

Thermal motor protector  
Temperature limiter  
Thermal cut-out

# B

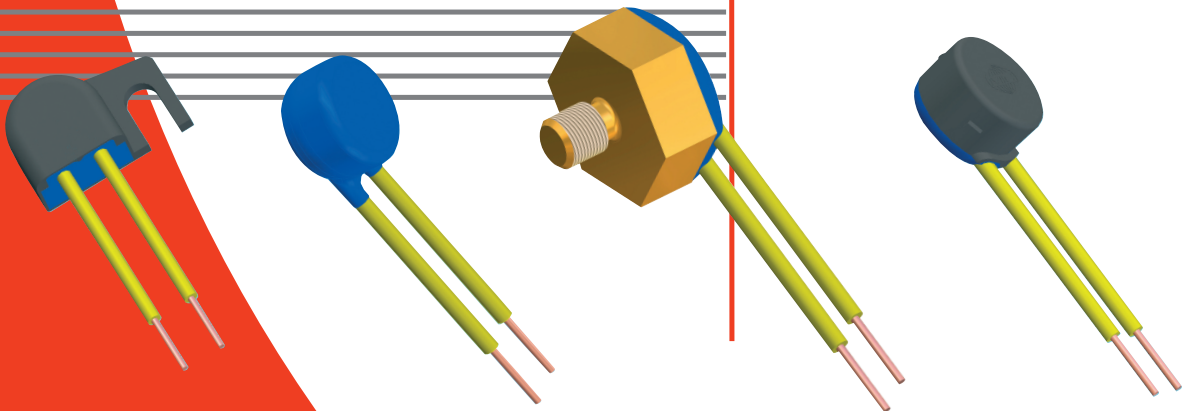
12  
13

## Applications

- Motors
- Transformers
- Coils
- Electronics, sensors
- Process Automation





## Benefits

- Non-sensitive to current
- High current rating up to 30A
- Manifold executions
- Special low current version



CANTHERM

## Technical data

type ratings	control	B12A / E			B12B / G	B13N / T
version		normally closed			normally open	normally closed/ open
rated current at 250 V 50/60 Hz (cos φ 0.95 / 0.6)		6.3 A / 6.0 A	10.0 A / 6.0 A	13.0 A / 6.0 A	5.0 A / 1.6 A	1...100 mA (24 Vdc)
switching cycles under rated current		10,000	5,000	1,000	5,000	10,000
max. current at 250 V 50/60 Hz (cos φ 0.95)		30.0 A				-
switching cycles under max. current		100				-
temperature rating T <sub>a</sub> (steps in 5 K)		70 °C ... 190 °C	70 °C ... 160 °C		70 °C ... 155 °C	70 °C ... 160 / 155 °C
tolerances		standard: ± 5 K				
feature of automatic action		1.B.M, 2.B, 1.C			1.B	-
contact resistance (incl. wire of 100 mm)		< 50 mΩ				
hysteresis		30 K ± 15 K <sup>1)</sup>				
dielectric strength (standard insulation)		2 kV				-
shock / vibration testing (similar to EN 50155)		400 m/s <sup>2</sup> sine half wave / 100 m/s <sup>2</sup> 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 / -2-3 <sup>2)</sup> / -2-9			no approval required to voltage ratings lower than 42 V
	UL		UL 2111 / UL 873 <sup>3)</sup>			
	CSA / cUL		C22.2 No. 77 / C22.2 No. 24 <sup>3)</sup>			
	CQC		GB14536.1-1998 / GB14536.10-1996 <sup>3)</sup>			

<sup>1)</sup> at the T<sub>a</sub> (upper and lower) limits the hysteresis could deviate    <sup>2)</sup> different power rating    <sup>3)</sup> details on request

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

Cantherm lead	Cantherm code	MIC code	temperature max.	operating voltage max.	diameter insulation	cross section diameter <sup>2)</sup>	UL style
black	ACDA <sup>1)</sup>	L300 <sup>1)</sup>	150 °C	300 V	1.57 mm	AWG24 / 0.24 mm <sup>2</sup>	3398
yellow	AEDC	L310			1.80 mm	AWG20 / 0.48 mm <sup>2</sup>	
black	AFDA	L320			2.15 mm	AWG18 / 0.96 mm <sup>2</sup>	
white	LCDB <sup>1)</sup>	L330 <sup>1)</sup>	200 °C	600 V	0.90 mm	AWG24 / 0.24 mm <sup>2</sup>	3557
white	LEDB	L340			1.26 mm	AWG20 / 0.61 mm <sup>2</sup>	
white	LFDB	L350			1.50 mm	AWG18 / 0.96 mm <sup>2</sup>	
black	ASDA	L410	150 °C	300 V	1.65 mm	AWG20 / 0.81 mm	3398
white	DEDB	L440	200 °C	300 V	1.51 mm	AWG20 / 0.81 mm	1180

<sup>1)</sup> B13 only    <sup>2)</sup> AWG20 is recommended

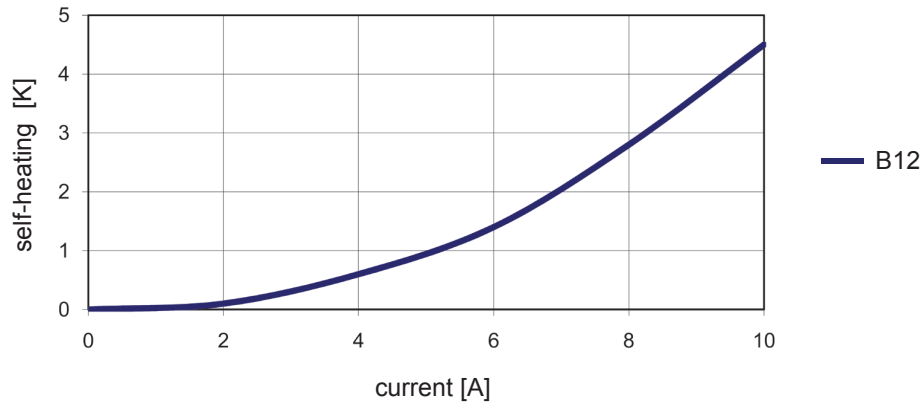
control type	nc	no	Cantherm code	MIC code	illustration	drawing dimensions ( mm )	technical specification	approvals 1)
B12	A	B	Class B U103   C	U253			shrink cap potted	VDE, UL, cUL
B13	N	T	Class F U107   G					
B12	A	B	U155   X	U186			cap of PPS potted	VDE, UL, cUL
B13	N	T	U186   3					

# Specific variations

control type	nc	no	Cantherm code	MIC code	illustration	drawing dimensions ( mm )	technical specification	approvals 1)
B12	A	B	none   0				not insulated potted	VDE, UL, cUL, CSA
B13	N	T						
B12	A	B	U112   L	U112			coated	VDE, UL, cUL
B12	A	B	U294   7	U294			housing of PPS potted	VDE, UL, cUL
B13	N	T						
B12	A	B	Wire A800   IZA	A800			not insulated potted	VDE, UL, cUL
B13	N	T						
B12	E	G	G702   C	G402			aluminium housing thread M4x6 potted  T <sub>a</sub> max. 150 °C	VDE, UL, cUL
B13	N	T						
B12	E	G	G714   F	G714			brass housing thread M4x5 potted  T <sub>a</sub> max. 150 °C	VDE, UL, cUL
B13	N	T						

1) B12 only

## Heating by current



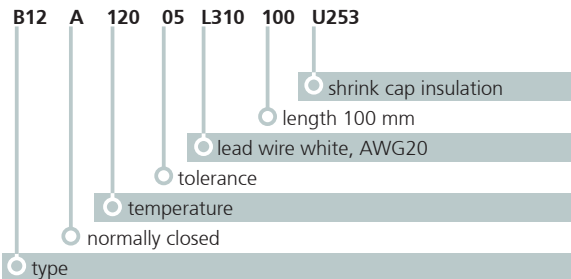
The diagram is measured with a thermal control without any insulation in an oil bath.

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



### Marking

- B12A** type (B12 nc)
- 12005** response temperature (120°C), tolerance ( $\pm 5K$ )
- 049D** date of manufacture (April 2009), country (D=Germany)

Deviations from standard controls on request.

### Cantherm Ordering Example [ B1212025AEDCC0E ] standard version

B12	120	2	5	AE	D	C	C	O	E
type	temperature	normally closed	tolerance $\pm 5^\circ C$	wire leads UL3398 20 AWG	length D=4"	color yellow	insulation U103	housing - none	strip .25"

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- 049D** date of manufacture (April 2009), country (D = Germany)



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