

Data Sheet

Thermostats Type **KP**

For district heating substations



The KP thermostats are single-pole, double-throw (SPDT) temperature-operated electric switches.

They can be connected directly to a single-phase AC motor of up to approx. 2 kW or installed in the control circuit of DC motors and large AC motors.

The KP thermostats are used for regulation, but can also be seen in safety monitoring systems.

Features

- Wide regulating range
- Welded bellows elements mean increased reliability
- Small dimensions
- Ultra-short bounce times. This gives long operating life, reduces wear to a minimum and increases reliability
- Standard versions with changeover switch. Possible to obtain opposite contact function or to connect a signal
- Electrical connection at the front of the unit
 - Facilitates rack mounting
 - Saves space
- Suitable for alternating and direct current
- Cable entry of soft thermoplastic for cables from 6 to 14 mm diameter

Product specification

Technical data

Table 1: General specifications

| | | |
|--------------------------------|----------------------------|--|
| Ambient temperature | | -40 – 65 °C (80 °C for max. 2 hours) |
| Switch | | Single-pole, double-throw (SPDT) changeover switch |
| Contact load | Alternating current | AC1 = 16 A, 400 V AC3 = 16 A, 400 V |
| | Direct current | DC13: 12 W, 220 V control current |
| | solid / stranded | 0.75 – 2.5 mm ² |
| Wire dimensions | flexible, without ferrules | 0.7 – 2.5 mm ² |
| | flexible, with ferrules | 0.5 – 1.5 mm ² |
| | | |
| Tightening torque | | max. 2 Nm |
| Rated impulse voltage | | 4 kV |
| Pollution degree | | 3 |
| Short circuit protection, fuse | | 16 A |
| Insulation | | 400 V |
| Enclosure | | IP55 |
| Nominal pressure | | PN 16 |
| Sensor material | | Stainless steel 1.4404 |

Cable connection

Cable entry for cables 6 – 14 mm dia.

A Pg 13.5 screwed cable entry can be used for 6 – 14 mm dia. cables.

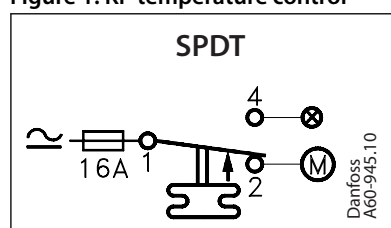
With 8 – 16 mm cables a standard Pg 16 screwed cable entry can be used.

Enclosure

IP55 to EN 60529 / IEC 60529

This grade of enclosure is obtained when the unit is mounted in an IP55 enclosure.

Contact systems

Figure 1: KP temperature control


Design Function

The switch in the KP has a snap-action function and the bellows move only when the cut-in or cut-out value is reached.

The design of the KP thermostats affords the following advantages:

1. High contact load
2. Ultra-short bounce time
3. Vibration resistance up to 4 g, in the range 0 – 1000 Hz
4. Long mechanical and electrical life

Terminology

Differential

The differential is the difference between the make and break temperatures. A differential is necessary for satisfactory automatic operation of the plant.

Mechanical differential (intrinsic differential)

The mechanical differential is the differential set by the differential spindle.

Operating differential (thermal differential)

The operating differential is the differential the plant operates on. Operating differential is the sum of the mechanical differential and the differential produced by the time constant.

Reset

These units are automatically reset after operational stop.

Setting

Set the upper activating temperature on the range scale.

Set the differential on the "DIFF" scale.

The temperature setting on the range scale will then correspond to the temperature at which the 1-2 contacts will brake by rising temperature.

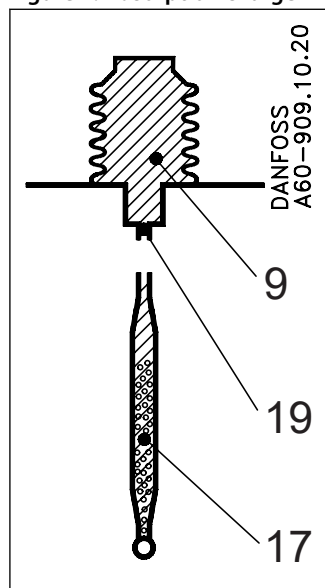
The 1-2 contacts will make when the temperature has fallen in relation to the differential setting.

Note that the differential depends on the range setting. Therefore, the differential scale must only be used as guideline.

If with low stop temperature settings the 1-2 contacts will not make, check whether the differential is set at too high a value!

Charge

Figure 2: Adsorption charge



| | |
|----|-----------------|
| 9 | Bellows element |
| 17 | Sensor (bulb) |
| 19 | Capillary tube |

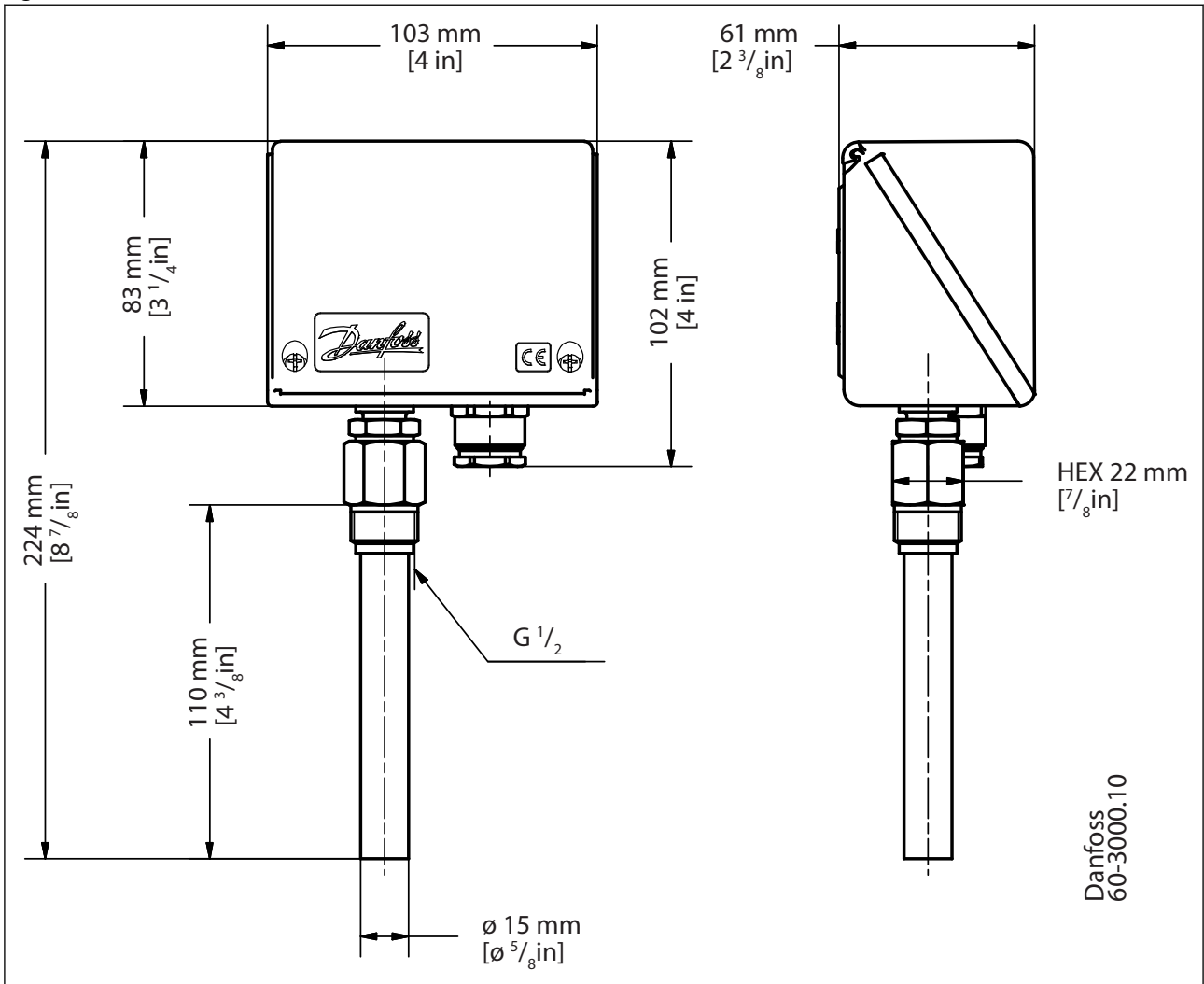
The charge consists partly of a superheated gas and partly of a solid having a large adsorption surface.

The solid is concentrated in the sensor (17) and it is therefore always the sensor that is the temperature-controlling part of the thermostatic element.

The sensor can be placed warmer or colder than thermostat housing and capillary tube, but variations from 20 °C ambient temperature will influence the scale accuracy.

Dimensions [mm] and weights [kg]

Figure 3: KP 78 – 79



Net weight: approx. 0.4 kg

Ordering

Table 2: Thermostat, types KP 78 and KP 79

| Charge | Type | Sensor type | Setting range | Differential Δt | | Reset | Max. sensor temp. | Sensor pocket length | Code no. |
|----------------------------|-------|--------------|---------------|-------------------------|---------------------|---------------|-------------------|----------------------|------------|
| | | | | Lowest temperature | Highest temperature | | | | |
| | | | | [°C] | [°C] | | | | |
| Adsorbition ⁽¹⁾ | KP 78 | Rigid sensor | 30 – 90 | 4.5 – 20 | 7.0 – 16.5 | Automatic | 150 | 110 | 060L122966 |
| | KP 79 | Rigid sensor | 50 – 100 | 5.0 – 15 | 5.0 – 15 | Automatic | 150 | 110 | 060L127466 |
| | KP 79 | Rigid sensor | 50 – 100 | Fixed 5.5 | Fixed 5.5 | Manual (Max.) | 150 | 110 | 060L128166 |

⁽¹⁾ Bulb can be placed warmer or colder than thermostat housing and capillary tube, but variations from 20 °C ambient temperature will influence the scale accuracy

Figure 4: KP 79 with manual reset



1 Reset button

Certificates, declarations and approvals

The list contains all certificates, declarations, and approvals for this product type. Individual code number may have some or all of these approvals, and certain local approvals may not appear on the list.

Some approvals may change over time. You can check the most current status at danfoss.com or contact your local Danfoss representative if you have any questions.

Certificates and declarations

Table 3: Certificates and declarations

| File name | Document type | Document topic | Approval authority |
|-------------------------|---|----------------|--------------------|
| BK_W_0862_01_2018 | Food and Health - Performance Certificate | - | PZH |
| RU Д-DK.ГА02.В.03367 | EAC Declaration | EMC | EAC |
| RU C-DK.БЛ08.В.00063_18 | Electrical - Safety Certificate | EMC/LVE | EAC |
| ELE-086320XG-003 | Marine - Safety Certificate | - | RINA |
| UA.10146.D.00075-19 | UA Declaration | EMCD/LVD | LLC CDC EURO TYSK |

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