

2-pole  
(1 Form A 1 Form B)

### FEATURES

1. Forcibly guided contact structure  
Complies with IEC EN 61810-3, Type A Equipped with forcibly guided contact structure that enables detection of contact welding and construction of safety circuit.
2. Power or signal contacts available
3. Size:

Type	L × W × H (mm inch)
1 Form A 1 Form B THT /THR	32.5×14.0×7.8 [including 0.7mm stand-off]

4. Very low profile: 7.8 mm
5. Insulation according to EN 60664-1:  
Overvoltage category III, Pollution degree 2, 250V AC
  - Reinforced insulation:  
Clearance and creepage 5.5 mm .217 inch  
(between NO and NC and between NO and coil)
  - Basic insulation:  
Clearance 3 mm .118 inch and creepage ( mm .118 inch between NC and coil)
6. Complies with IEC 61010 reinforced insulation standards

### TYPICAL APPLICATIONS

1. Emergency stop switches
2. Machine safety engineering
3. Safety control units
4. Automation technology
5. Elevators
6. Escalators
7. Safe sensor monitoring

### ORDERING INFORMATION

SFM  -  -  -  -

NC contact  
0: Bifurcated signal contact  
1: 4A power contact

Contact configuration  
1: 1a1b

Nominal coil voltage DC  
3, 5, 12, 16, 18, 21, 24V

Terminal  
2: THR [RTII]  
3: THT [RTIII]

Packing  
NIL: carton  
S: tube  
T: tape&reel

Notes: Please consult us about other coil voltages.  
\*: Breathing hole open (degree of protection RTII)

## TYPES

Mounting methode	Nominal coil voltage	Part No.
THT	5 V DC	tbd
	12 V DC	tbd
	18 V DC	tbd
	21 V DC	tbd
	24 V DC	tbd
THR	5 V DC	tbd
	12 V DC	tbd
	18 V DC	tbd
	21 V DC	tbd
	24 V DC	tbd

Standard packing: THT: tube 20 pcs. THR: tape&reel 250 pcs

## RATING

## 1. Coil data

Contact arrangement	Rated coil voltage	Operate voltage (at 20°C 68°F)	Release voltage (at 20°C 68°F)	Rated operating current [±10%] (at 20°C 68°F)	Coil resistance [±10%] (at 20°C 68°F)	Rated operating power (at 20°C 68°F)	Max. allowable voltage (at 20°C 68°F)
1 form a 1 form b	5V DC	75%V or less of nominal voltage (Initial)	15%V or more of nominal voltage (Initial)	54mA	93Ω	270mW	120%V of rated voltage
	12V DC			23mA	522Ω		
	18V DC			15mA	1200Ω		
	21V DC			13mA	1615Ω		
	24V DC			11mA	2182Ω		

## 2. Specifications

Characteristics	Item	Specifications	
		THT	THR
Contact	Contact arrangement	1 Form A 1 Form B	
	Forcibly guided contacts	Type A, IEC EN 61810-3	
	Contact resistance (Initial)	Max. 100 mΩ (By voltage drop 6 V DC 1A)	
	Contact material	Gold-flashed Ag Alloy	
Rating	Nominal switching capacity (resistive load)	6A 250V AC, 6A 30V DC	
	Max. switching power (resistive load)	1,500VA, 180W	
	Max. switching voltage	NO: 250V AC, 30V DC NC signal: 24 DC NC power: 250VAC	
	Max. switching current	NO: 6A NC signal: 100mA NC power: 4A	
	Min. switching capacity (Reference value)*1	NO: 1mA 10V NC signal: 1mA 1mV NC power: 1mA 10V	
Electrical characteristics	Insulation resistance (Initial)	Min. 1,000MΩ (at 500V DC) Measurement at same location as "Breakdown voltage" section.	
	Breakdown voltage (Initial)	Between open contacts	1,500 Vrms for 1 min. (Detection current: 10mA)
		Between contact sets	4,000 Vrms for 1 min. (Detection current: 10mA)
		Between contact and coil	NC: 2,500 Vrms for 1min; NO: 4,000 Vrms for 1min (Detection current: 10mA)
	Coil holding voltage*2	Min. 60%V (Initial, at 20°C 68°F)	
Operate time (at 20°C 68°F)	Max. 20ms (Nominal coil voltage applied to the coil, excluding contact bounce time)		
Release time (at 20°C 68°F)	Max. 10ms (Nominal coil voltage applied to the coil, excluding contact bounce time) (without diode)		
Mechanical characteristics	Shock resistance	Functional	Min. 200 m/s <sup>2</sup> {Min. 20G} (Half-wave pulse of sine wave: 11 ms; detection time: 10μs)
		Destructive	Min. 1,000 m/s <sup>2</sup> (Half-wave pulse of sine wave: 6 ms)
	Vibration resistance	Functional	10 to 55 Hz at double amplitude of 1.5 mm .059 inch (Detection time: 10μs)
		Destructive	10 to 55 Hz at double amplitude of 1.5 mm .059 inch
Expected life	Mechanical	Min. 10 <sup>7</sup> (at 180 times/min.)	
	Electrical	250 V AC 6 A resistive load: Min. 10 <sup>5</sup> (at 20 times/min.)	
Degree of protection		RT III*3	RT II
Conditions	Conditions for operation, transport and storage	Ambient temperature: -40°C to +85°C Humidity: 5 to 85% R.H. (Not freezing and condensing at low temperature)	
Unit weight		7.5g	

Notes:

\*1. This value can change due to the switching frequency, environmental conditions, and desired reliability level, therefore it is recommended to check this with the actual load

\*2. Coil holding voltage is the coil voltage after 100 ms from the applied nominal voltage.

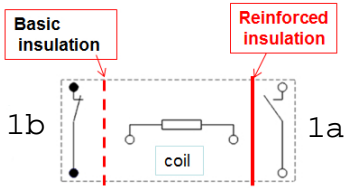
\*3. According to EN 61810-1:2015, table 2.

**\*Important: Relay characteristics may be influenced by:**

- strong external magnetic fields
- magnetic conductive materials near the relay
- narrow top-to-top mounting (printed surface to printed surface)

3. Insulation

1 Form A 1 Form B



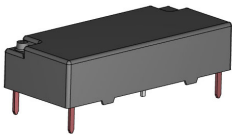
- = Reinforced insulation: overvoltage category III, pollution degree 2, 250V AC  
(Clearance and creepage distance is 5.5 mm .217 inch or more between all contacts)
- - - = Basic insulation: overvoltage category III, pollution degree 3, 250V AC  
(The clearance is 3 mm .118 inch or more between all contacts and the creepage distance is 4 mm .157 inch or more.)

DIMENSIONS mm inch

Download from our Web site.

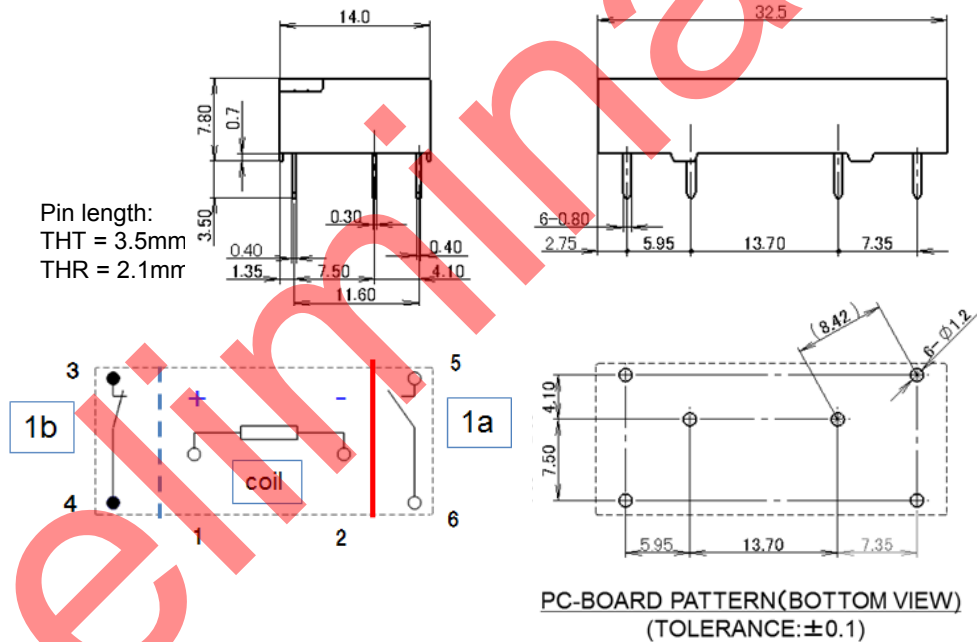
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CAD Data



General tolerance:  $\pm 0.3 \pm 0.12$   
Projection mode:

External dimensions



SAFETY STANDARDS

Certification authority	File No.	Rating
UL/C-UL	Exxx	6A 250V AC, general use, 100Kops 6A 30V DC, general use, 100Kops, B300, R300 (pilot duty)
TÜV	Cert. no:	6A 230V AC (cosφ=1.0) 85°C, 6A 24V DC resistive

NOTES

**1. Coil operating power**  
Pure DC current should be applied to the coil. The wave form should be rectangular. If it includes ripple, the ripple factor should be less than 5%. However, check it with the actual circuit since the characteristics may be slightly different.

**2. Coil connection**  
When connecting coils, refer to the wiring diagram to prevent mis-operation or malfunction.

**3. Soldering**  
When using automatic soldering, the following conditions are recommended  
1) Preheating: 120°C 248°F, within 120 sec (PC board solder surface)  
2) Soldering: 260°C±5°C 500°F±41°F, within 6 sec

For Cautions for Use, see [Relay Technical Information](#).