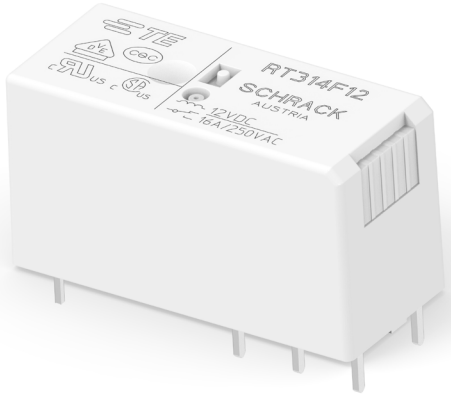
SCHRACK
POWER PCB RELAY RT1 BISTABLE

GENERAL PURPOSE RELAYS
PCB RELAYS

INTRODUCTION

TE Connectivity (TE)'s SCHRACK RT1 Bistable Power PCB Relay series offers single-pole relays rated up to 16A for general-purpose industrial applications. These relays feature polarized bistable coil configurations (one or two coils), reinforced insulation with 5kV/10mm clearance, and comply with IEC 60335-1 for safety. They support switching voltages up to 400VAC and rated currents up to 16A, with a maximum making current of 30A and breaking capacity of 4000VA, ensuring robust performance.



FEATURES

- 1 pole 16A, 1 form C (CO) or 1 form A (NO) contact
- Polarized bistable version with 1 or 2 coils
- 5kV/10mm coil-contact
- Reinforced insulation
- Product in accordance to IEC 60335-1

APPLICATIONS

- Battery powered equipment
- Memory function

APPROVALS

- VDE Cert. No. 40007571
- UL E214025
- cCSAus 1142018
- CQC 18002197364

Technical data of approved types on request

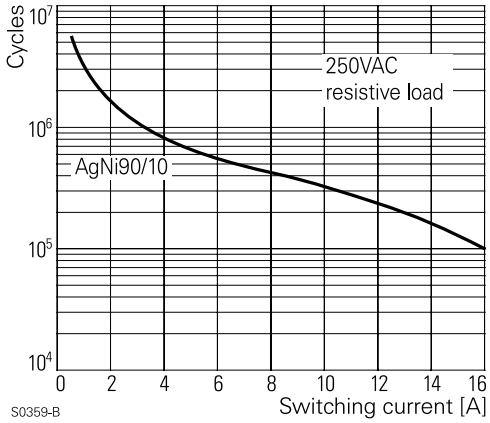
CONTACT DATA

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
Limiting making current, max 4s, duty factor 10%	30A
Breaking capacity max.	4000VA
Contact material	AgNi 90/10 AgNi 90/10 gold plated
Frequency of operation, with/without load	360/72000h^{-1}
Operate/reset time max.	10/10ms
Bounce time max., form A/form B	3/6ms

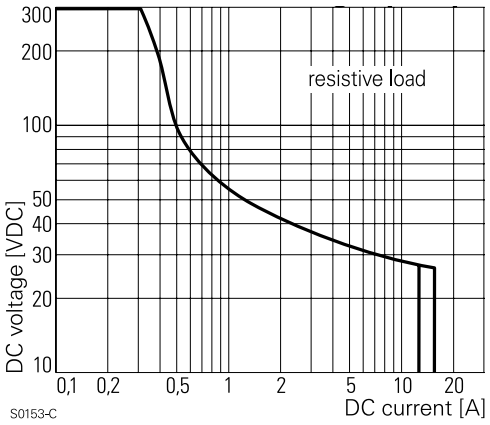
CONTACT RATINGS

Type	Contact	Load	Cycles
IEC 61810			
RT1*4	A (NO)	12A, 250VAC resistive, 85°C	30x10^3
RT1*4	C (CO)	12A, 250VAC resistive, 85°C	10x10^3
RT314	A (NO)	16A, 250VAC resistive, 85°C	30x10^3
RT314	C (CO)	16A, 250VAC resistive, 85°C	10x10^3
UL 61810-1 (former UL 508)			
RT1*4	A (NO)	12A, 250VAC, general purpose, 85°C	50x10^3
RT**4	A (NO)	R300, 85°C	100x10^3
RT314	A/B (NO/NC)	20A, 250VAC, general purpose, 85°C	6x10^3
RT334	A (NO)	16A, 250VAC, general purpose, 85°C	50x10^3
RT314	A (NO)	1hp, 240VAC, 40°C	1x10^3
Mechanical endurance		>5x10^6 operations	

ELECTRICAL ENDURANCE



MAX. DC LOAD BREAKING CAPACITY



COIL DATA

Bistable coils	1 Coil	2 coils
Magnetic system	polarized, bistable	
Coil voltage range	3 to 36VDC	
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 UL1446	class F	

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					
A03	3	2.1	1.7	21	429
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					
F03	3	2.1	1.7	15	600
F05	5	3.5	2.8	42	595
F06	6	4.2	3.3	55	655
F09	9	6.3	5.0	135	600
F12	12	8.4	6.6	240	600
F24	24	16.8	13.2	886	650
F36	36	25.2	19.8	1994	650

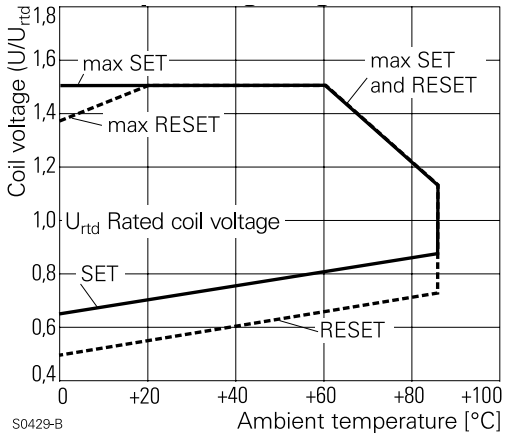
All figures are given for coil without pre-energization, at ambient temperature +23°C.Other coil voltages on request.

BISTABLE COILS - OPERATION

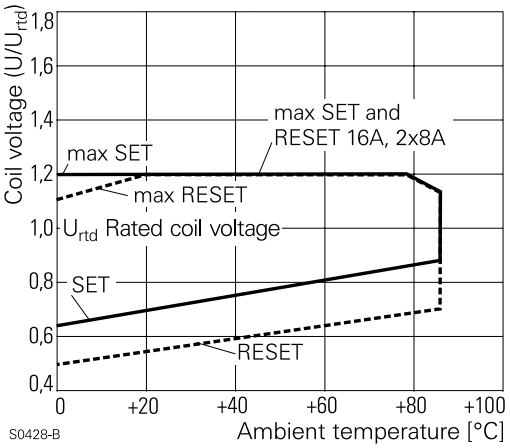
Version	1 coil		2 coils		
Coil terminals	A1	A2	A1	A3	A2
Operate	+	-		+	-
Rest	-	+	-	+	

Contacts are preferably in reset contact position leaving our production. During transportation and handling the position may change. Ensure reset position before any thermal processing (e.g. soldering).

COIL OPERATING RANGE, 2 COILS



COIL OPERATING RANGE, 1 COIL



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	
bistable 1 coil	-10 to 85°C
bistable 2 coils	-40 to 85°C
Category of environmental protection	
IEC 61810	RTII - flux proof, RTIII - wash tight
Vibration/shock resistance (functional),	
opening B contact	3/5g
opening closed A contact	6/15g
Shock resistance (destructive)	100g
Terminal type	PCB-THT, plug-in[1)]
Weight	14g
Resistance to soldering heat THT, IEC 60068-2-20	
RTII - flux proof	270°C/10s
RTIII - wash tight	260°C/5s
Packaging/unit	tube/20 pcs., box/500 pcs.

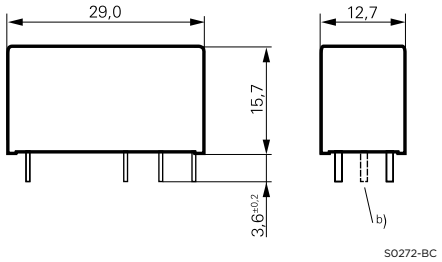
1) socket available for 1 coil version only, see Accessories.

ACCESSORIES

For 1 coil version, details see datasheet	**Accessories Industrial Power Relay RT**

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 (Unit:mm)

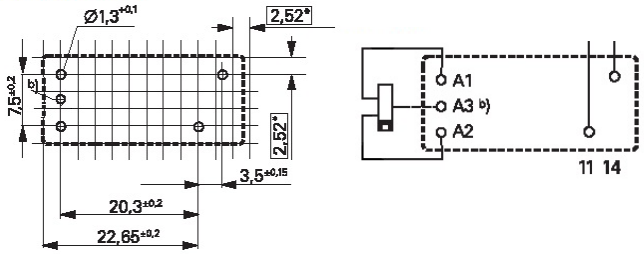


a) Indicated contact position during or after coil energization with reset voltage.
b) for 2 coil version only

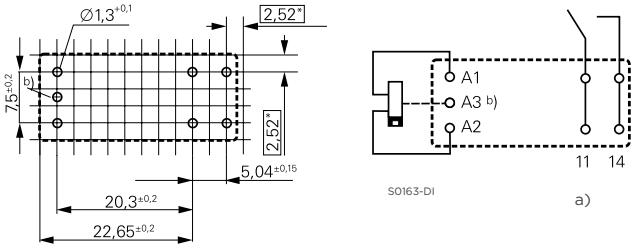
PCB LAYOUT / TERMINAL ASSIGNMENT

Bottom view on solder pins

12A, pinning 3,5mm, 1 form A (NO) contact

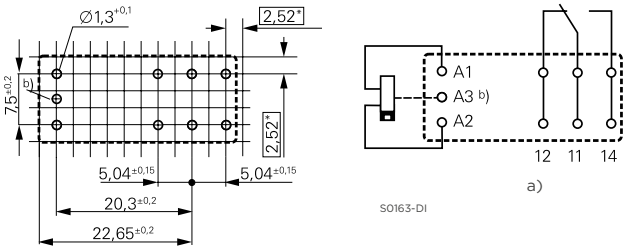


16A, pinning 5mm, 1 form A (NO) contact



*) 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

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



*) 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 1 4 F24

Type

RT	Power PCB Relay RT1 bistable

Version

1	12A, pinning 3.5mm, flux proof
3	16A, pinning 5mm, flux proof
D	16A, pinning 5mm, wash tight

Contact configuration

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

Contact material

4	AgNi 90/10
5	AgNi 90/10 gold plated

Version

Blank	Standard version

Coil

Coil code	please refer to coil versions table

PRODUCT INFORMATION

Product code	Version	Contacts	Contact material	Coil Version	Coil	Part Number
RT314A03	16A, pinning 5mm, flux proofa	1 form C (CO) contact	AgNi 90/10	Bistable 1 coil	3VDC	7-1393239-7
RT314A05					5VDC	7-1393239-8
RT314A06					6VDC	7-1393239-9
RT314A12					12VDC	8-1393239-0
RT314F03				Bistable 2 coils	3VDC	8-1393239-4
RT314F05					5VDC	8-1393239-5
RT314F06					6VDC	8-1393239-6
RT314F09					9VDC	6-1415351-1
RT314F12					12VDC	8-1393239-7
RT314F24					24VDC	8-1393239-8
RT314F36					36VDC	8-1393239-9
RTD14F03	16A, pinning 5mm, wash tight				3VDC	5-1393238-7
RTD14F12					12VDC	5-1393238-8
RTD15F05			AgNi 90/10 gold plated		5VDC	1415538-8
RT134F12	12A, pinning 3,5mm, flux proof	1 form A (NO) contact	AgNi 90/10		12VDC	1415544-5
RT134F24					24VDC	4-1415382-1
RT114F12		1 form C (CO) contact			12VDC	6-1415543-8
RT114F24					24VDC	5-1415400-1

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

Notes:

1. Datasheets and product specification according to IEC 61810-1 and to be used only together with the 'Definitions' section.
2. 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.
3. Datasheets, product data, 'Definitions' section, application notes and all specifications are subject to change.

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