

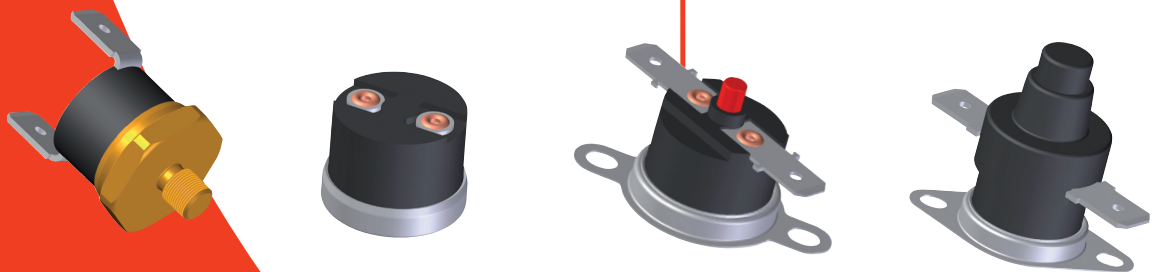


## Applications

- 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




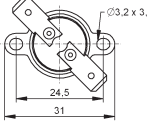

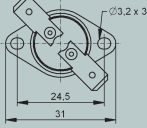
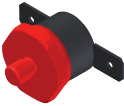
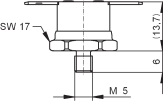

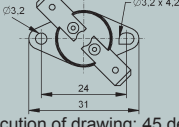
## Technical data

control type		R28				R27		R29
		11EN	03EN	52N	60EN <sup>1)</sup>	05EN	15N	23EN
ratings								
function		automatic				manual		
version		normally closed / normally open				normally closed		
VDE	rated current at 250 Vac ( cos φ 0,95 )	16 A	10 A	10 A	10 A	16 A	16 A	16 A
	switching cycles	10,000	100,000	100,000	100,000	6,000	6,000	3,000
	temperature range T <sub>A</sub> ( steps in 5 K )	0°C ... 150°C	0°C ... 150°C	0°C ... 230°C <sup>2)</sup>	0°C ... 150°C	0°C ... 150°C	0°C ... 250°C	0°C ... 150°C
UL	rated current at 250 Vac ( cos φ 1,0 )	10 A	10 A	10 A	—	10 A	10 A	10 A
	switching cycles	100,000	100,000	100,000	—	6,000	6,000	6,000
	temperature range T <sub>A</sub> ( steps in 5 K )	0°C ... 150°C	0°C ... 150°C	0°C ... 230°C	—	0°C ... 150°C	0°C ... 250°C	0°C ... 150°C
tolerance		T <sub>A</sub> < 100°C: ± 3 K / T <sub>A</sub> > 100°C: ± 4 K / T <sub>A</sub> > 140°C: ± 5 K						
contact resistance		< 30 mΩ						
hysteresis / reset temperature		T <sub>A</sub> < 100°C: 10 K ± 4 K / T <sub>A</sub> > 100°C: 15 K ± 5 K / T <sub>A</sub> > 140°C: 20 K ± 5 K				customer-specific		
degrees of protection provided by enclosures (EN 60529)		IP00 ( R28 60EN IP54)						
suitable for use in protection class		I, II						
approvals	VDE / ENEC	EN 60730-1 / -2-9						
	UL	UL 873						
	CSA	C22.2 No. 24 <sup>3)</sup>						


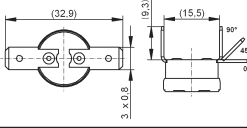

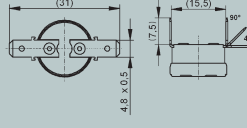

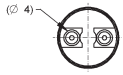

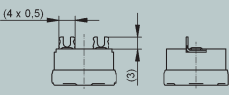

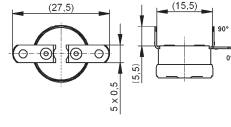
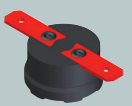
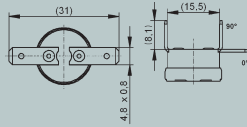
<sup>1)</sup> not approved    <sup>2)</sup> type R28 55H up to 260°C    <sup>3)</sup> different approved ratings

## Standard types

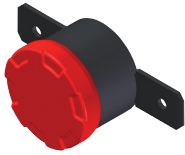
type	nc	no	code	illustration	drawing dimensions ( mm )	technical description	approvals
R28 11EN	1	3	standard dielectric strength 2,000 Vac			terminals 6.3 x 0.8, housing thermosetting plastic 9mm, moving bracket small, cap aluminium	VDE, UL, CSA
R28 03EN	1	3	standard dielectric strength 2,000 Vac			terminals 6.3 x 0.8, housing thermosetting plastic 12mm, moving bracket small, cap aluminium	VDE, UL, CSA
R28 52N	1	3	standard dielectric strength 2,000 Vac			terminals 6.3 x 0.8, housing ceramic 12mm, moving bracket small, cap aluminium	VDE, UL, CSA
R27 05EN	1		manual dielectric strength 1,800 Vac			terminals 6.3 x 0.8, housing thermosetting plastic, moving bracket small, cap aluminium, reset pin	VDE, UL, CSA
R27 15N	1		manual dielectric strength 1,800 Vac			terminals 6.3 x 0.8, housing ceramic, moving bracket small, cap aluminium, reset pin ceramic	VDE, UL, CSA
R29 23EN	1		manual dielectric strength 2,000 Vac			terminals 6.3 x 0.8, housing thermosetting plastic, moving bracket small, cap aluminium, reset pin	VDE, UL, cUL
R28 60EN	1	3	tight against humidity dielectric strength 1,800 Vac			lead wire 1.25mm <sup>2</sup> , housing thermosetting plastic, fix bracket, cap aluminium, degree of protection IP54	—

code	used in type	illustration	drawing dimensions ( mm )	technical description	approvals
4	R27, R28, R29			moving bracket, small	VDE, UL, CSA
3	R27, R28, R29			moving bracket	VDE, UL, CSA
S	R27, R28, R29			stud of M5 x 6 brass, SW17 (also other variations available)	VDE, UL, CSA
B (+A)	R27, R28, R29		 execution of drawing: 45 deg	fix bracket possible angles: 0 / 45 / 90 / 135 deg	VDE, UL, CSA

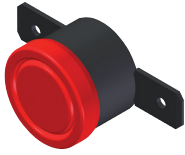
# Terminals

code	used in type	illustration	drawing dimensions ( mm )	technical description	approvals
brass: 03 (0 deg) brass: 09 (45 deg) brass: 04 (90 deg) steel: 93 (0 deg) steel: 94 (90 deg)	R27, R28, R29			terminals 6.3 x 0.8 brass nickel plated up to T <sub>A</sub> max. 150°C >150°C steel nickel plated also available: angle 45 / 90 deg	VDE, UL, CSA
brass: 05 (0 deg) brass: 10 (45 deg) brass: 06 (90 deg) steel: 95 (0 deg) steel: 96 (90 deg)	R27, R28, R29			terminals 4.8 x 0.5 brass nickel plated up to T <sub>A</sub> max. 150°C >150°C steel nickel plated also available: angle 45 / 90 deg	VDE, UL, CSA
00	R27, R28			solder terminals	VDE, UL, CSA
SA	R27, R28			PCB terminals solder terminals	VDE, UL, CSA
41 (0 deg) 42 (90 deg)	R27, R28, R29			solder terminals, nickel plated, also available: angle 90 deg	VDE, UL, CSA
brass: 45 (0 deg) brass: 46 (90 deg)	R27, R28, R29			terminals 4.8 x 0.8 brass nickel plated up to T <sub>A</sub> max. 150°C also available: angle 90 deg	VDE, UL, CSA

## 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

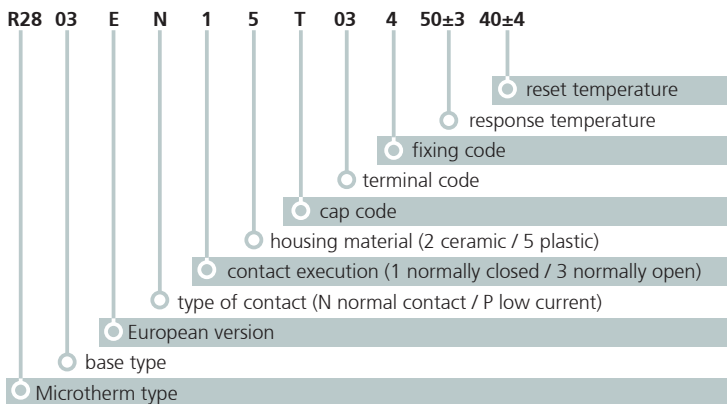
Deviations from standard controls (caps, terminals, fixings) on request.

Especially for electronic applications with voltage 6...120 Vac / 6...30 Vdc and current 10...100 mA, 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).

## Ordering and marking example

### Ordering example



### Marking example

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

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