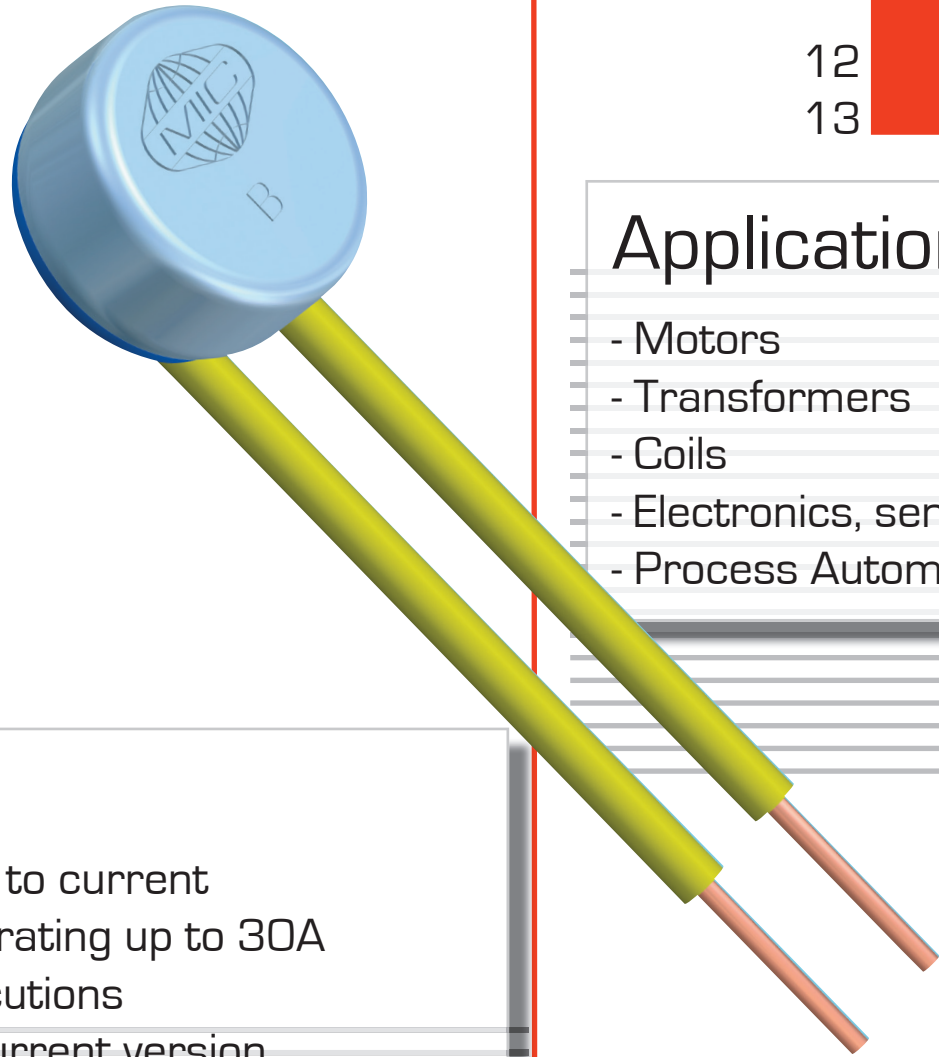


Thermal motor protector
Temperature limiter
Thermal cut-out

B

12
13

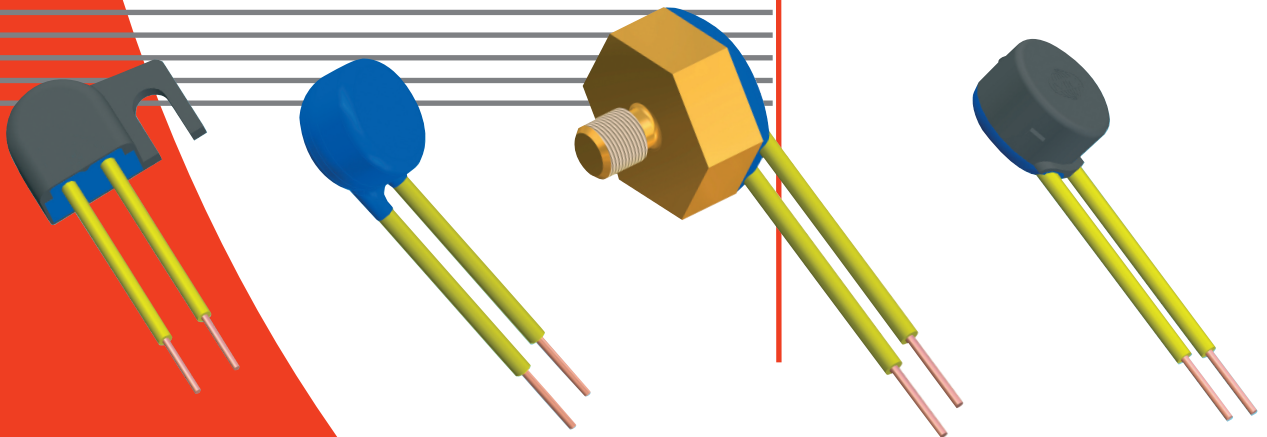


Applications

- 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 _a (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 ¹⁾ | | | | |
| 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 / -2-3 ²⁾ / -2-9 | | | |
| | UL |  | UL File Number E46827 | | | |
| | CSA / cUL |  | C22.2 No. 77 / C22.2 No. 24 ²⁾ | | | |
| | CQC |  | GB14536.1-1998 / GB14536.10-1996 ²⁾ | | | |

¹⁾ at the T_a (upper and lower) limits the hysteresis could deviate, for T_a > 130°C the hysteresis is 30K -15K/+30K ²⁾ 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 ² | 3266/3398 |
| yellow | AEDC | | | 1.80 mm | AWG20 / 0.48 mm ² | |
| black | AFDA | | | 2.15 mm | AWG18 / 0.96 mm ² | |
| white | LCDB | 200 °C | 600 V | 0.90 mm | AWG24 / 0.24 mm ² | 3557 |
| white | LEDB | | | 1.26 mm | AWG20 / 0.61 mm ² | |
| white | LFDB | | | 1.50 mm | AWG18 / 0.96 mm ² | |
| black | ASDA ²⁾ | 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 |

¹⁾ AWG20 is recommended ²⁾ Solid Wire

Additional wires available upon request.

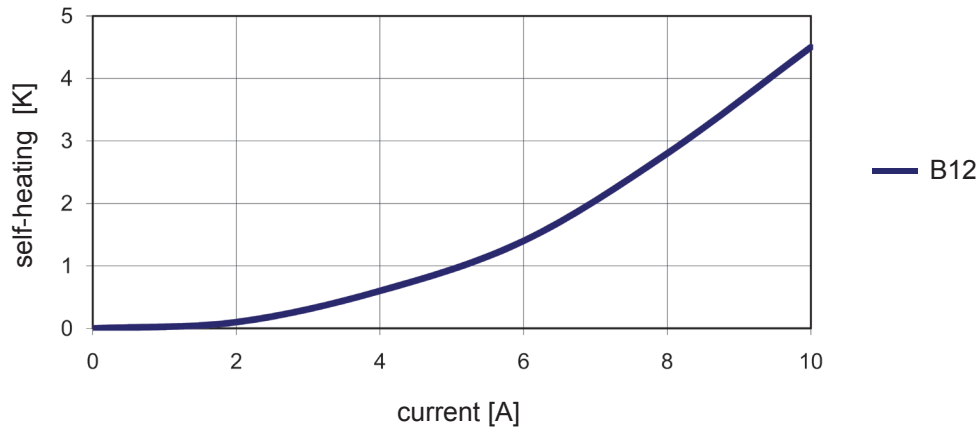
| control type | nc | no | Cantherm code | illustration | drawing dimensions (mm) | technical specification | approvals ¹⁾ |
|--------------|----|----|---------------------|--------------|---------------------------|-------------------------|-------------------------|
| B12 | A | B | Class B U103 C |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

Specific variations

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

¹⁾ B12 only

Heating by current



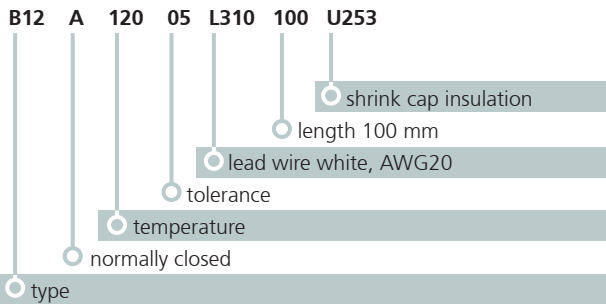
The diagram is measured with a thermal control without any insulation in an oil bath.

Attention:

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

Ordering and marking example

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 +/-5°C | wire leads UL3398 20 AWG | length D=4" | color yellow | insulation U103 | housing - none | strip .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™

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