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

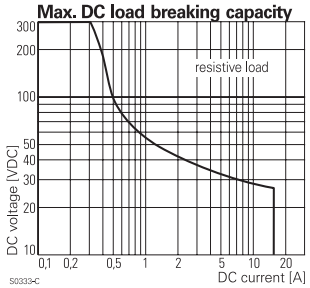
Contact arrangement	1 form C (CO) or 1 form A (NO)
Rated voltage	250VAC
Max. switching voltage	400VAC
Rated current	16A
Limiting continuous current	16A, UL: 20A (K-version)
Limiting making current,	
max. 4s, df 10%	30A
max. 20ms (incandescent lamps), RT33L version	80A
Breaking capacity max.	4000VA
Contact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

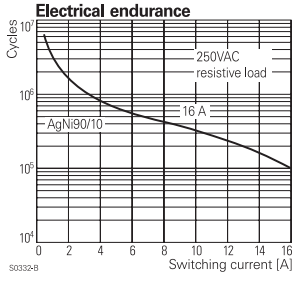
Type	Contact	Load	Cycles
IEC 61810			
RT33L	A (NO)	16A, 250VAC resistive, 85°C	50x10^3
RT33L	A (NO)	10A, 400VAC resistive, 85°C	10x10^3
RT31	C (CO)	16A, 250VAC resistive, 85°C	6x10^3
RT33K	A (NO)	16A, 250VAC resistive, 85°C	30x10^3
UL 508			
RT33K	A (NO)	20A, 277VAC general purpose, 40°C	10x10^3
RT33L	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

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

Max. DC load breaking capacity



Electrical endurance



Coil Data, DC coil

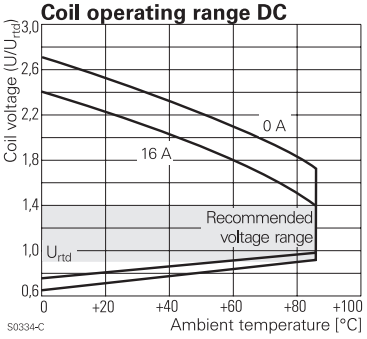
Coil voltage range	5 to 110VDC
Operative range, IEC 61810	2
Coil insulation system according UL	class F

Coil versions, DC coil

Coil code	Rated voltage VDC	Operate voltage VDC	Release voltage VDC	Coil resistance Ω±10%[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 ±12%.
All figures are given for coil without pre-energization, at ambient temperature +23°C.
Other coil voltages on request.

Coil operating range DC



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	

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Power PCB Relay RT1 Inrush (Continued)

Coil Data (continued)

Coil versions, bistable coil

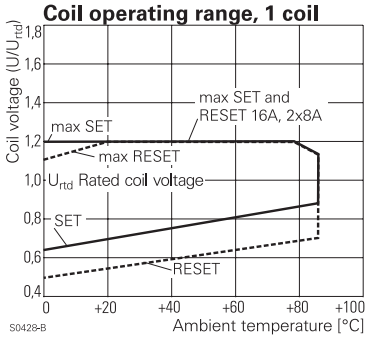
Coil code	Rated voltage VDC	Set voltage VDC	Reset voltage VDC	Coil resistance Ω±10%	Rated coil power mW
bistable, 1 coil					
A05	5	3.5	2.8	62	403
A06	6	4.2	3.3	90	400
A12	12	8.4	6.6	360	400
A24	24	16.8	13.2	1440	400
bistable, 2 coils					
F05	5	3.5	2.8	42	595
F06	6	4.2	3.3	55	655
F12	12	8.4	6.6	240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

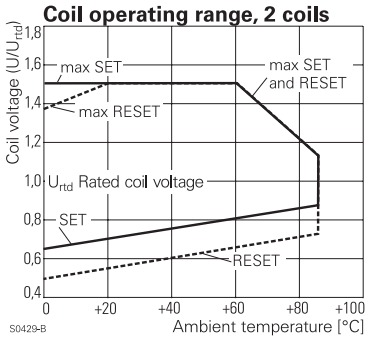
Bistable coils - operation

Version	1 coil		2 coils		
Coil terminals	A1	A2	A1	A3	A2
Operate	+	-		+	-
Reset	-	+	-	+	
Contact position not defined at delivery					

Coil operating range, 1 coil



Coil operating range, 2 coils



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/customersupport/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
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	270°C/10s
Packaging/unit	tube/20 pcs., box/500 pcs.

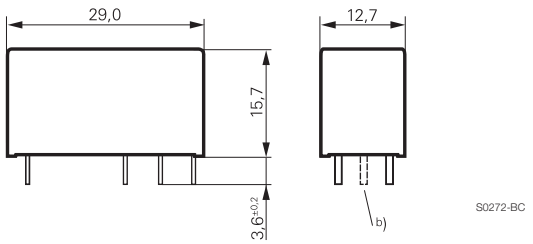
2) socket available for 1 coil version only, see Accessories

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



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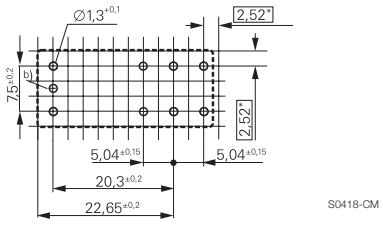
Power PCB Relay RT1 Inrush (Continued)

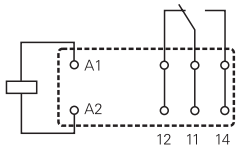
PCB layout / terminal assignment
Bottom view on solder pins

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



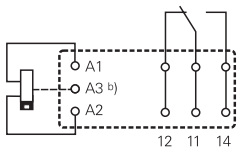
S0418-CM

monostable version



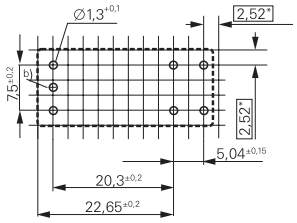
S0163-BE

bistable version a)



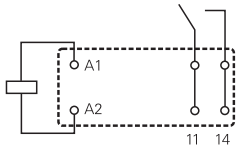
S0163-DI

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



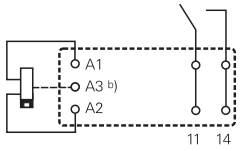
S0418-CV

monostable version



S0163-BF

bistable version a)

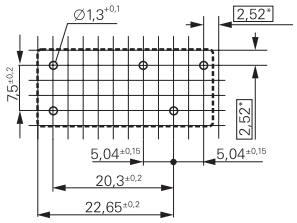


S0163DPS

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

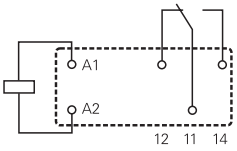
b) for 2 coil version only

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



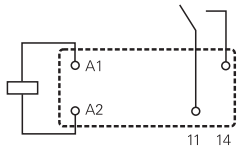
S0418-CN

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 $AgSnO_2$

Coil
Coil code: please refer to coil versions table

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

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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
RTD1L012	1 form C (CO) 16a, pinning 5mm sealed	$AgSnO_2$	Monostable	12VDC	5-1393238-6

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