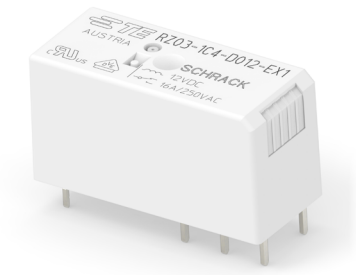
Power PCB Relay RZ Hazardous Locations

- **1 pole 12/16 A, 1 form C (CO) or 1 form A (NO) contact**
- **DC coil 400 mW**
- **5kV/10mm coil-contact, reinforced insulation**
- **Ambient temperature 85°C and up to 105 °C at HOT-version**
- **Product in accordance to IEC 60335-1**
- **Enclosed-break device approvals:**
  - **-Group IIA acc. to IEC 60079-1: Clause 15.5**
    (former IEC 60079-15: Clause 22.4)
  - **-UL121201 Class I, Division 2, Group D Hazardous Location**



Typical applications
Household appliances, boiler control, refrigerator

F0305-A

Approvals

VDE Cert. No. 40023970, UL E214025, UL Hazardous Locations E507797
Technical data of approved types on request

Contact Data

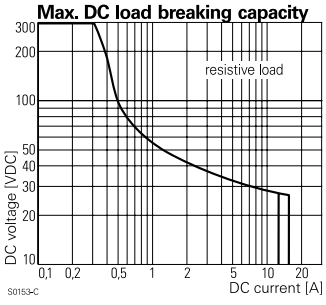
	12A	16A
Contact arrangement	1 form C (CO) or 1 form A (NO)	
Rated voltage	250VAC	
Rated current	12A	16A
Limiting making current (form A contact) max. 4s, duty factor 10%	30A	
Breaking capacity max.	3000VA	4000VA
Contact material	AgNi 90/10 or $AgSnO_2$	
Frequency of operation, with/without load	360/72000h^{-1}	
Operate/release time max.	8/6ms	
Bounce time max., form A/form B	4/10ms	

Contact ratings for EX1 version

Type	Contact	Load	Cycles
IEC 61810-1			
RZ03-1A.	A(NO)	16A, 250VAC, 85°C	30x10^3
RZ03-1C.	C(CO)	16A, 250VAC, 85°C[1)]	6x10^3
RZ01-1A4	A(NO)	12A, 250VAC, 85°C	50x10^3
RZ01-1C4	C(CO)	12A, 250VAC, 85°C	20x10^3
RZ01-1A4	A(NO)	5A, cosϕ=0.3, 250VAC, 85°C	100x10^3
RZ01-1A3	A(NO)	12A, 250VAC, 85°C	30x10^3
RZ01-1C3	C(CO)	12A, 250VAC, 85°C	6x10^3
RZ0H-1A4	A(NO)	16A, 250VAC, 85°C	50x10^3
RZHH-1A4	A(NO)	12A, 250VAC, 105°C	100x10^3 [4)]
UL 61810-1 (former UL508)			
RZ03-1A.	A(NO)	16A GP, 277VAC, 85°C	30x10^3
RZ03-1C4	C(CO)	16A GP, 277VAC, 85°C	6x10^3
RZ01-1A4	A(NO)	12A GP, 277VAC, 85°C	50x10^3
RZ01-1C4	C(CO)	5A GP, 250VAC,70°C	100x10^3
RZ03-1A3	A(NO)	12A GP, 277VAC, 85°C	30x10^3
RZ03-1C3	C(CO)	16A GP, 277VAC, 85°C	6x10^3
RZHH-1A4	A(NO)	12A, 277VAC, 105°C	150x10^3 [3)]
Mechanical endurance			>10x10^6 operations

1) 120 switching cycles / hour

Max. DC load breaking capacity



Coil Data

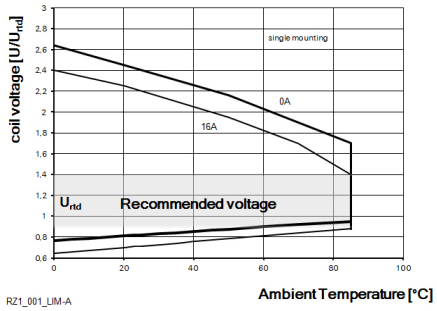
Coil voltage range	3 to 48VDC
Operative range, IEC 61810	2
Coil insulation system according UL1446	class F

Coil versions, DC coil

Coil code	Rated voltage VDC	Operate voltage VDC	Release voltage VDC	Coil resistance Ω±10%	Rated coil power mW
D003	3	2.1	0.3	22	410
D005	5	3.5	0.5	60	420
D006	6	4.2	0.6	90	400
D009	9	6.3	0.9	200	400
D012	12	8.4	1.2	360	400
D015	15	10.5	1.5	562	410
D024	24	16.8	2.4	1440	400
D048	48	33.6	4.8	5730	400

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

Coil operating range RZ 1pol DC-coil



Power PCB Relay RZ Hazardous Locations (Continued)

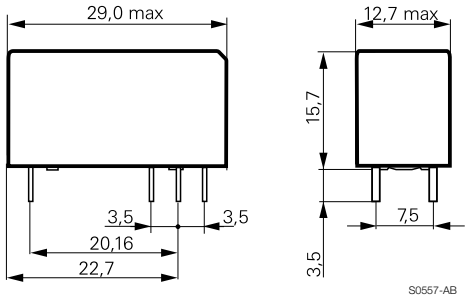
Insulation Data	
Initial dielectric strength	
between open contacts	1000V_{rms}
between contact and coil	5000V_{rms}
Clearance/creepage	
between contact and coil	≥10/10mm
Material group of insulation parts	IIIa
Tracking index of relay base	PTI250V

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	
standard cover version	according EN 60335-1, par.30
Explosive Atmospheres	IEC 60079-1: Enclosed-break device Group IIA[2)]
Ambient temperature	
standard version	-40 to 85°C
Hot version	-40°C to 105°C [3)]
Category of environmental protection	
IEC 61810	RTII - flux proof
Vibration resistance (functional), 30 to 100Hz	
closing form A contact	>15g
opening form A contact	>20g
opening form B contact	>5g
Shock resistance (destructive)	100g
Terminal type	PCB-THT
Mounting distance	
standard version	0mm
Weight	10g
Resistance to soldering heat THT	
IEC 60068-2-20	270°C/10s
Packaging/unit	tube/20 pcs., box/500 pcs.

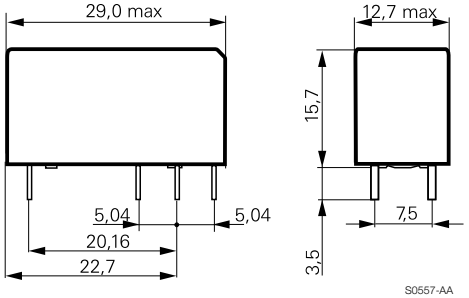
2) The enclosures are capable of withstanding normal handling and assembly operations without damage to seals according IEC 60079-1. Only relays without damage and unaffected open outgasing hole (e.g. labeling, conformal coating, glue) meet the requirements of IEC 60079-1.
3) Based on the requirement of IEC 60079-1 the surface temperatures of the relay are limited to 130°C. The surface temperatures has to be checked in the application. Depending on the contact load it could be necessary that further actions has to be taken to limit the relay surface temperatures to 130°C.

Dimensions

12A, pinning 3.5mm



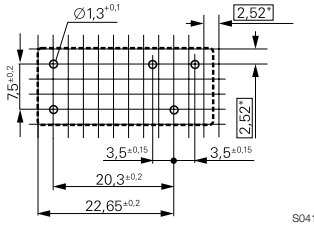
12A, 16A, pinning 5mm



Power PCB Relay RZ Hazardous Locations (Continued)

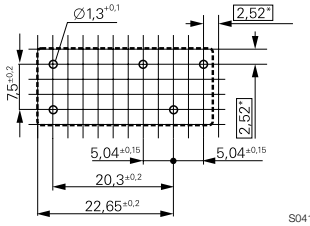
Recommended PCB layout / terminal assignment
Bottom view on solder pins

12A, pinning 3.5mm



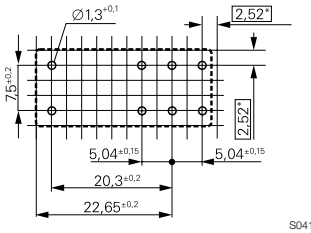
S0418-CB

12A, pinning 5mm



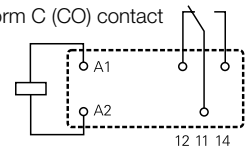
S0418-CN

16A, pinning 5mm



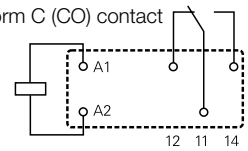
S0418-CA

1 form C (CO) contact



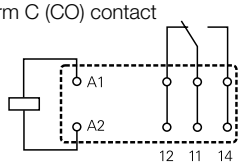
S0163-BG

1 form C (CO) contact



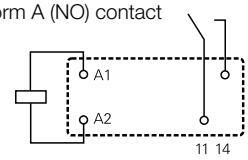
S0163-BC

1 form C (CO) contact



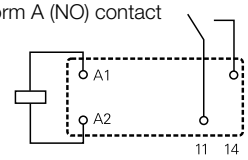
S0163-BE

1 form A (NO) contact



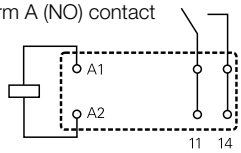
S0163-BH

1 form A (NO) contact



S0163-BD

1 form A (NO) contact



S0163-BF

Recommended pcb hole for manual mounting:
Ø1.3mm

For automated mounting please ask for detailed drawing.

Product code structure	Typical product code	**RZ**	**0**	**3**	**-1C**	**4**	**-D012**	**-EX1**

Type
RZ Power PCB Relay RZ

Version
0 standard version
H Hot version 105°C

Version
1 3.5mm pinning, 12 A
2 5mm pinning, 12 A
3 5mm double pinning, 16 A
H High Performance 5mm double pinning, 16 A

Contact configuration
1A 1 form A (1 NO) contact
1C 1 form C (1 CO) contact

Contact material
4 AgNi 90/10
3 $AgSnO_2$

Coil version
Coil code: please refer to coil versions table

Cover version
EX1 HazLoc (open outgas hole)

Power PCB Relay RZ Hazardous Locations (Continued)

Product code	Version	Contacts	Contact material	Coil	Part number
RZ03-1A3-D012-EX1	16A, pinning 5mm	1 form A (NO)	$AgSnO_2$	12VDC	5-2158000-9
RZ03-1A4-D005-EX1			AgNi 90/10	5VDC	5-2158000-7
RZ03-1A4-D012-EX1				12VDC	5-2158000-3
RZ03-1C4-D012-EX1		1 form C (CO)			4-2158000-6
RZHH-1A4-D012-EX1	16A, pinning 5mm (105°C)	1 form A (NO)			5-2158000-1
RZ01-1C4-D024-EX1	12A, pinning 3,5mm	1 form C (CO)		24VDC	2-2158003-9

Explosive atmospheres

- Equipment protection by type of protection “d“:
Relays are sparking electrical equipment according IEC 60079-1 Explosive atmospheres – Part 1 Equipment protection by flameproof enclosures “d”.

Enclosed-break devices are subjected to a type test filled with and surrounded by an explosive mixture according to the stated group of the equipment, as follows:

- Group IIA: (55+/-0,5) % hydrogen/air at atmospheric pressure;
- Group IIB: (37+/-0,5) % hydrogen/air at atmospheric pressure;
- Group IIC: (40+/-1) % hydrogen, (20+/-) % oxygen and the remainder nitrogen at atmospheric pressure or alternatively (27+/-1,5) % hydrogen/air at on overpressure at a pressure equal to 1,5 times atmospheric pressure.