

Thermal motor protector
Temperature limiter
Thermal cut-out

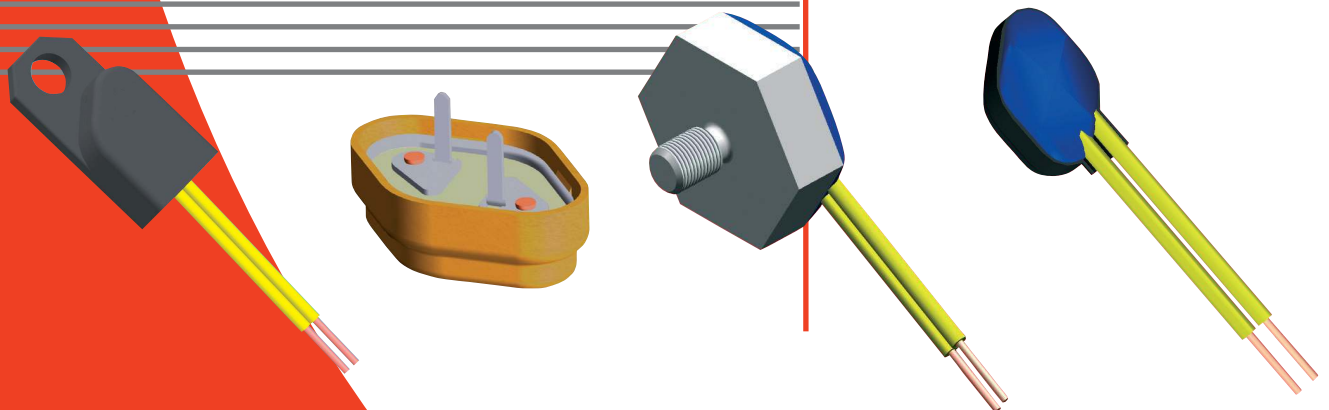
10
11
12
22

Applications

- Motors
- Transformers
- Coils
- Electronics, sensors





Benefits

- Temperature and current sensitive or only temperature sensitive
- Small dimensions
- High power rating



CANTHERM

Technical data

control type		T10A / E T11A / E	T12A / E	T22A	T10B / G	T22B ¹⁾
ratings						
version		normally closed			normally open	
rated current at 250 V 50/60 Hz (cos φ 0.95 / 0.6)		2.5 A / 1.6 A	6.3 A / 2.5 A	20.0 A / 3.0 A	2.0 A / 1.6 A	3.5 A / 2.0 A
switching cycles under rated current		10,000				
max. current under failure condition at 250 V 50/60 Hz (cos φ 0.95)		10.0 A	12.0 A	30.0 A	10.0 A	20.0 A
switching cycles under max. current		300		600	300	1,000
temperature rating T _a (steps in 5 K)		(50) 70 °C... 180 °C ²⁾		80 °C ... 160 °C ³⁾		
tolerances		Standard: ± 5 K				
feature of automatic action		1.C.M, 2.C		2.B, 1.C, 3.C	1.B, 2.C	
contact resistance (incl. wire of 100 mm)		< 50 mΩ				
hysteresis		30 K ± 15 K ^{4) 5)}				
dielectric strength (standard insulation)		2 kV				
shock / vibration testing (similar to EN 50155)		400 m/s ² sine half wave / 100 m/s ² 5 Hz ... 2.000 Hz sine				
resistances to impregnation		tight against ordinary resins and lacquers				
degrees of protection provided by enclosures (EN 60529)		IP00				
suitable for use in protection category		I, II				
approvals	VDE / ENEC 	EN 60730-1 / -2-9				
	UL 	UL File Number E46827				-
	CSA / cUL 	C22.2 No. 77 / C22.2 No. 24 ¹⁾				-
	CQC 	- GB14536.1-1998 / GB14536.10-1996 ¹⁾				

¹⁾ details on request ²⁾ T10 max. T_a 160 °C ³⁾ approval to EN60730-2-2 up to 180 °C

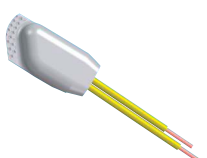
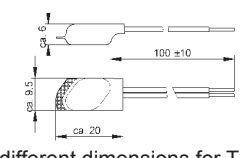

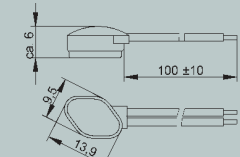
⁴⁾ T10 available with ± 3 K tolerances and smaller hysteresis ⁵⁾ at the T_a (upper and lower) limits the hysteresis could deviate

Standard wire (length 100 ± 10 mm, stripped 6 ± 1 mm)

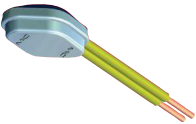
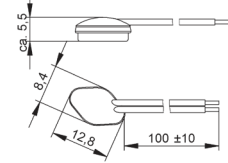
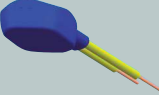
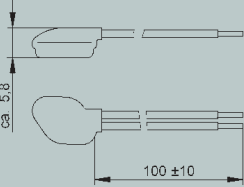

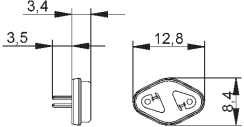

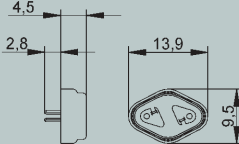

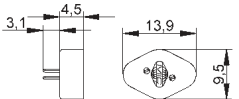
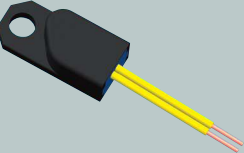
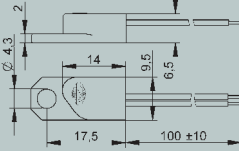
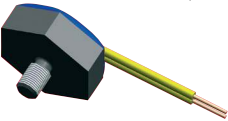
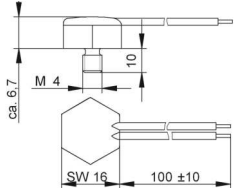
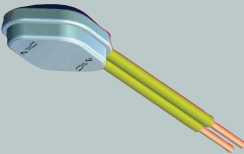
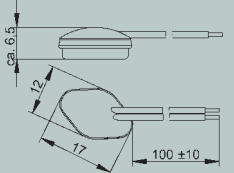
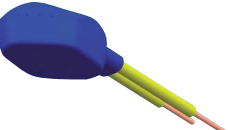
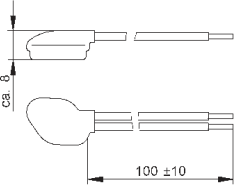
Cantherm lead	Cantherm-code	temperature max.	operating voltage max.	diameter insulation	AWG ²⁾	UL style
black	ACDA	150 °C	300 V	1.45 mm	AWG24	3266/3398
yellow	AEDC			1.80 mm	AWG20	
black	AFDA 1)			2.15 mm	AWG18	
white	LFDB 1)	200 °C	600 V	1.50 mm	AWG18	3557
black	ASDA 3)	150 °C	300 V	1.65 mm	AWG20	3266/3398
white	DCDB	200 °C	300 V	1.30 mm	AWG24	1180
white	DEDB			1.70 mm	AWG20	
white	DFDB			2.00 mm	AWG18	

¹⁾ T22 only ²⁾ for T12/T11 AWG20 and for T10 AWG24 is recommended ³⁾ Solid Wire NOTE: Additional wires available upon request.

Standard insulation

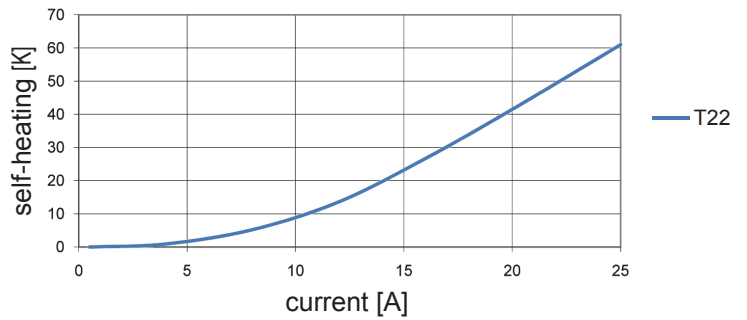
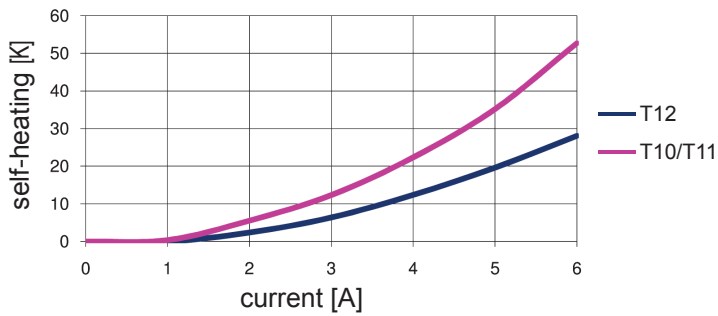
control type	nc	no	Cantherm-code	illustration	drawing dimensions (mm)	technical specification	approvals
T10	A	B	U102 B			shrink cap potted	VDE, UL, cUL
T11, T12	A		U106 F				
T22	A	B	U103 C U107 G				
T10	A	B	U183 1			cap of PA 4.6 potted	VDE, UL, cUL
T11, T12	A						

Specific variations

control type	nc	no	Cantherm-code	illustration	drawing dimension (mm)	technical specification	approvals
T10 T11, T12	A A	B	Insulation 0	 type T11, T12 illustrated		no insulation potted	VDE, UL, cUL, CSA
T10 T11, T12	A A	B	Insulation U112 L			coated T_a max. 160 °C	VDE, UL, cUL
T11, T12	A		Wire Type A334 6			no insulation PCB connector grid dimension 5.08	VDE, UL, cUL
T11, T12	A		Insulation U314 4			cap of PPS PCB connector grid dimension 5.08	VDE, UL, cUL
T11, T12	A		Insulation U315 5			cap of PPS PCB connector grid dimension 5.08	VDE, UL, cUL
T10 T11, T12	A A	B	Insulation U293 K			housing of PPS potted	VDE, UL, cUL
T10 T11, T12	E E	G	Housing G718 3	 1)		potted aluminium housing anodized black M4x10 T_a max. 150 °C	VDE, UL, cUL
T22	A	B	Insulation 0			no insulation potted	VDE, UL, cUL, CSA
T22	A	B	Insulation U112 L			coated T_a max. 160 °C	VDE, UL, cUL

1) Also available as 16mm dia. round housing M4x6 (G711)

Heating by current



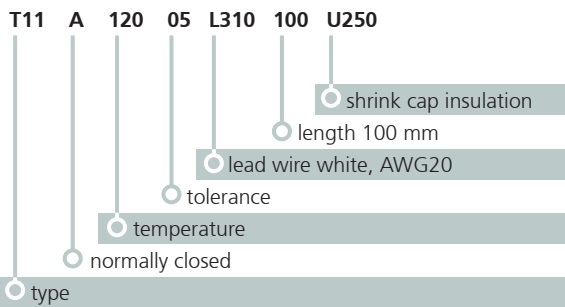
The characteristic curves are measured with a thermal control without any insulation in an oil bath.

Attention:

The heating depends on the thermal conduction of the control to the equipment or part which should be protected.

Ordering and marking example

Ordering example (Microtherm)



Deviations from standard controls on request.

Marking (Microtherm)

- T11A** type (T11 nc)
- 12005** response temperature (120°C), tolerance ($\pm 5K$)
- 049D** date of manufacture (April 2009), country (D=Germany)

Cantherm Ordering Example [T1112025AEDCB0E]

T11	A	120	05	AE	D	C	B	0	E
type	Norm. Closed	Temp.	tolerance +/-5°C	lead wire UL3398 20 AWG	lead length D=4"	yellow	insulation U102	housing - none	strip length .25"

Marking (Cantherm)

- T11A** type (T11 nc)
- 12005** response temperature (120°C), tolerance ($\pm 5K$)
- 065C** date of manufacture (June 2015), country (C = Canada)



CANTHERM™

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