

## Power PCB Relay RT1

- 1 pole 12A/16A, 1 form C (CO) or 1 form A (NO) contact
- DC or AC coil
- 5kV/10mm coil-contact, reinforced insulation
- Ambient temperature 85°C (DC coil)
- WG version: product in accordance to IEC 60335-1
- Reflow version: for THR (Through-Hole Reflow) soldering process

### Typical applications

Boiler control, timers, garage door control, POS automation, interface modules



F0144-C



### Approvals

VDE Cert. No. 40007571, cULus E214025, cCSAus 1142018;  
CQC 18002197247

Technical data of approved types on request

Contact Data	12A	16A
Contact arrangement	1 form C (CO) or 1 form A (NO)	
Rated voltage	250VAC	
Max. switching voltage	400VAC	
Rated current	12A	16A
Limiting continuous current	12A	16A, UL: 20A
Limiting making current max. 4s, duty factor 10%	25A	30A
Breaking capacity max.	3000VA	4000VA
Contact material	AgNi 90/10, AgNi 90/10 gold plated	
Frequency of operation, with/without load		
DC coil	360/72000h <sup>-1</sup>	
AC coil	360/36000h <sup>-1</sup>	
Operate/release time max., DC coil	8/6ms	
Bounce time max., DC coil, form A/form B	4/6ms	
Electrical endurance	see electrical endurance graph <sup>1)</sup>	

### Contact ratings

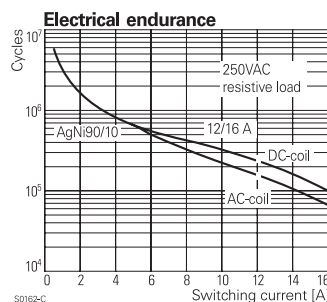
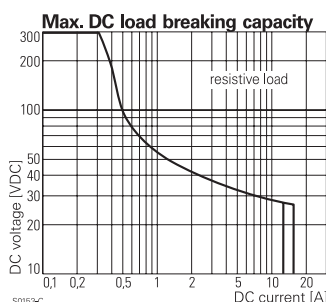
Type	Contact	Load	Cycles
<b>IEC 61810</b>			
RT314 DC-coil	A (NO)	16A, 250VAC, cosφ=1, 85°C	30x10 <sup>3</sup>
RT314 DC-coil	C (CO)	16A, 250VAC, cosφ=1, 85°C	10x10 <sup>3</sup>
RT314 DC-coil	A (NO)	10A, 400VAC, cosφ=1, 85°C	150x10 <sup>3</sup>
RT114 DC-coil	A (NO)	12A, 250VAC, cosφ=1, 85°C	50x10 <sup>3</sup>
RT114 AC-coil	A (NO)	12A, 250VAC, cosφ=1, 70°C	100x10 <sup>3</sup>

### UL 508

RT314	A/B (NO/NC)	20A, 250VAC, general purpose, 85°C	6x10 <sup>3</sup>
RT334	A (NO)	16A, 250VAC, gen. purpose, 85°C	50x10 <sup>3</sup>
RT314	A (NO)	1hp, 240VAC, 40°C	1x10 <sup>3</sup>
RT314	A (NO)	FLA/LRA, 4.5/13.1A, 480VAC, 70°C	100x10 <sup>3</sup>

### EN60947-4-1

RT314	A (NO)	250V/2A, AC-3	6.050
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### EN60947-5-1

RT314 DC-coil	A/B (NO/NC)	2A, 24VDC, DC13	6.050
RT314	A (NO)	250/3A, AC-15	6.050

### EN60730-1

RT314 DC-coil	A (NO)	12(2)A, 250VAC, 85°C	100x10 <sup>3</sup>
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1) For reflow solderable versions: actual contact performance may be influenced by the reflow soldering process.

### Contact Data (continued)

Mechanical endurance	
DC coil	>30x10 <sup>6</sup> operations
AC coil	>10x10 <sup>6</sup> operations
AC coil, reflow version	>5x10 <sup>6</sup> operations

### Coil Data

Coil voltage range, DC coil/ AC coil	5 to 110VDC / 24 to 230VAC
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>2)</sup>	Rated coil power mW
005	5	3.5	0.5	62	403
006	6	4.2	0.6	90	400
009	9	6.3	0.9	200	400
012	12	8.4	1.2	360	400
018	18	12.6	1.8	770	420
020	20	14.0	2.0	952	420
024	24	16.8	2.4	1440	400
048	48	33.6	4.8	5520	417
060	60	42.0	6.0	8570 <sup>2)</sup>	420
110	110	77.0	11.0	28800 <sup>2)</sup>	420

2) Coil resistance ±12%.

All figures are given for coil without pre-energization, at ambient temperature +23°C.

Other coil voltages on request.

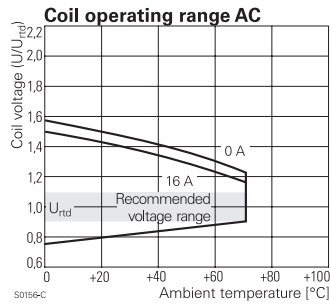
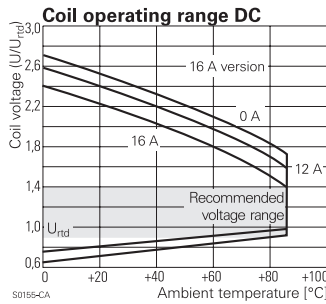
### Coil versions, AC coil 50/60 Hz

Coil code	Rated voltage VAC	Operate voltage VAC	Release voltage VAC	Coil resistance Ω±15% <sup>3)</sup>	Rated coil power VA
524	24	18.0	3.6	350 <sup>3)</sup>	0.76
548	48	36.0	7.2	1420	0.74
615	115	86.3	17.3	8100	0.76
620	120	90.0	18.0	8800	0.75
700	200	150.0	30.0	24350	0.76
730	230	172.5	34.5	32500	0.74

3) Coil resistance ±10%.

All figures are given for coil without pre-energization, at ambient temperature +23°C, 50 Hz.

**Power PCB Relay RT1** (Continued)



Other coil voltages on request.

**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	IIla
Tracking index of relay base	PTI 250V
reflow version	PTI 175V

**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 or Reflow version	according EN60335, par30
Ambient temperature	
DC coil	-40 to 85°C
AC coil	-40 to 70°C
Category of environmental protection, IEC 61810	
standard version	RTII - flux proof, RTIII - wash tight
reflow version	RTII - flux proof
Vibration resistance (functional)	

form A/form B contact, 30 to 500Hz	20g/5g
Shock resistance (destructive)	100g

**Other Data** (continued)

Terminal type	
standard version	PCB-THT, plug-in
reflow version	PCB-THR
Mounting distance	AC coil: ≥2.5mm
Weight	14g
Resistance to soldering heat	THT, IEC 60068-2-20
RTII	270°C/10s
RTIII	260°C/5s
Resistance to soldering heat	THR
reflow soldering (for reflow version)	forced gas convection <sup>4)</sup> or vapour phase <sup>5)</sup>
temperature profile	according EN61730
Packaging/unit	tube/20 pcs., box/500 pcs.
4) infrared heating not allowed	
5) recommended fluid LS/230	

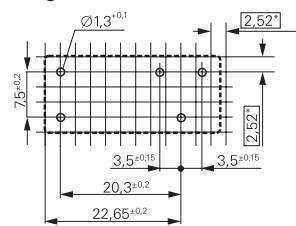
**Accessories**

For details see datasheet [Accessories Industrial Power Relay RT1](#)  
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.

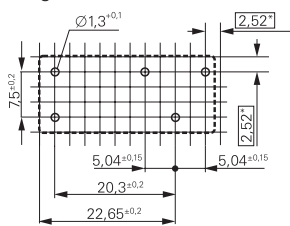
**PCB layout / terminal assignment**

Bottom view on solder pins

12A, pinning 3.5mm

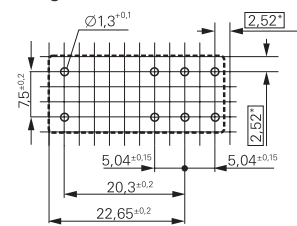


12A, pinning 5mm

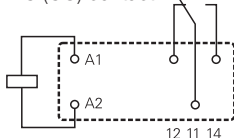


\*) With the recommended PCB hole sizes a grid pattern from 2.5mm to 2.54mm can be used.

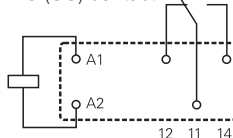
16A, pinning 5mm



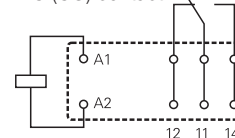
1 form C (CO) contact



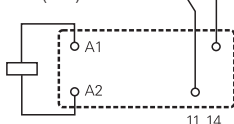
1 form C (CO) contact



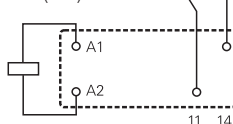
1 form C (CO) contact



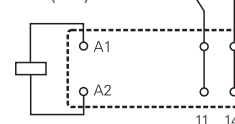
1 form A (NO) contact



1 form A (NO) contact

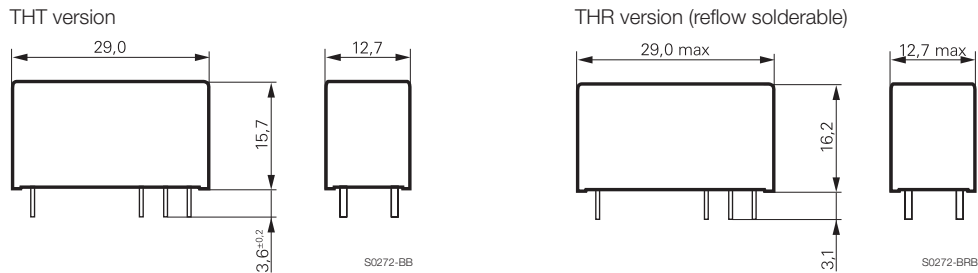


1 form A (NO) contact

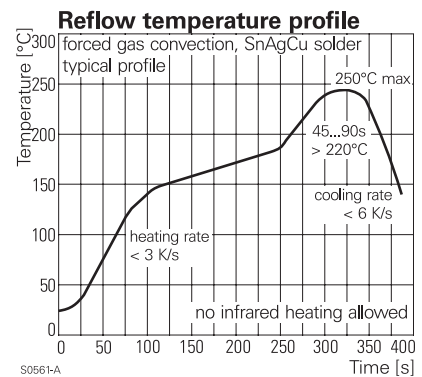
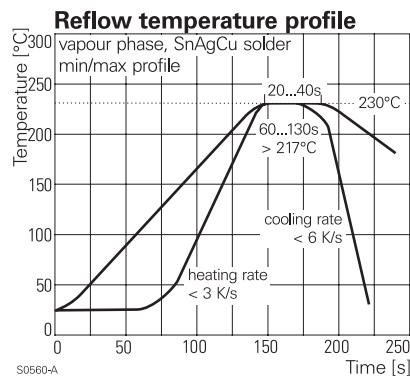


**Power PCB Relay RT1 (Continued)**

**Dimensions**



**Process conditions for Reflow soldering**  
according to EN61760-1



**Product code structure**

Typical product code

**RT 3 1 4 024**

**Type**

**RT** Power PCB Relay RT1

**Version**

- 1** 12A, pinning 3.5mm, flux proof
- 2** 12A, pinning 5mm, flux proof
- 3** 16A, pinning 5mm, flux proof
- B** 12A, pinning 3.5mm, wash tight
- C** 12A, pinning 5mm, wash tight
- D** 16A, pinning 5mm, wash tight

**Contact arrangement**

- 1** 1 form C (CO) contact
- 3** 1 form A (NO) contact

**Contact material**

- 4** AgNi 90/10
- 5** AgNi 90/10 gold plated (for type RT31.)

**Coil**

Coil code: please refer to coil versions table

**Version**

- Blank** Standard version
- WG** Product in accordance with IEC 60335-1 (domestic appliances)
- R** Reflow solderable

**Power PCB Relay RT1** (Continued)

Product code	Version	Contacts	Contact material	Coil	Version	Part number
RT114009	12A,	1 form C (CO)	AgNi 90/10	9VDC	Standard	1393239-9
RT114012	pinning 3.5mm,	1 form C (CO)		12VDC		1419108-1
RT114012WVG	flux proof	1 form C (CO)		12VDC	IEC60335-1 compliant	7-1415538-6
RT114024		1 form C (CO)		24VDC	Standard	1-1393239-3
RT114024WVG		1 form C (CO)		24VDC	IEC60335-1 compliant	1415539-4
RT114730		1 form C (CO)		230VAC	Standard	1-1393239-9
RT115024		1 form C (CO)	AgNi 90/10 gold pl.	24VDC		2-1393239-1
RT134012		1 form A (NO)	AgNi 90/10	12VDC		2-1393239-6
RT134024		1 form A (NO)		24VDC		3-1393239-0
RT214012	12A,	1 form C (CO)		12VDC		5-1393239-4
RT214024	pinning 5mm,	1 form C (CO)		24VDC		5-1393239-5
RT214524	flux proof	1 form C (CO)		24VAC		5-1393239-9
RT214730		1 form C (CO)		230VAC		1419108-6
RT314005	16A,	1 form C (CO)		5VDC		9-1393239-1
RT314006	pinning 5mm,	1 form C (CO)		6VDC		9-1393239-3
RT314009	flux proof	1 form C (CO)		9VDC		9-1393239-4
RT314012		1 form C (CO)		12VDC		9-1393239-5
RT314012R		1 form C (CO)		12VDC	Reflow solderable	4-1415543-6
RT314012WVG		1 form C (CO)		12VDC	IEC60335-1 compliant	8-1415535-6
RT314018		1 form C (CO)		18VDC	Standard	9-1393239-7
RT314024		1 form C (CO)		24VDC		9-1393239-8
RT314024WVG		1 form C (CO)		24VDC	IEC60335-1 compliant	1415538-7
RT314048		1 form C (CO)		48VDC	Standard	1393240-1
RT314060		1 form C (CO)		60VDC		1-1649328-7
RT314110		1 form C (CO)		110VDC		1393240-3
RT314524		1 form C (CO)		24VAC		1393240-4
RT314548		1 form C (CO)		48VAC		1393240-5
RT314615		1 form C (CO)		115VAC		1393240-6
RT314730		1 form C (CO)		230VAC		1393240-7
RT314730WVG		1 form C (CO)		230VAC	IEC60335-1 compliant	4-1415538-0
RT315024		1 form C (CO)	AgNi 90/10 gold pl.	24VDC	Standard	1-1393240-4
RT334009WVG		1 form A (NO)	AgNi 90/10	9VDC	IEC60335-1 compliant	3-1415538-1
RT334012		1 form A (NO)		12VDC	Standard	4-1393240-5
RT334012WVG		1 form A (NO)		12VDC	IEC60335-1 compliant	1-1415527-1
RT334024		1 form A (NO)		24VDC	Standard	4-1393240-8
RT334048		1 form A (NO)		48VDC		5-1393240-0
RTB14005	12A,	1 form C (CO)		5VDC		1-1393238-2
RTB14012	pinning 3.5mm,	1 form C (CO)		12VDC		1-1393238-5
RTB14024	wash tight	1 form C (CO)		24VDC		1-1393238-9
RTB14524		1 form C (CO)		24VAC		2-1393238-4
RTB34012		1 form A (NO)		12VDC		3-1393238-0
RTC14024	12A, 5mm, wash tight	1 form C (CO)		24VDC		5-1393238-0
RTD14005	16A,	1 form C (CO)		5VDC		5-1393238-9
RTD14012	pinning 5mm,	1 form C (CO)		12VDC		6-1393238-2
RTD14024	wash tight	1 form C (CO)		24VDC		6-1393238-8
RTD14048		1 form C (CO)		48VDC		6-1393238-9

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

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