

## 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



F0177-C



### 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

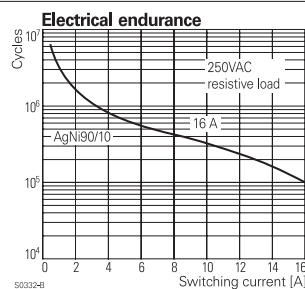
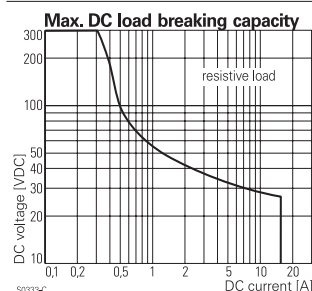
Contact arrangement	1 form C (CO) or 1 form A (NO)
Rated voltage	250VAC
Max. switching voltage	400VAC
Rated current	16A
Limiting continuous current	16A, UL: 20A (K-version)
Limiting making current,	
max. 4s, df 10%	30A
max. 20ms (incandescent lamps), RT33L version	80A
Breaking capacity max.	4000VA
Contact material	AgNi90/10, AgSnO
Frequency of operation, with/without load	360/7200h <sup>-1</sup>
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
<b>IEC 61810</b>			
RT33L	A (NO)	16A, 250VAC resistive, 85°C	50x10 <sup>3</sup>
RT33L	A (NO)	10A, 400VAC resistive, 85°C	10x10 <sup>3</sup>
RT31	C (CO)	16A, 250VAC resistive, 85°C	5x10 <sup>3</sup>
RT33K	A (NO)	16A, 250VAC resistive, 85°C	30x10 <sup>3</sup>
<b>UL 508</b>			
RT33K	A (NO)	20A, 277VAC general purpose, 40°C	10x10 <sup>3</sup>
RT33L	A (NO)	16A, 250VAC resistive, 85°C	50x10 <sup>3</sup>
RT31	C (CO)	16A, 250VAC resistive, 85°C	6x10 <sup>3</sup>
RT33L	A (NO)	1000W Tungsten, 120VAC, 60 Hz, 40°C	6x10 <sup>3</sup>
RT33L	A (NO)	1000W standard ballast, 120VAC, 60 Hz, 40°C	6x10 <sup>3</sup>

### EN 60947-4-1

RT31L/RT33L A (NO)	250V/6A, AC-3	6.050
Mechanical endurance		
monostable version	>30x10 <sup>6</sup> operations	
bistable version	>5x10 <sup>6</sup> operations	



### Coil Data, DC coil

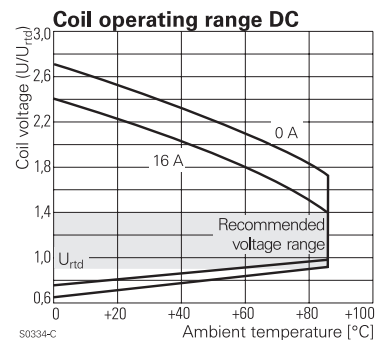
Coil voltage range	3 to 110VDC
Operative range, IEC 61810	2
Coil insulation system according UL	class F

### Coil versions, DC coil

Coil code	Rated voltage VDC	Operate voltage VDC	Release voltage VDC	Coil resistance $\Omega \pm 10\%$ <sup>1)</sup>	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 <sup>1)</sup>	420

1) Coil resistance  $\pm 12\%$ .

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
<b>bistable, 1 coil</b>					
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
<b>bistable, 2 coils</b>					
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 <sub>rms</sub>
between contact and coil	5000V <sub>rms</sub>
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](http://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 <sup>2)</sup>
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.

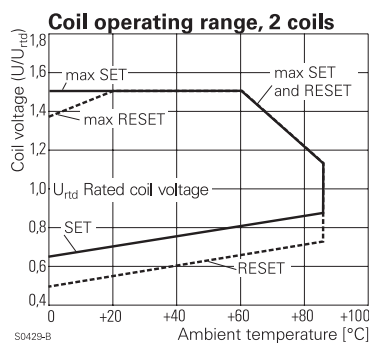
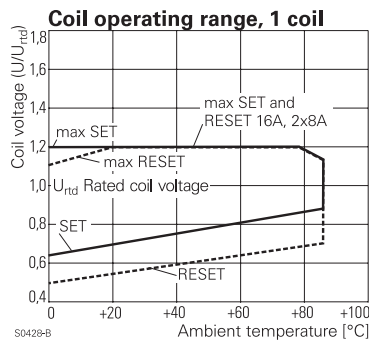
2) socket available for 1 coil version only, see Accessories

**Accessories**

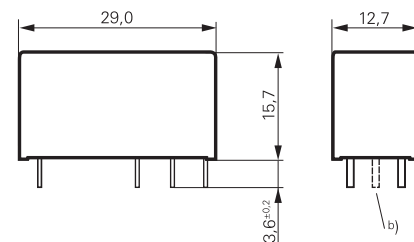
For details see datasheet [Accessories Industrial Power Relay RT<sup>2\)</sup>](#)

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**



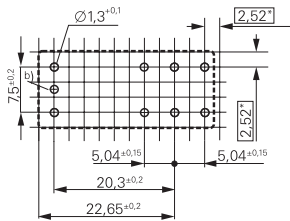
S0272-BC

**Power PCB Relay RT1 Inrush** (Continued)

**PCB layout / terminal assignment**

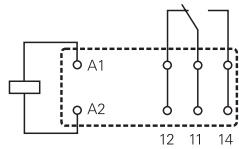
Bottom view on solder pins

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



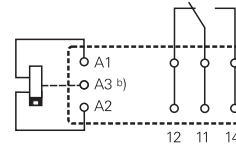
S0418-CM

monostable version



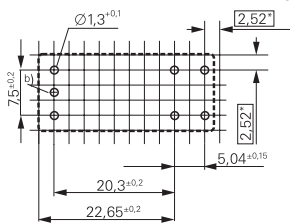
S0163-BE

bistable version a)



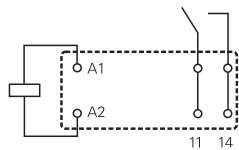
S0163-DI

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



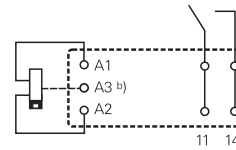
S0418-CV

monostable version



S0163-BF

bistable version a)

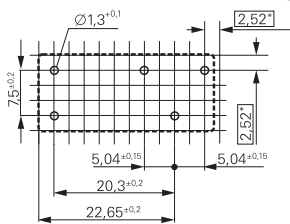


a) Indicated contact position during or after coil energization with reset voltage.

b) for 2 coil version only

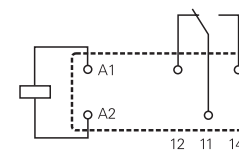
S0163DPS

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



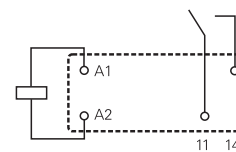
S0418-CN

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** AgSnO<sub>2</sub>

**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 <sub>2</sub>	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 <sub>2</sub>	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

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[8-1415389-1](#)