

# Thermal cut-out Thermostat

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## Applications

- Household appliances
- Electronics
- Machinery

## Benefits

- Up to 100,000 cycles
- Various terminals on-hand
- Small tolerances and hysteresis available
- Response temperatures from 0°C up to 260°C

## Specifications:

### Technical data

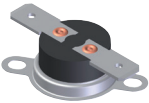
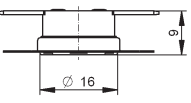

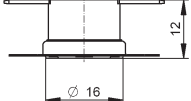

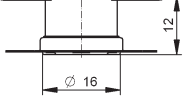

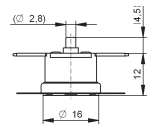

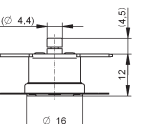

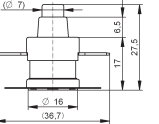

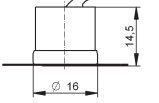

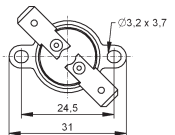

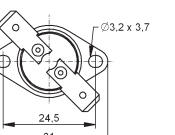
Control Type	R28				R27		R29 23EN
	11EN	03EN	52N	60EN <sup>1)</sup>	05EN	15N	
Ratings							
Function	Automatic				Manual		
Version	Normally closed / Normally open				Normally closed		
Rated current at 250 V AC ( cos φ 0,95 )	16A	16A	16A	16A	16 A	16 A	16 A
Switching Cycles	10,000	10,000	10,000	10,000	6,000	6,000	3,000
Temperature Range TA ( steps in 5 K )	0°C to 150°C	0°C to 150°C	0°C to 230°C <sup>2)</sup>	0°C to 150°C	0°C to 150°C	0°C to 250°C	0°C to 150°C
Rated Current at 250 Vac ( cos φ 1,0 )	10A	10A	10A	-	10A	10A	10A
Switching cycles	100,000	100,000	100,000	-	6,000	6,000	6,000
Temperature Range TA ( steps in 5K )	0°C to 150°C	0°C to 150°C	0°C to 230°C	-	0°C to 150°C	0°C to 250°C	0°C to 150°C
Tolerance	TA <100°C: ± 3K / TA >100°C: ± 4K / TA >140°C: ± 5K						
Contact Resistance	<30mΩ						
Hysteresis / Reset Temperature	TA <100°C: 10K ±4K / TA >100°C: 15K ±5K / TA >140°C : 20 K ± 5 K				Customer-Specific		

**Note** : <sup>1)</sup> not approved <sup>2)</sup> type R28 55H up to 260°C

# Thermal cut-out Thermostat

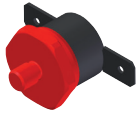
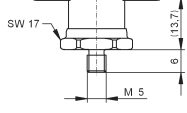

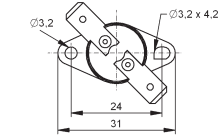

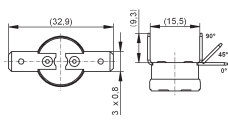

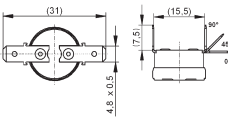

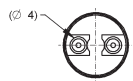

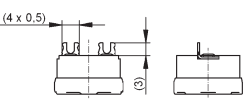

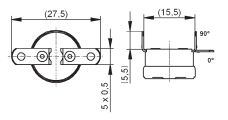

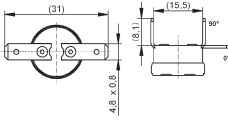
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## Standard Types

Illustration	Drawing Dimensions (mm)	Type	nc	no	Code	Technical Description
		R28 11EN	1	3	Standard Dielectric Strength 2,000V AC	Terminals 6.3 x 0.8, housing thermosetting plastic 9mm, moving bracket small, cap aluminium
		R28 03EN	1	3	Standard Dielectric Strength 2,000V AC	Terminals 6.3 x 0.8, housing thermosetting plastic 12mm, moving bracket small, cap aluminium
		R28 52N	1	3	Standard Dielectric Strength 2,000V AC	Terminals 6.3 x 0.8, housing ceramic 12mm, moving bracket small, cap aluminium
		R27 05EN	1	-	Manual Dielectric Strength 1,800V AC	Terminals 6.3 x 0.8, housing thermosetting plastic, moving bracket small, cap aluminium, reset pin
		R27 15N	1	-	Manual Dielectric Strength 1,800V AC	Terminals 6.3 x 0.8, housing ceramic, moving bracket small, cap aluminium, reset pin ceramic
		R29 23EN	1	-	Manual Dielectric Strength 2,000V AC	Terminals 6.3 x 0.8, housing thermosetting plastic, moving bracket small, cap aluminium, reset pin
		R28 60EN	1	3	Tight Against Humidity Dielectric Strength 1,800V AC	Lead wire 1.25mm <sup>2</sup> , housing thermosetting plastic, fix bracket, cap aluminium, degree of protection IP54
		R27, R28, R29	-	-	4	Moving Bracket, Small
		R27, R28, R29	-	-	3	Moving Bracket

# Thermal cut-out Thermostat

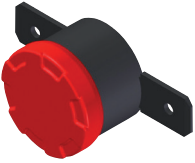
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Illustration	Drawing Dimensions (mm)	Type	nc	no	Code	Technical Description
		R27, R28, R29	-	-	S	Stud of M5 x 6 brass, SW17 (also other variations available)
		R27, R28, R29	-	-	B (+A)	Fix Bracket possible angles: 0 / 45 / 90 / 135 deg
		R27, R28, R29	-	-	Brass: 03 (0 deg) Brass: 09 (45 deg) Brass: 04 (90 deg) Steel: 93 (0 deg) Steel: 94 (90 deg)	Terminals 6.3 x 0.8 brass nickel plated up to TA max. 150°C >150°C steel nickel plated also available: angle 45 / 90 deg
		R27, R28, R29	-	-	Brass: 05 (0 deg) Brass: 10 (45 deg) Brass: 06 (90 deg) Steel: 95 (0 deg) Steel: 96 (90 deg)	Terminals 4.8 x 0.5 Brass nickel plated up to TA max. 150°C >150°C steel nickel plated also available: angle 45 / 90 deg
		R27, R28	-	-	00	Solder Terminals
		R27, R28	-	-	SA	PCB terminals Solder terminals
		R27, R28, R29	-	-	41 (0 deg) 42 (90 deg)	Solder terminals, nickel plated, also available: angle 90 deg
		R27, R28, R29	-	-	Brass: 45 (0 deg) Brass: 46 (90 deg)	Terminals 4.8 x 0.8 brass nickel plated up to TA max. 150°C also available: angle 90 deg

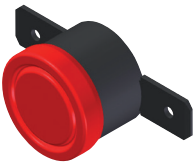
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## Caps



Cap in standard execution (code 1), material aluminium.



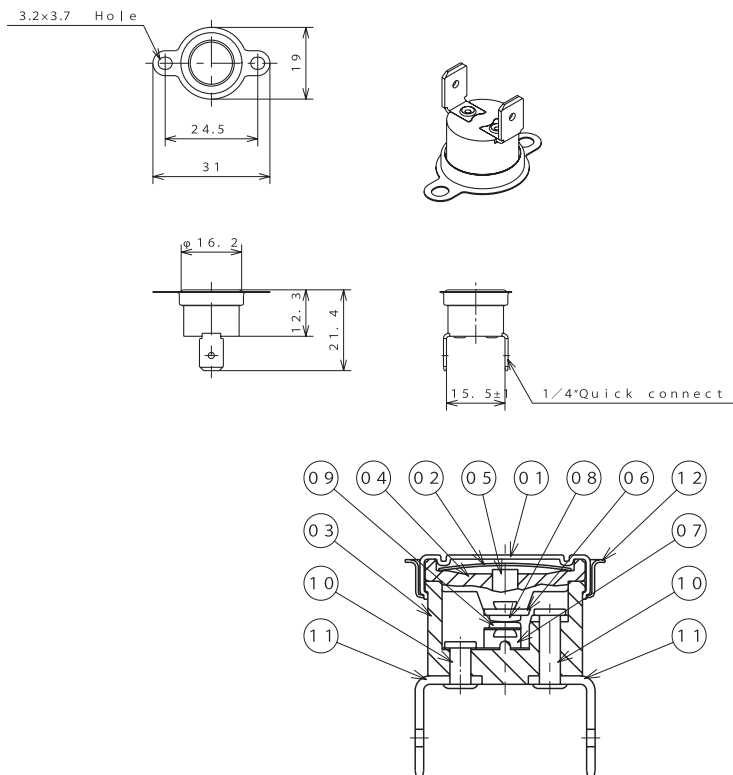
Cap for low temperature applications (up to 50°C) and normally open types (code T), material aluminium

Deviations from standard controls (caps, terminals, fixings) on request.

Especially for electronic applications with voltage 6 to 120V AC / 6 to 30V DC and current 10 to 100mA, there are switches with crossbar- contacts available.

Controls as single operation device (SOD) up to 150°C and reset temperature -35°C are available (type 81ES).

## General Diagram



No.	Name	Material
1	Cap	Aluminium
2	Bimetal	-
3	Case	Ceramic
4	Retainer	Ceramic
5	Pin	Ceramic
6	Stationary arm	Copper Alloy
7	Movable arm	Copper Alloy
8	Contact	Silver-Nickel Alloy
9	Contact	Silver-Nickel Alloy
10	Rivet	Steel
11	Terminal	Steel
12	Bracket	Stainless Steel

Dimensions : Millimetres

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## Ordering and marking example

### Ordering example

03	E	N	1	5	T	03	4	50±3	50±3
Base Type	European version	Type of contact (N normal contact / P low current)	Contact execution (1 normally closed / 3 normally open)	Housing material (2 ceramic / 5 plastic)	Cap Code	Terminal Code	Fixing Code	Response Temperature	Reset Temperature

### Marking example

A100	norm. closed (B norm. open) response temperature
03EN XXXX	type manufacture code
XXXX	date of manufacture

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