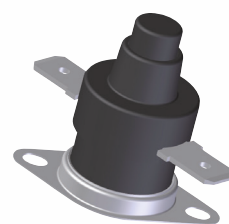
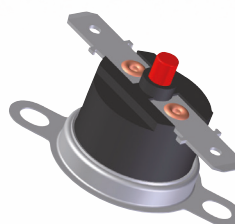
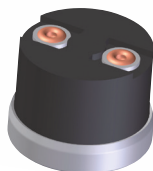


27 28 29

Thermal cut-out
Thermostat

Automatic or
manual reset



MICROTHERM



Microtherm International Cooperation

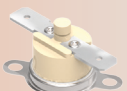
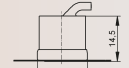
ratings		type	03EN		52N	60EN ¹⁾	05EN	15N	23EN
function			automatic				manual reset		
version			normally closed (n.c.) / normally open (n.o.)				normally closed (n.c.)		
VDE	rated current 250V AC (cos φ 0,95)		16 A	10 A	16 A	250 V AC, 10 A 1.000 switching cycles 0°C ...100°C	16 A	16 A	16 A
	switching cycles		30.000	100.000	10.000		3.000	6.000	3.000
	temperature T _a (steps in 5 K)		max. 150°C	max. 150°C	max. 230°C ²⁾		max. 150°C	max. 250°C	max. 150°C
UL	rated current 240V AC (cos φ 1,0)		—	10 A	250 V, 10 A		10 A	16 A	10 A
	switching cycles		—	100.000	100.000		6.000	6.000	6.000
	temperature T _a (steps in 5 K)		—	max. 150°C	max. 230°C		40°C ..150°C	40°C ..250°C	40°C ..150°C
tolerance			T _a <100°C: ±3 K / T _a ≥100°C: ±4 K / T _a ≥140°C: ±5 K / T _a ≥170°C: ±8 K / T _a ≥200°C: ±10 K				T _a <100°C: ±4 K / T _a ≥100°C: ±5 K / T _a ≥150°C: ±8 K / T _a ≥200°C: ±10 K		
contact resistance			< 30 mΩ						
hysteresis / reset temperature			T _a <100°C: 10 K±4 K / T _a >100°C: 15 K±5 K / T _a >140°C: 20 K±5 K				—		
degree of protection of enclosure (EN 60529)			IP00 (60EN IP64)						
dielectric strength			AC 1.500 V/1min. oder AC 1.800 V/1 sec.						
suitable for use in protection class			I, II						
certifications	VDE		EN 60730-1 / -2-9						
	UL		UL873 / UL60730-1A / -2-9 ⁴⁾						
	CSA		C22.2 No. 24 ³⁾						

¹⁾ no certification

²⁾ type 55H only VDE: 7A, 250V AC, 30.000 cycles, up to 260°C

³⁾ different ratings

⁴⁾ type 15N

type	n.c. normally closed = 1	n.o. normally open = 3	code	illustration	drawing dimensions (mm)	technical description
R28 11EN	1	3	low mounting form, housing thermosetting plastic, 9 mm			terminals 6.3 x 0.8, small, loose bracket, aluminium cap
R28 03EN	1	3	housing thermosetting plastic, 12 mm			terminals 6.3 x 0.8, small, loose bracket, aluminium cap
R28 52N	1	3	housing ceramic, 12 mm			terminals 6.3 x 0.8, small, loose bracket, aluminium cap
R27 05EN	1	—	manual, reset pin, housing thermosetting plastic			terminals 6.3 x 0.8, small, loose bracket, aluminium cap, reset pin
R27 15N	1	—	manual, reset pin, housing ceramic			terminals 6.3 x 0.8, small, loose bracket, aluminium cap, ceramic reset pin
R29 23EN	1	—	manual, reset pin, housing thermosetting plastic			terminals 6.3 x 0.8, small, loose bracket aluminium cap, reset pin
R28 60EN	1	3	tight against humidity, leads, housing thermosetting plastic			lead wire, standard lead length 300 mm, fixed bracket, aluminium cap degree of protection IP64

code	used in type	illustration	drawing dimensions (mm)	technical description
4	R27, R28, R29			loose bracket, small
3	R27, R28, R29			loose bracket
S	R27, R28, R29			stud of M5 x 6 brass, SW17 (also other variations available)
A + B	R27, R28, R29			fixed bracket
Variation angle degrees for fix brackets (A + B)	R27, R28, R29			Possible angles: 0 / 45 / 90 / 135 degrees

code	used in type	illustration	drawing dimensions (mm)	technical description
Ms: 05 (0°) Ms: 10 (45°) Ms: 06 (90°)	R27, R28, R29			terminals 4.8 x 0.5, brass nickel plated up to T_a max. 150°C, >150°C steel nickel plated, also available angle 45 / 90 deg.
Ms: 45 (0°) Ms: 46 (90°)	R27, R28, R29			terminals 4.8 x 0.8, brass nickel plated up to T_a max. 150°C, also available angle 90 deg.
Ms: 03 (0°) Ms: 09 (45°) Ms: 04 (90°) St: 93 (0°) St: 94 (90°)	R27, R28, R29			terminals 6.3 x 0.8, brass nickel plated up to T_a max. 150°C, >150°C steel nickel plated, also available angle 45 / 90 deg.
00	R28			solder terminals, T_a max. 140°C
41 (0°) 42 (90°)	R27, R28, R29			solder terminals, nickel plated, also available angle 90 deg. T_a max. 140°C
SA	R27, R28			PCB terminals, solder terminals, T_a max. 140°C

The **R27/R28/R29** temperature switches are very reliable bimetal technology components, offering a long life time. The normally closed contacts open when reaching the predefined temperature by snapping of a bimetal disc. Temperature setting is defined through conditioning (aging, stamping, ...) of the disc. After a corresponding cooling down, the bimetal disc snaps back to the original position and closes the current circuit again or remains in open position until manually resetted. These R27/R28/R29-types are perfect **surface mount components**, offering high temperature sensibility and can be used in a wide range of white goods, automotive technology, mechanical engineering, kitchen devices.

Characteristics:

- ceramic housing for high temperatures available
- small tolerances of 3 K possible
- various caps available
- terminals in various dimensions and bending angles
- short switching and reset times



cap code 1 in standard execution (T_a 50°C - 199°C), material aluminium

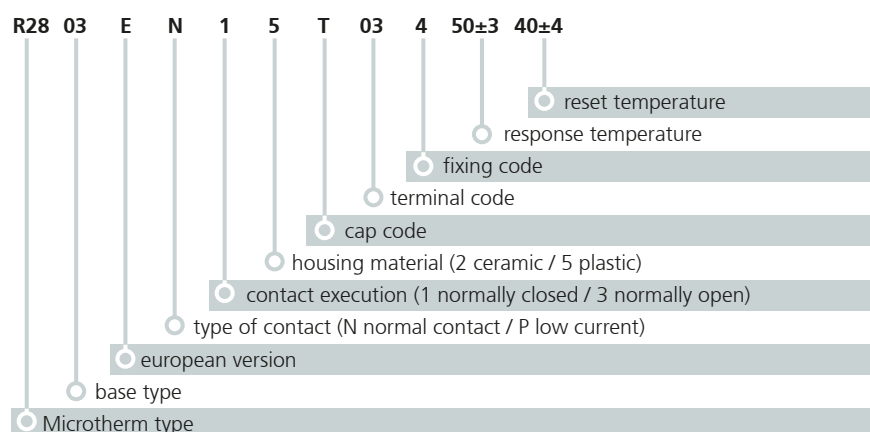
cap code T (T_a 0°C - 50°C and $T_a \geq 200^\circ\text{C}$ and all normally open types), material aluminium

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 minus 35°C are available (Typ 81ES).

ordering example



marking example

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



Microtherm GmbH

Taeschwaldstrasse 3
 75181 Pforzheim, Germany

or mail address

PO Box 1208
 75112 Pforzheim, Germany

Tel: +49 (0)7231 787-0
 Fax: +49 (0)7231 787-155

info@microtherm.de
 www.microtherm.de



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