

**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



F0177-C



Typical applications  
Domestic appliances, heating control, lighting control

**Approvals**

VDE REG.-Nr. 6106, cULus E214025, cCSAus 14385  
Technical data of approved types on request

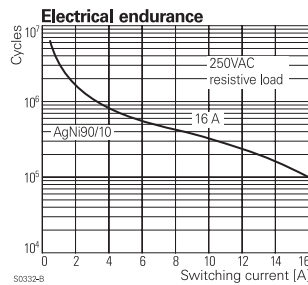
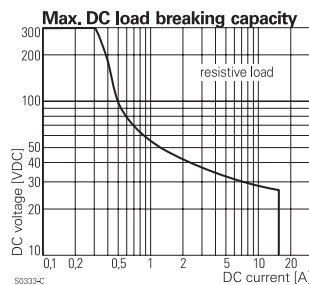
**Contact Data**

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 <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>
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, 277VAC resistive, 85°C	50x10 <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>

Mechanical endurance  
monostable version >30x10<sup>6</sup> operations  
bistable version >5x10<sup>6</sup> operations



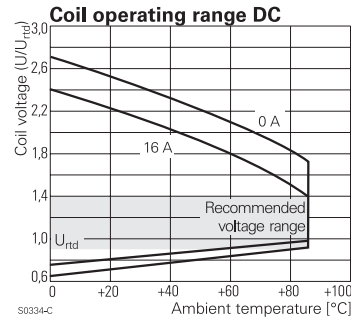
**Coil Data, DC coil**

Coil voltage range	5 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% <sup>1)</sup>	Rated coil power mW
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

<sup>1)</sup> Coil resistance ±12%.  
All figures are given for coil without pre-energization, at ambient temperature +23°C.  
Other coil voltages on request.



**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	

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

**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>					
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**

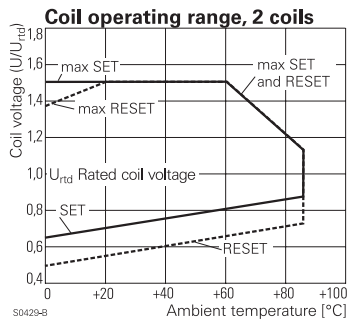
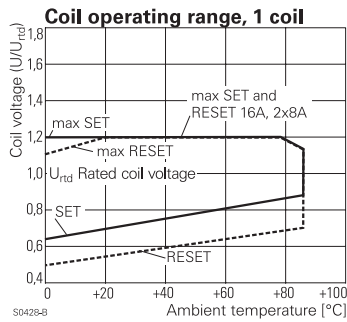
F05	5	3.5	2.8	42	595
F06	6	4.2	3.3	55	655
F12	12	8.4	6.6	240	600
F24	24	16.8	13.2	886	650

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	1000V <sub>rms</sub>
between open contacts	5000V <sub>rms</sub>
between contact and coil	
Clearance/creepage	≥10/10mm
between contact and coil	
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 <a href="http://www.tycoelectronics.com/customersupport/rohssupportcenter">www.tycoelectronics.com/customersupport/rohssupportcenter</a>	
Ambient temperature	-40 to 85°C
Category of environmental protection	RTII - flux proof
IEC 61810	
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	270°C/10s
IEC 60068-2-20	
Packaging/unit	tube/20 pcs., box/500 pcs.

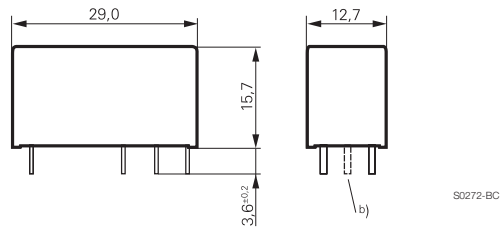
2) socket available for 1 coil version only, see Accessories

**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**



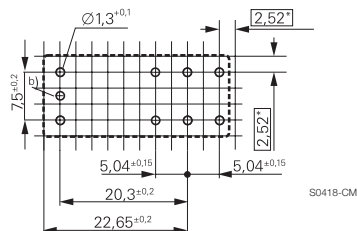
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**Power PCB Relay RT1 Inrush** (Continued)

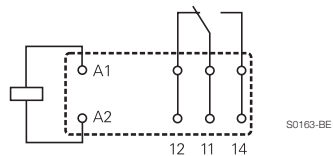
**PCB layout / terminal assignment**

Bottom view on solder pins

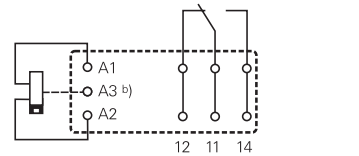
16A, 1 form C (CO) contact, pinning 5mm



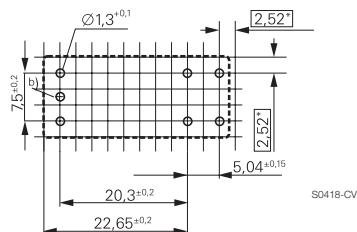
monostable version



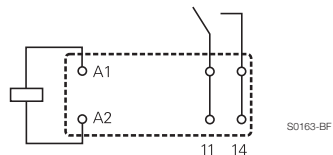
bistable version <sup>a)</sup>



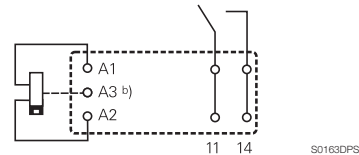
16A, 1 form A (NO) contact, pinning 5mm



monostable version



bistable version <sup>a)</sup>



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

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

b) for 2 coil version only

**Product code structure**

Typical product code **RT 3 3 L 012**

**Type**

**RT** Power PCB Relay RT1 Inrush

**Version**

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

**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

Product code	Version	Contact material	Coil version	Coil	Part number
RT31L012	1 form C (NO)	AgSnO <sub>2</sub>	Monostable	12VDC	7-1393239-3
RT31L024	16A, pinning 5mm flux proof	AgNi 90/10		24VDC	7-1393239-5
RT31L048				48VDC	7-1393239-6
RT33K012	1 form A (NO)	AgNi 90/10		12VDC	2-1393240-3
RT33K024	16A, pinning 5mm flux proof			24VDC	2-1393240-4
RT33KF12		AgSnO <sub>2</sub>	Bistable 2 coils	12VDC	1-1415540-1
RT33L012			Monostable		3-1393240-3
RT33L024				24VDC	3-1393240-5
RT33LA12			Bistable 1 coil	12VDC	2-1393240-7
RT33LA24				24VDC	3-1415379-1

This list represents the most common types and does not show all variants covered by this datasheet. Other types on request