

Thermal motor protector  
Temperature limiter  
Thermal cut-out

B

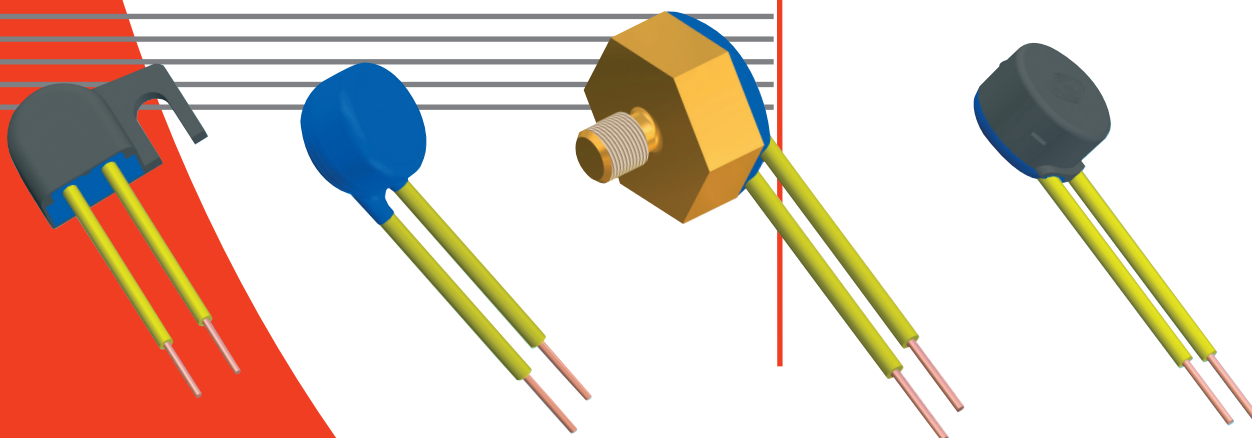
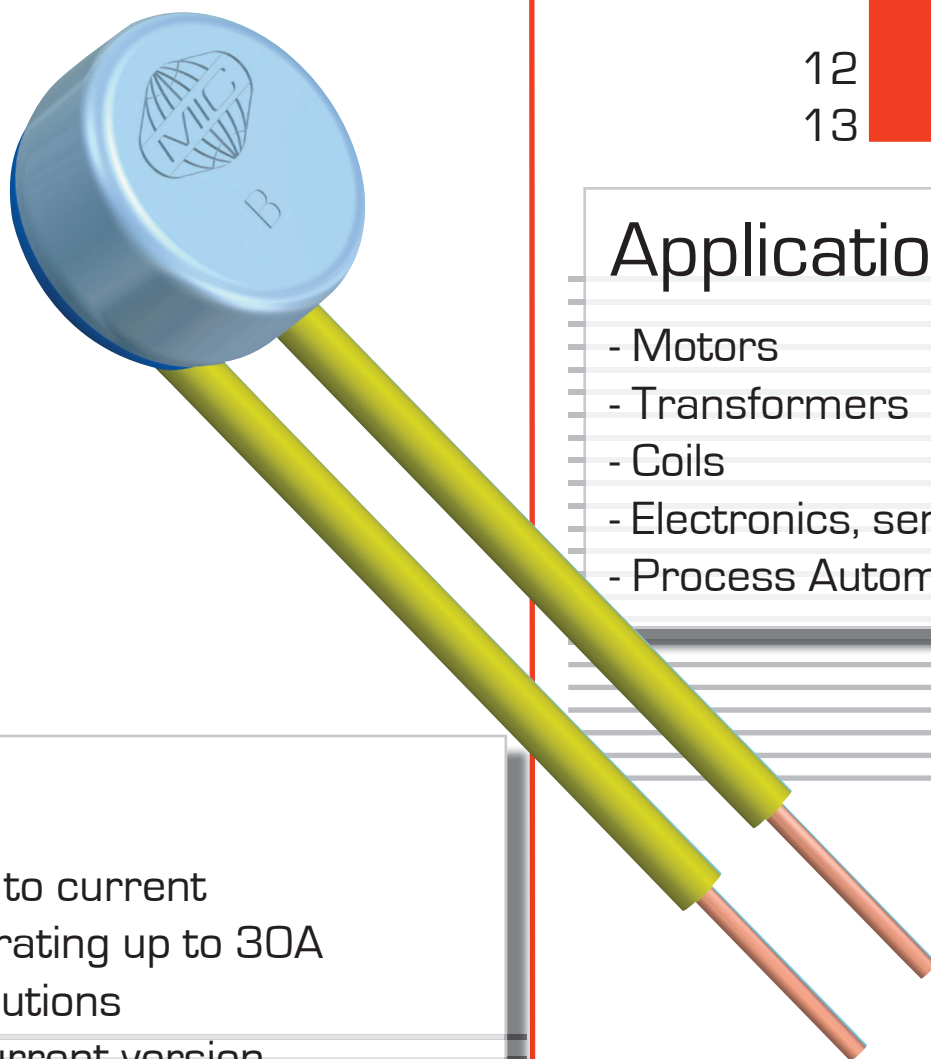
12  
13

## 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                                             |                  |                |                  |                        |
|                                                           | UL         |  | UL File Number E46827                                                             |                  |                |                  |                        |
|                                                           | CSA / cUL  |  | C22.2 No. 77 / C22.2 No. 24 <sup>2)</sup>                                         |                  |                |                  |                        |
|                                                           | CQC        |  | GB14536.1-1998 / GB14536.10-1996 <sup>2)</sup>                                    |                  |                |                  |                        |

<sup>1)</sup> at the T<sub>a</sub> (upper and lower) limits the hysteresis could deviate, for T<sub>a</sub> > 130°C the hysteresis is 30K -15K/+30K <sup>2)</sup> details on request

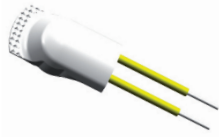
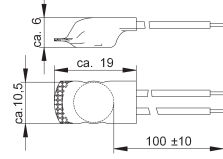
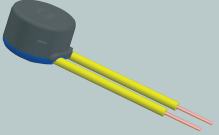
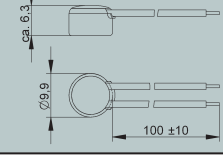
## Standard wire (length 100 ± 10 mm, stripped 6 ± 1 mm)

| Cantherm lead | Cantherm code      | temperature max. | operating voltage max. | diameter insulation | cross section diameter 1)    | UL style  |
|---------------|--------------------|------------------|------------------------|---------------------|------------------------------|-----------|
| black         | ACDA               | 150 °C           | 300 V                  | 1.57 mm             | AWG24 / 0.24 mm <sup>2</sup> | 3266/3398 |
| yellow        | AEDC               |                  |                        | 1.80 mm             | AWG20 / 0.48 mm <sup>2</sup> |           |
| black         | AFDA               |                  |                        | 2.15 mm             | AWG18 / 0.96 mm <sup>2</sup> |           |
| white         | LCDB               | 200 °C           | 600 V                  | 0.90 mm             | AWG24 / 0.24 mm <sup>2</sup> | 3557      |
| white         | LEDB               |                  |                        | 1.26 mm             | AWG20 / 0.61 mm <sup>2</sup> |           |
| white         | LFDB               |                  |                        | 1.50 mm             | AWG18 / 0.96 mm <sup>2</sup> |           |
| black         | ASDA <sup>2)</sup> | 150 °C           | 300 V                  | 1.65 mm             | AWG20 / 0.81 mm              | 3266/3398 |
| white         | DEDB               | 200 °C           | 300 V                  | 1.51 mm             | AWG20 / 0.81 mm              | 1180      |

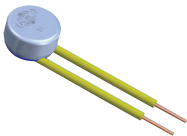
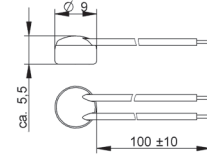
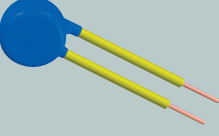
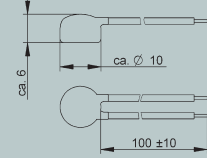
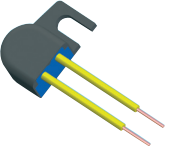
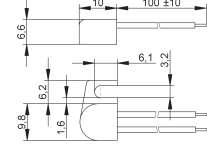
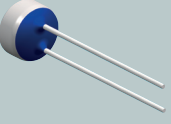
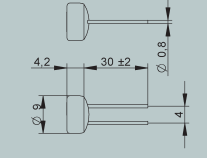
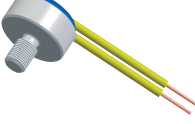
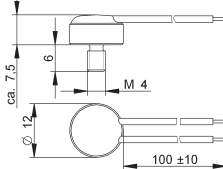
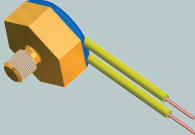
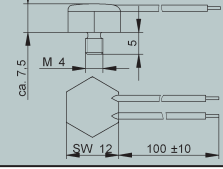
<sup>1)</sup> AWG20 is recommended

<sup>2)</sup> Solid Wire

Additional wires available upon request.

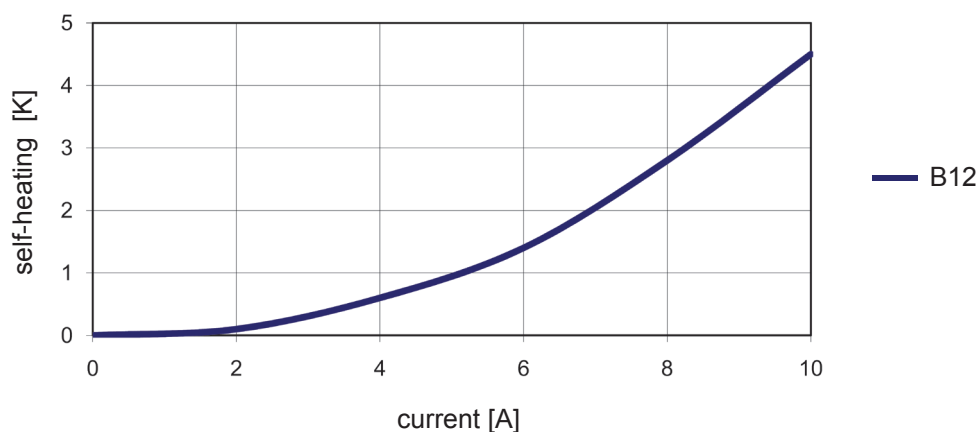
| control type | nc | no | Cantherm code       | illustration                                                                      | drawing dimensions ( mm )                                                         | technical specification | approvals <sup>1)</sup> |
|--------------|----|----|---------------------|-----------------------------------------------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

## Specific variations

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

<sup>1)</sup> B12 only

## Heating by current



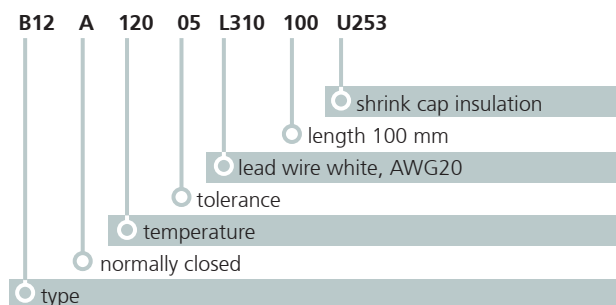
The diagram is measured with a thermal control without any insulation in an oil bath.

Attention:

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

## Ordering and marking example

### Microtherm Ordering Example



Deviations from standard controls on request.

### Microtherm Marking

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

### Cantherm Ordering Example B12A12005AEDCC0E

| B12  | A               | 120   | 05                  | AE                                   | D              | C               | C                  | 0                 | E             |
|------|-----------------|-------|---------------------|--------------------------------------|----------------|-----------------|--------------------|-------------------|---------------|
| type | normally closed | temp. | tolerance<br>+/-5°C | wire<br>leads<br>UL3398<br>20<br>AWG | length<br>D=4" | color<br>yellow | insulation<br>U103 | housing<br>- none | strip<br>.25" |

### Cantherm Marking

- B12A** type (B12 nc)  
**12005** response temperature (120°C), tolerance ( $\pm 5K$ )  
**124C** date of manufacture (Dec. 2014), country (C = Canada)



**CANTHERM**<sup>TM</sup>

Div. of Microtherm International Cooperation

Canadian Thermostats & Control Devices, Ltd.  
8415 Mountain Sights Ave.  
Montreal, Canada H4P 2B8

Tel: (514) 739-3274 Fax: (514) 739-2902

**1 (800) 561-7207**



WEBSITE: [www.cantherm.com](http://www.cantherm.com)  
E-Mail: [sales@cantherm.com](mailto:sales@cantherm.com)

# AMEYA360

## Components Supply Platform

Authorized Distribution Brand :



Website :

Welcome to visit [www.ameya360.com](http://www.ameya360.com)

Contact Us :

➤ Address :

401 Building No.5, JiuGe Business Center, Lane 2301, Yishan Rd  
Minhang District, Shanghai , China

➤ Sales :

Direct +86 (21) 6401-6692

Email [amall@ameya360.com](mailto:amall@ameya360.com)

QQ 800077892

Skype ameyasales1 ameyasales2

➤ Customer Service :

Email [service@ameya360.com](mailto:service@ameya360.com)

➤ Partnership :

Tel +86 (21) 64016692-8333

Email [mkt@ameya360.com](mailto:mkt@ameya360.com)