

Operating Instructions



Capillary tube thermostat KRM

Type 27-6A.3-61../....

Reservation

Technical data subject to change without notice.
Changes, errors and printer's errors do not justify any claim for damages.

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1. Intended use

The thermostats Type 27-6A.3-61../.... monitor or regulate temperatures in heat generating plants and applications in heating and ventilation engineering and air-conditioning technology.

2. Product description

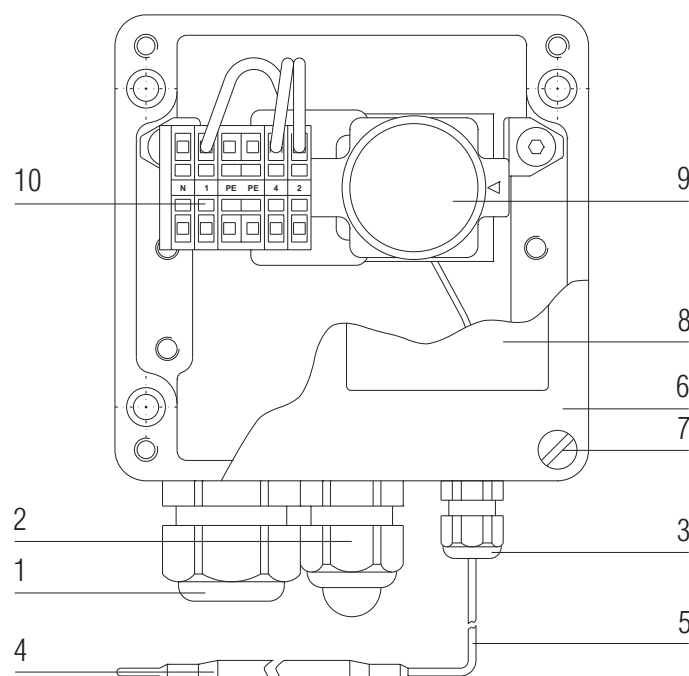
The media-protected capillary tube thermostat KRM is a mechanical two-position controller. The KRM is installed in a polyester enclosure and switches, e.g. heaters, as well as other apparatus ON, resp. OFF in the case of subnormal or excess temperature.

The equipment works according to the principle of liquid or gas expansion.

A temperature change on the sensor effects a volume change of the liquid-filled measurement system. This causes a membrane to move, which is connected to a mechanical transmission system and actuates a micro-switch. If the sensor temperature exceeds the set value, terminal 1 – 2 is opened. When the set temperature is under-run, the contact closes automatically. The temperature is set with a rotary knob with scale located inside the equipment.

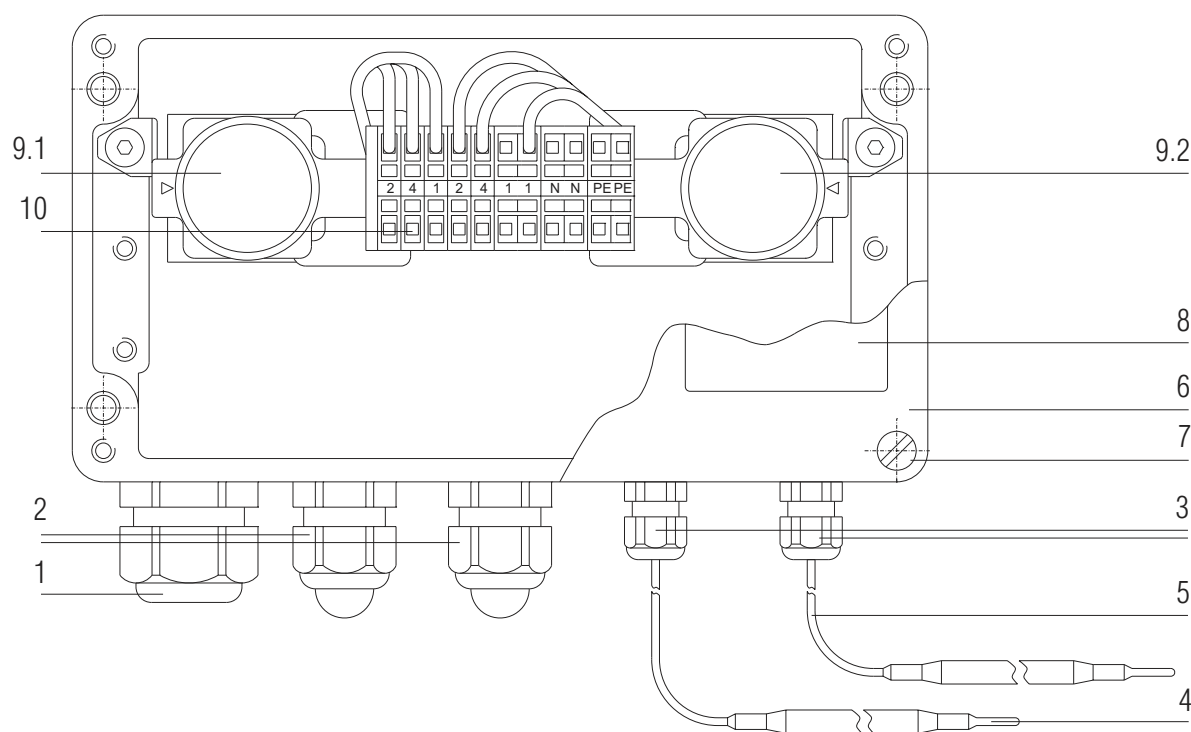
The series is available as a single unit (one measuring insert) as well as a double unit (two measuring inserts).

Equipment overview Single unit



- | | | |
|--|----------------------|----------------------|
| 1 Screw connection M25
(Connection cable) | 4 Temperature feeler | 9 Set point adjuster |
| 2 Screw connection M20
(Cold tail of heating circuit) | 5 Remote line | 10 Terminals |
| 3 Screw connection M12
(Lead-in for remote line
of the temperature feeler) | 6 Lid | |
| | 7 Lid screw | |
| | 8 Type label | |

Equipment overview Double unit



- | | | |
|--|----------------------|--|
| 1 Screw connection M25
(Connection cable) | 4 Temperature feeler | 9.1 Set point adjuster
first measuring insert |
| 2 Screw connection M20
(Cold tail of heating circuit) | 5 Remote line | 9.2 Set point adjuster
second measuring
insert |
| 3 Screw connection M12
(Lead-in for remote line
of the temperature feeler) | 6 Lid | 10 Terminals |
| | 7 Lid screw | |
| | 8 Type label | |

3. Safety instructions

Before commissioning, please ensure that the equipment is suited for the intended use according to its labelling.

The relevant installation and operating regulations for electrical systems must be observed (e.g. Series DIN VDE 0100 or other relevant national regulations).

The operator of an electrical system must keep the equipment in proper condition, operate it properly, monitor it and conduct maintenance and repair work.

The general statutory regulations and other binding directives on workplace safety, accident prevention and environmental protection must be adhered to.

Cutting through or bending the remote line of the temperature monitoring and control device leads to permanent equipment failure!

In the event of a break of the measuring system, liquid with toxicological properties may leak.

4.1. Opening the controller and regulator

Unscrew the 4 lid screws (7)

Remove lid (6) with seal (not visible on drawing)

When assembling pay attention to correct fit of seal!

4.1.1. Enclosure installation

Mounting position: Cable screw connections at the bottom or side

When mounting on walls, prepare mounting holes.

When mounting on pipes or containers please use the mounting plates and brackets available as original accessories.

Always fasten lower part of enclosure with screws

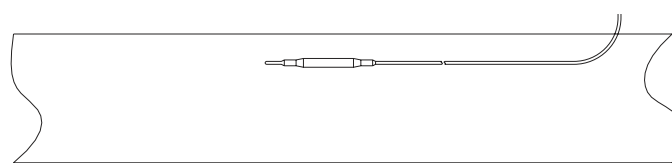
4.1.2. Installation remote line/Temperature feeler

Cutting through or bending the remote line of the temperature monitoring and control device leads to permanent equipment failure! Minimum permissible bend radius of the remote line is 20 mm.

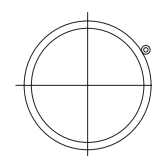
The temperature feeler (sensor) must have optimum contact with the object to be monitored. The use of the temperature feeler (sensor) inside pipes or containers is only permissible in combination with an immersion sleeve.

The feeler must be installed on the objects to be monitored with best possible contact corresponding to Sketches 3 and 4. It is recommended to tape over aluminium foil in low temperatures and imbedding in heat conducting concrete or similar material, in very high temperatures.

Mounting



Sketch 3



Sketch 4

4.2. Installation Thermostat

The unit must be connected in accordance with the wiring diagram and with due regard to the current/voltage specifications. It is compulsory to heed the data on the type label.

The electrical connection may only be carried out by an electrician.

The respectively valid national and international directives and regulations must be heeded when choosing the cable material, during installation and electrical connection of the unit.

Disconnect the unit from the mains when live parts may be touched during work.

All output electric circuits connected to the unit must be protected with suitable devices (e.g. fuses) corresponding to the existing current values.

Earth the unit at terminal PE with the protective earth conductor. This cable should have at least the same diameter as the supply cables. Lead the ground conductors in a star-shape to a joint grounding point which is connected to the protective earth conductor of the voltage supply. Do not loop-through ground conductors, i. e. do not lead them from one unit to another.

In addition to faulty installation, values set incorrectly on the thermostat can also impair correct functioning of the subsequent process or lead to other damage. Only expert personnel should be able to carry out the settings. Please heed the corresponding safety regulations in this context.

4.3. Electrical connection

The electrical connection must be carried out in the following steps:

Open the enclosure by unscrewing the lid screws (7).

Feed connecting line through the screw connection (1) and seal this by fastening the clamping screw.

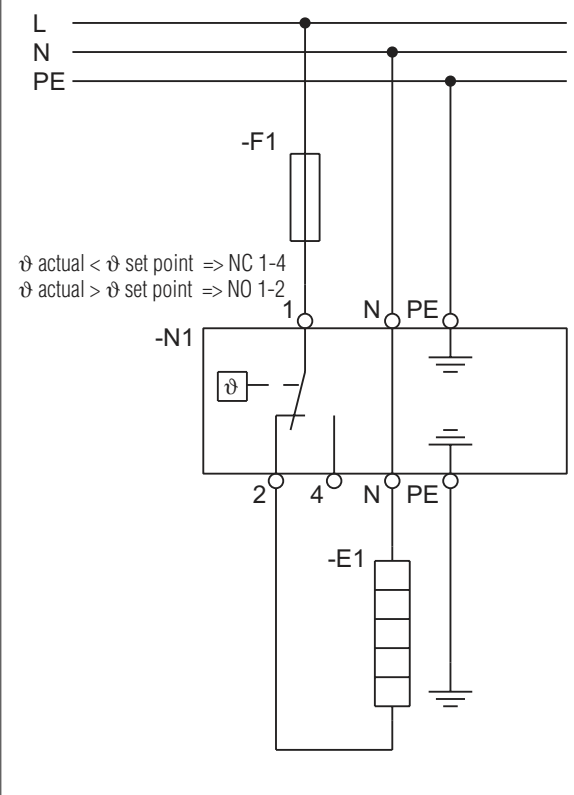
Feed cold tail of heating circuit through the screw connection (2) and seal this by fastening the clamping screw.

Establish electrical connection at the terminals in accordance with the wiring arrangement.

Connect protective earth conductor to terminal "PE"!

Close enclosure with lid screws (7).

Wiring arrangement



4.4. Commissioning

Open the enclosure by unscrewing the lid screws (7).

Set limit value at set point adjuster (9).

Close enclosure with lid screws (7).

5. Operation, Maintenance

The operator of an electrical system must keep the equipment in proper condition, operate it according to its intended use, monitor it and conduct maintenance and repair work. Each electrical operating equipment must be selected according to its suitability.

The valid laws and guidelines must be heeded before recommissioning. The specified safety instructions must be heeded prior to maintenance and/or failure rectification.

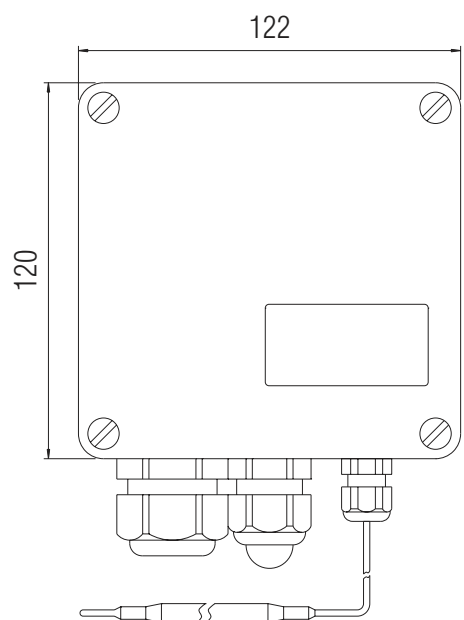
6. Technical data

Temperature range 0 °C up to +100 °C		
Switching capacity	Terminal 1-2	Terminal 1-4
AC 250 V	16 (2,6) A	6 (1) A
AC 400 V	10 (2) A	2 (2) A
Switching differential approx. 3 K		
Max. feeler temperature +115 °C		
Steam rinse resistant (Hot steam cleaning on measuring object = Feeler position) No		
Min. feeler temperature -40 °C		
Min. bend radius 20 mm		
Capillary tube length 1600 mm		
Feeler length 140 mm		
Feeler diameter 6 mm		
Cable glands Single units Type 27-6A.3-611..... 1 x M25, 1 x M20 Single units Type 27-6A.3-611.A... 1 x M25, 2 x M20 hole Double units Type 27-6A.3-616..... 1 x M25, 2 x M20		
M25 Terminal area 9 to 16 mm		
M20 Terminal area 6 to 12 mm		
Protective type (according to EN 60529) IP 65		
Operating temperature -20 °C to +65 °C		
Storage and transport temperature -25 °C to +65 °C		
Enclosure version Polyester, grey		
Enclosure dimensions Single unit 122 x 120 x 90 mm Double unit 220 x 120 x 90 mm		
Weight Single unit approx. 550 g Double unit approx. 1000 g		
Operating position Cable glands on bottom or side		

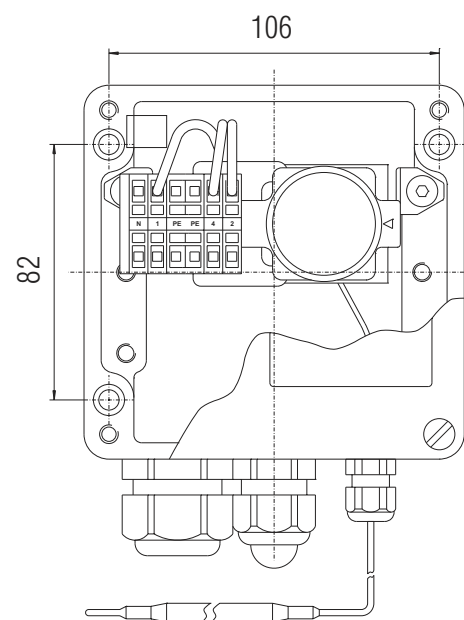
Temperature range 0 °C up to +300 °C		
Switching capacity	Terminal 1-2	Terminal 1-4
AC 250 V	16 (2,6) A	6 (1) A
AC 400 V	10 (2) A	2 (2) A
Switching differential ca. 8 K		
Max. feeler temperature +345 °C		
Steam rinse resistant (Hot steam cleaning on measuring object = Feeler position) Yes		
Min. feeler temperature -15 °C		
Min. bend radius 20 mm		
Capillary tube length 1600 mm		
Feeler length 165 mm		
Feeler diameter 4 mm		
Cable gland 1x M25, 2x M20 (2 x M20 with blanking plug)		
M25 Terminal area 9 to 16 mm		
M20 Terminal area 6 to 12 mm		
Protective class (according to EN 60529) IP 65		
Operating temperature -20 °C to +65 °C		
Storage and transport temperature -25 °C to +65 °C		
Enclosure size Single unit (Standard) 122 x 120 x 90 mm Double unit 220 x 120 x 90 mm		
Weight Single unit approx. 550 g		
Operating position Cable glands on bottom or side		
Electrical data for both temperature ranges		
Contact type 1 two-way contact		
Terminals 0.5 to 2.5 mm ² Strip length 8 to 9 mm		

7. Dimensions/Fastening points

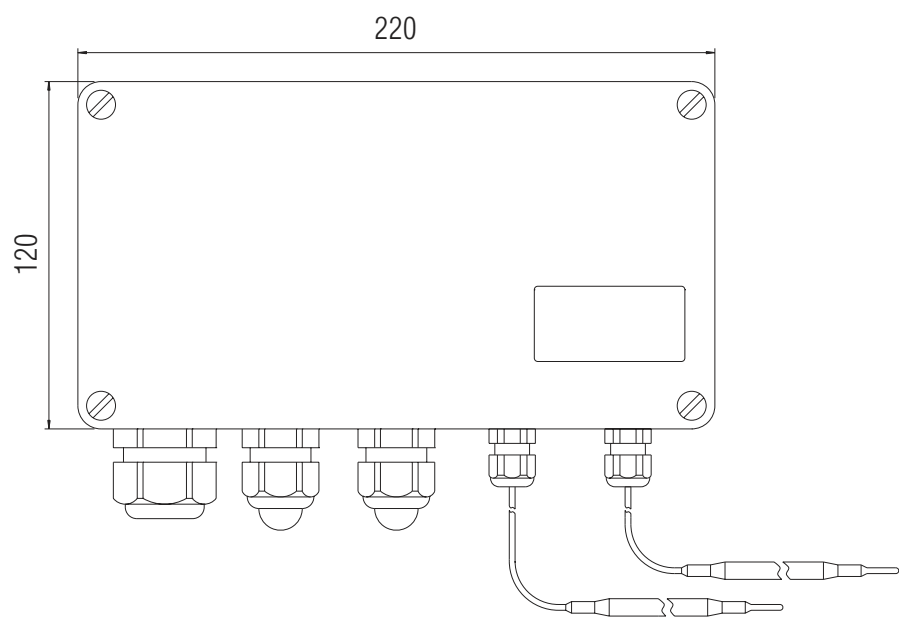
Dimensions Single unit



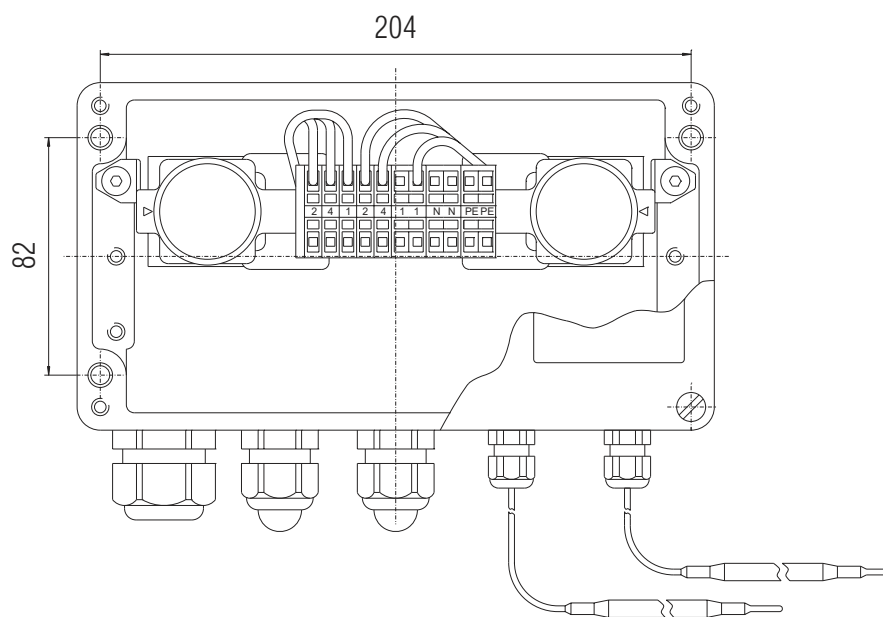
Fastening points Single unit



Dimensions Double unit



Fastening points Double unit



8. Labelling examples for type label

Example single unit

The diagram shows a rectangular label with the following text:

- Top left: **CE**
- Top right: **BARTEC** D-97980 Bad Mergentheim
- Line 1: Typ 27-6AA3-61522000
- Line 2: KRM 0°C +100°C
- Line 3: AC 230 V / 16 A
- Line 4: AC 400 V / 10 A

 Callouts 1-4 point to these elements respectively.

- 1 Type designation
- 2 Equipment designation/Effective range
Measuring insert 0 to +100 °C
- 3 Max. switching voltage
- 4 Max. switching current

Example double unit

The diagram shows a rectangular label with the following text:

- Top left: **CE**
- Top right: **BARTEC** D-97980 Bad Mergentheim
- Line 1: Typ 27-6AK3-61602P2B
- Line 2: KRM 0°C +100°C
- Line 2: KRM 0°C +300°C
- Line 3: AC 230 V / 16 A
- Line 4: AC 400 V / 10 A

 Callouts 1-4 point to these elements respectively.

- 1 Type designation
- 2 Equipment designation/Effective range
First measuring insert 0 to +100 °C
Second measuring insert 0 to +300 °C
- 3 Max. switching voltage
- 4 Max. switching current

9. Service address

BARTEC GmbH
 Max-Eyth-Straße 16
 D-97980 Bad Mergentheim
 Tel.: +49 7931 597-0
 Fax.: +49 7931 597-119
 www.bartec.com
 info@bartec.com

10. EC Declaration of Conformity

EU Konformitätserklärung
EU Declaration of Conformity
Déclaration UE de conformité

BARTEC

Nº 21-6A03-7C0001_A

Wir	We	Nous
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BARTEC GmbH
Max-Eyth-Straße 16
97980 Bad Mergentheim
Germany

erklären in alleiniger Verantwortung, dass das Produkt Kapillarrohr Temperaturwächter KRM	declare under our sole responsibility that the product Capillary tube Thermostat KRM	attestons sous notre seule responsabilité que le produit Régulateur de Température KRM
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Typ 27-6A*3-61 ******

auf das sich diese Erklärung bezieht den Anforderungen der folgenden Richtlinien (RL) entspricht NS-Richtlinie 2014/35/EU RoHS-Richtlinie 2011/65/EU und mit folgenden Normen oder normativen Dokumenten übereinstimmt	to which this declaration relates is in accordance with the provision of the following directives (D) LV -Directive 2014/35/EU RoHS-Directive 2011/65/EU and is in conformity with the following standards or other normative documents	se référant à cette attestation correspond aux dispositions des directives (D) suivantes Directive BT 2014/35/UE Directive RoHS 2011/65/UE et est conforme aux normes ou documents normatifs ci-dessous
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EN 60730-1 : 2016+A1:2019
EN 60730-2-9:
2019+A1:2019+A2:2020

EN 60529:1991 + A1:2000 +
A2:2013+AC :2019

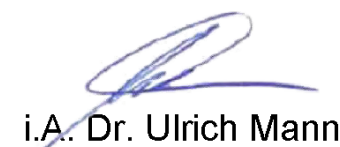
Verfahren der internen Fertigungskontrolle	Procedure of internal control of production	Procédure de contrôle interne de fabrication
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Bad Mergentheim, 10.03.2023


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