

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

Technical data of approved types on request

Contact Data

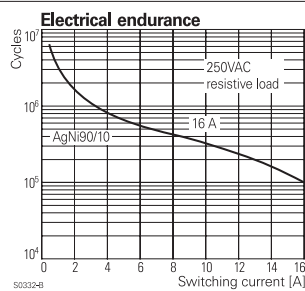
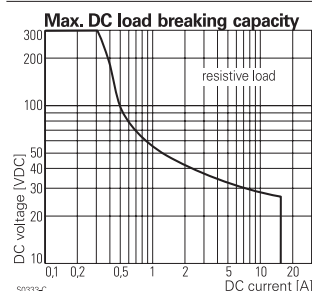
Contact arrangement	1 form C (CO) or 1 form A (NO)	
Rated voltage	250VAC	
Max. switching voltage	400VAC	
Rated current	16A	
Limiting continuous current	16A, UL: 20A (K-version)	
Limiting making current,		
max. 4s, df 10%	30A	
max. 20ms (incandescent lamps), RT33L version	80A	
Breaking capacity max.	4000VA	
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	6x10 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			>30x10 ⁶ operations
bistable version			>5x10 ⁶ operations



Coil Data, DC coil

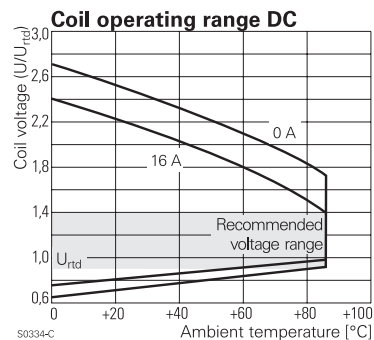
Coil voltage range	5 to 110VDC
Operative range, IEC 61810	2
Coil insulation system according UL	class F

Coil versions, DC coil

Coil code	Rated voltage VDC	Operate voltage VDC	Release voltage VDC	Coil resistance $\Omega \pm 10\%$ ¹⁾	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 ¹⁾	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.



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
bistable, 1 coil					
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

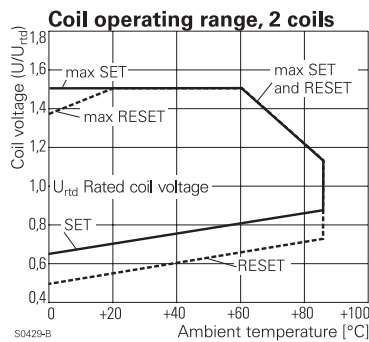
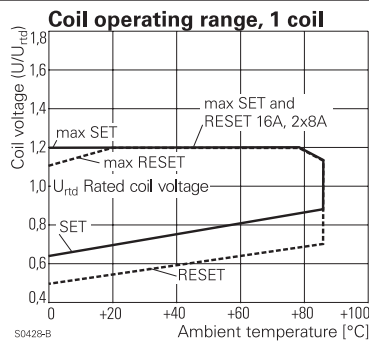
F05	5	3.5	2.8	42	595
F06	6	4.2	3.3	55	655
F12	12	8.4	6.6	240	600
F24	24	16.8	13.2	886	650

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		
	A1	A2	A1	A3	A2
Coil terminals					
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-in²⁾

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

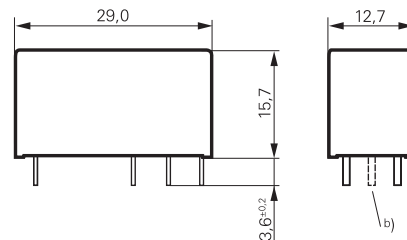
Accessories

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



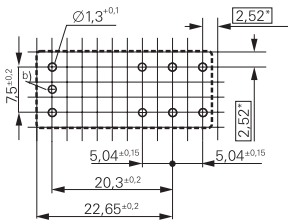
S0272-BC

Power PCB Relay RT1 Inrush (Continued)

PCB layout / terminal assignment

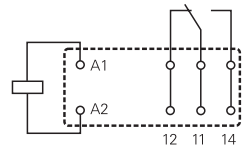
Bottom view on solder pins

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



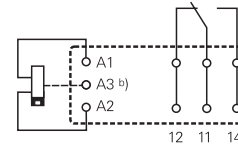
S0418-CM

monostable version



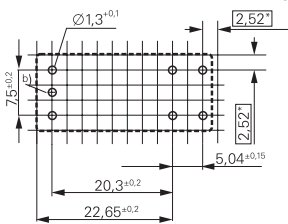
S0163-BE

bistable version a)



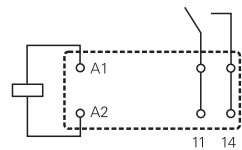
S0163-DI

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



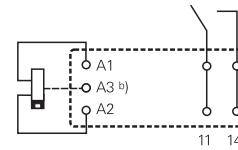
S0418-CV

monostable version



S0163-BF

bistable version a)

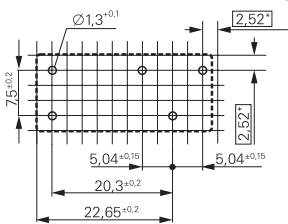


a) Indicated contact position during or after coil energization with reset voltage.

b) for 2 coil version only

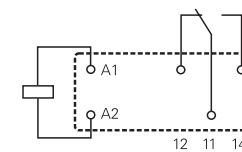
S0163-DPS

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



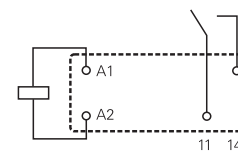
S0418-CN

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	Contact material	Coil	Coil	Part Number
RT31L012	1 form C (CO)	AgSnO ₂	Monostable	12VDC	7-1393239-3
RT31L024	16A, pinning 5mm			24VDC	7-1393239-5
RT31L048	flux proof			48VDC	7-1393239-6
RT33K012	1 form A (NO)	AgNi 90/10		12VDC	2-1393240-3
RT33K024	16A, pinning 5mm			24VDC	2-1393240-4
RT33KF12	flux proof		Bistable 2 coils	12VDC	1-1415540-1
RT33L012		AgSnO ₂	Monostable		3-1393240-3
RT33L012WG					2-1415538-2
RT33L024				24VDC	3-1393240-5
RT33LA12			Bistable 1 coil	12VDC	2-1393240-7
RT33LA24				24VDC	3-1415379-1
RT33LF12			Bistable 2 coils	12VDC	2-1393240-8
RTD1L005	1 form C (CO)	AgSnO ₂	Monostable	5VDC	1-1415537-7
RTD1L012	16a, pinning 5mm			12VDC	5-1393238-6
RTD1L024	sealed			24VDC	8-1415398-1

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