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**

Typical applications
Domestic appliances, heating control, lighting control

F0177-C

Approvals

VDE REG.-Nr. 6106, UL 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⁻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

Frequency of operation, with/without load — 360/72000h^{-1}

Contact ratings

Type	Contact	Load	Cycles
IEC 61810			
RT33L	A (NO)	16A, 250VAC resistive, 85°C	50x10³
RT33K	A (NO)	16A, 250VAC resistive, 85°C	30x10³
UL 508			
RT33K	A (NO)	20A, 277VAC general purpose, 40°C	10x10³
RT33L	A (NO)	16A, 250VAC resistive, 85°C	50x10³
RT33L	A (NO)	1000W Tungsten, 120VAC, 60 Hz, 40°C	6x10³
RT33L	A (NO)	1000W standard ballast, 120VAC, 60 Hz, 40°C	6x10³

Mechanical endurance
monostable version — $>30x10^6$ operations
bistable version — $>5x10^6$ operations

Max. DC load breaking capacity

S0333-C

Electrical endurance

S0332-B
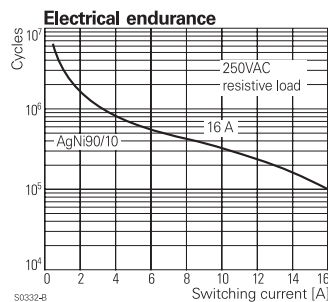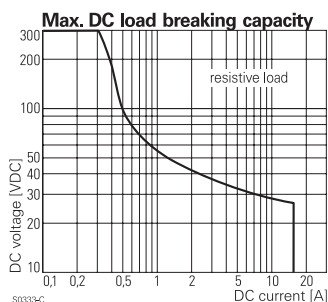
Coil Data, DC coil

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

S0334-C
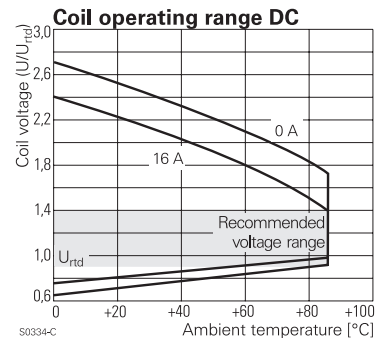
Coil Data, bistable coils

	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	

Datasheets and product specification
according to IEC 61810-1 and to be used
only together with the 'Definitions' section.

Datasheets and product data is subject to the
terms of the disclaimer and all chapters of
the 'Definitions' section, available at
http://relays.te.com/definitions

Datasheets, product data, 'Definitions' sec-
tion, application notes and all specifications
are subject to change.

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
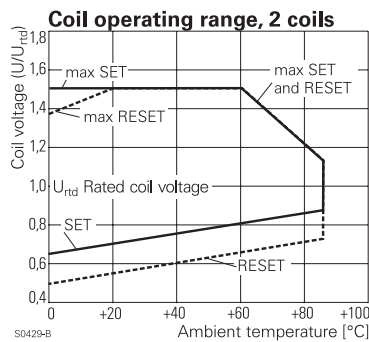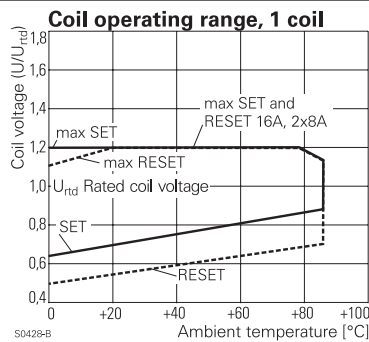
Insulation Data

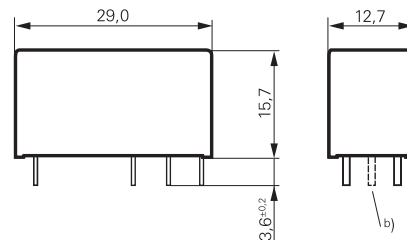|	
Initial dielectric strength	
between open contacts	1000V$_{rms}$
between contact and coil	5000V$_{rms}$
Clearance/creepage	
between contact and coil	≥10/10mm
Material group of insulation parts	IIIa
Tracking index of relay base	PTI 250V

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

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

Datasheets and product specification according to IEC 61810-1 and to be used only together with the 'Definitions' section.

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Datasheets, product data, 'Definitions' section, application notes and all specifications are subject to change.

Power PCB Relay RT1 Inrush (Continued)

PCB layout / terminal assignment
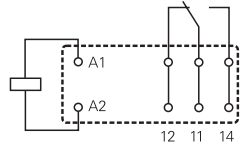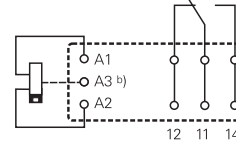Bottom view on solder pins

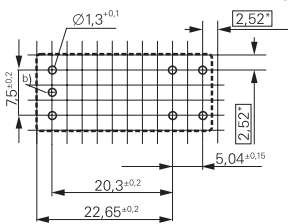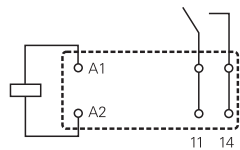16A, 1 form C (CO) contact, pinning 5mm   monostable version   bistable version a)
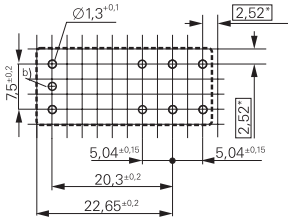
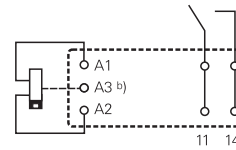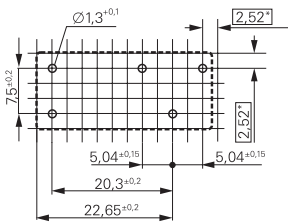16A, 1 form A (NO) contact, pinning 5mm   monostable version   bistable version a)

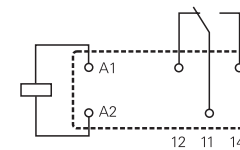a) Indicated contact position during or after coil energization with reset voltage.

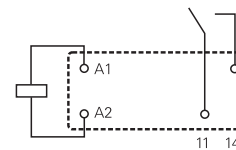b) for 2 coil version only

12A, 1 form C (CO) contact, pinning 5mm   monostable version, 1 form C (CO)   monostable version, 1 form A (NO)

*) 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	
RT	Power PCB Relay RT1 Inrush
Version	
3	16A, pinning 5mm, flux proof
2	12A, 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$_2$
Coil	
	Coil code: please refer to coil versions table

Product code	Version	Contact material	Coil version	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	12VDC	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