40 to 85°C |
| Category of environmental protection | |
| IEC 61810 | RTII - flux proof RTIII - sealed |
| Vibration resistance (functional), form A/form B contact, 30 to 500Hz | 20/5g |
| Shock resistance (destructive) | 100g |
| Terminal type | PCB-THT, plug-in ²⁾ |
| Weight | 14g |
| Resistance to soldering heat | THT, IEC 60068-2-20 |
| RTII | 270°C/10s |
| RTIII | 260°C/5s |
| Packaging/unit | tube/20 pcs., box/500 pcs. |

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

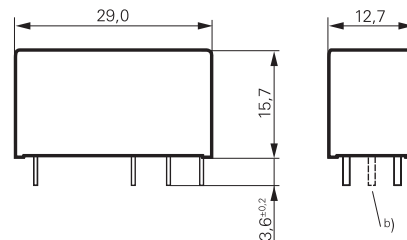
Accessories

For details see datasheet [Accessories Industrial Power Relay RT^{2\)}](#)
Socket available for 1 coil version only.

NOTE: indicated contact ratings and electrical endurance data for direct wiring of relays (according IEC 61810-1); for relays mounted on sockets deratings may apply.



Dimensions



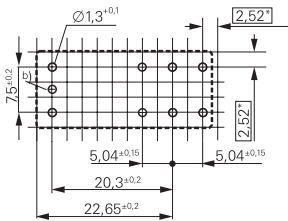
S0272-BC

Power PCB Relay RT1 Inrush (Continued)

PCB layout / terminal assignment

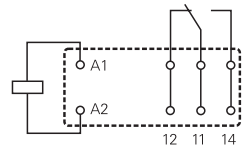
Bottom view on solder pins

16A, 1 form C (CO) contact, pinning 5mm



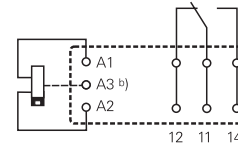
S0418-CM

monostable version



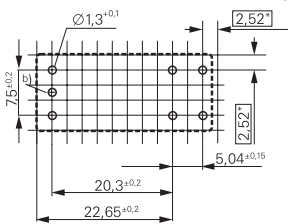
S0163-BE

bistable version a)



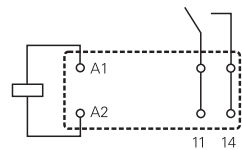
S0163-DI

16A, 1 form A (NO) contact, pinning 5mm



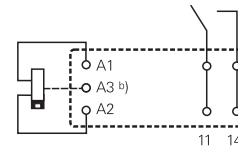
S0418-CV

monostable version



S0163-BF

bistable version a)

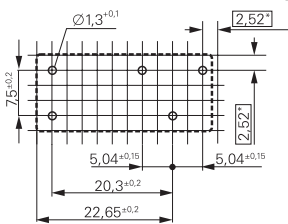


a) Indicated contact position during or after coil energization with reset voltage.

b) for 2 coil version only

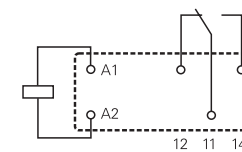
S0163-DPS

12A, 1 form C (CO) contact, pinning 5mm



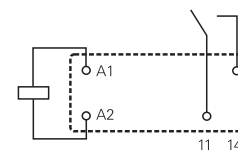
S0418-CN

monostable version, 1 form C (CO)



S0163-BC

monostable version, 1 form A (NO)



S0163-BD

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

Product code structure

Typical product code

RT 3 3 L 012

Type

Power PCB Relay RT1 Inrush

Version

- 3** 16A, pinning 5mm, flux proof
- D** 16A, pinning 5mm, sealed

Contact configuration

- 1** 1 form C (CO) contact
- 3** 1 form A (NO) contact

Contact material

- K** AgNi 90/10
- L** AgSnO₂

Coil

Coil code: please refer to coil versions table

Version

- Blank** Standard version
- WG** Product in accordance to IEC 60335-1

Power PCB Relay RT1 Inrush (Continued)

| Product code | Version | Contacts | Contact material | Coil version | Coil | Version | Part Number |
|--------------|-------------|---------------|--------------------|------------------|-------|----------------------|-------------|
| RT31L003 | 16A, | 1 form C (CO) | AgSnO ₂ | Monostable | 3VDC | Standard | 7-1415547-5 |
| RT31L006 | pinning 5mm | contact | | | 6VDC | | 7-1393239-2 |
| RT31L012 | flux proof | | | | 12VDC | | 7-1393239-3 |
| RT31L012WG | | | | | 12VDC | IEC60335-1 compliant | 4-1415539-8 |
| RT31L024 | | | | | 24VDC | Standard | 7-1393239-5 |
| RT31L048 | | | | | 48VDC | | 7-1393239-6 |
| RT31LA05 | | | | Bistable 1 coil | 5VDC | | 6-1415544-3 |
| RT31LA06 | | | | | 6VDC | | 3-1419136-9 |
| RT31LA12 | | | | | 12VDC | | 3-1415517-1 |
| RT31LA24 | | | | | 24VDC | | 7-1415014-1 |
| RT31LF03 | | | | Bistable 2 coils | 3VDC | | 8-1415389-1 |
| RT31LF05 | | | | | 5VDC | | 6-1415544-6 |
| RT31LF12 | | | | | 12VDC | | 3-1415402-1 |
| RT31LF24 | | | | | 24VDC | | 8-1415014-1 |
| RT33K012 | | 1 form A (NO) | AgNi 90/10 | Monostable | 12VDC | | 2-1393240-3 |
| RT33K024 | | contact | | | 5VDC | | 2-1393240-4 |
| RT33KF12 | | | | Bistable 2 coils | 12VDC | | 1-1415540-1 |
| RT33L005 | | | AgSnO ₂ | Monostable | 5VDC | | 3-1393240-0 |
| RT33L005WG | | | | | 5VDC | IEC60335-1 compliant | 6-1415544-7 |
| RT33L006 | | | | | 6VDC | Standard | 3-1393240-1 |
| RT33L012 | | | | | 12VDC | | 3-1393240-3 |
| RT33L012WG | | | | | 12VDC | IEC60335-1 compliant | 2-1415538-2 |
| RT33L024 | | | | | 24VDC | Standard | 3-1393240-5 |
| RT33L024WG | | | | | 24VDC | IEC60335-1 compliant | 2-1415544-3 |
| RT33L048 | | | | | 48VDC | Standard | 3-1393240-6 |
| RT33LA03 | | | | Bistable 1 coil | 3VDC | | 5-1415534-7 |
| RT33LA05 | | | | | 5VDC | | 8-1415528-1 |
| RT33LA06 | | | | | 6VDC | | 2-1393240-6 |
| RT33LA12 | | | | | 12VDC | | 2-1393240-7 |
| RT33LA24 | | | | | 24VDC | | 3-1415379-1 |
| RT33LF05 | | | | Bistable 2 coils | 5VDC | | 4-1419136-1 |
| RT33LF12 | | | | | 12VDC | | 2-1393240-8 |
| RT33LF24 | | | | | 24VDC | | 2-1393240-9 |
| RTD1L005 | 16A, | 1 form C (CO) | | Monostable | 5VDC | | 1-1415537-7 |
| RTD1L012 | pinning 5mm | contact | | | 12VDC | | 5-1393238-6 |
| RTD1L024 | wash tight | | | | 24VDC | | 8-1415398-1 |
| RTD1LA05 | | | | Bistable 1 coil | 5VDC | | 6-1415544-4 |
| RTD1LA24 | | | | | 24VDC | | 4-1415541-5 |
| RTD3L012 | | 1 form A (NO) | | Monostable | 12VDC | | 5-1415393-1 |
| RTD3L024 | | contact | | | 24VDC | | 4-1415538-9 |