

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 <sup>2</sup>
Wire dimensions	flexible, without ferrules	0.7 – 2.5 mm <sup>2</sup>
	flexible, with ferrules	0.5 – 1.5 mm <sup>2</sup>
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.

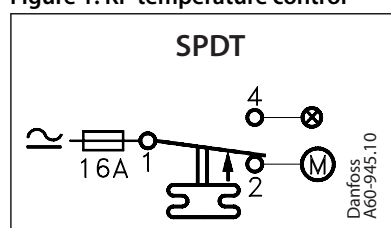
With 8 – 16 mm cables a standard Pg 16 screwed cable entry can be used.

### 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.

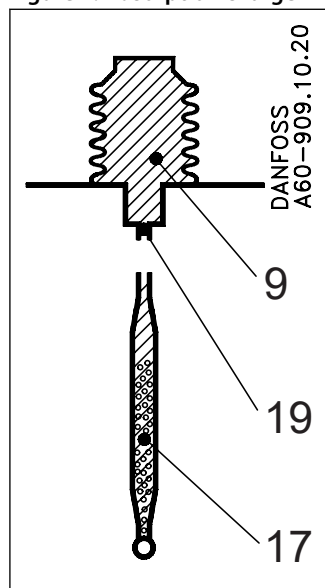
The 1-2 contacts will make when the temperature has fallen in relation to the differential setting.

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

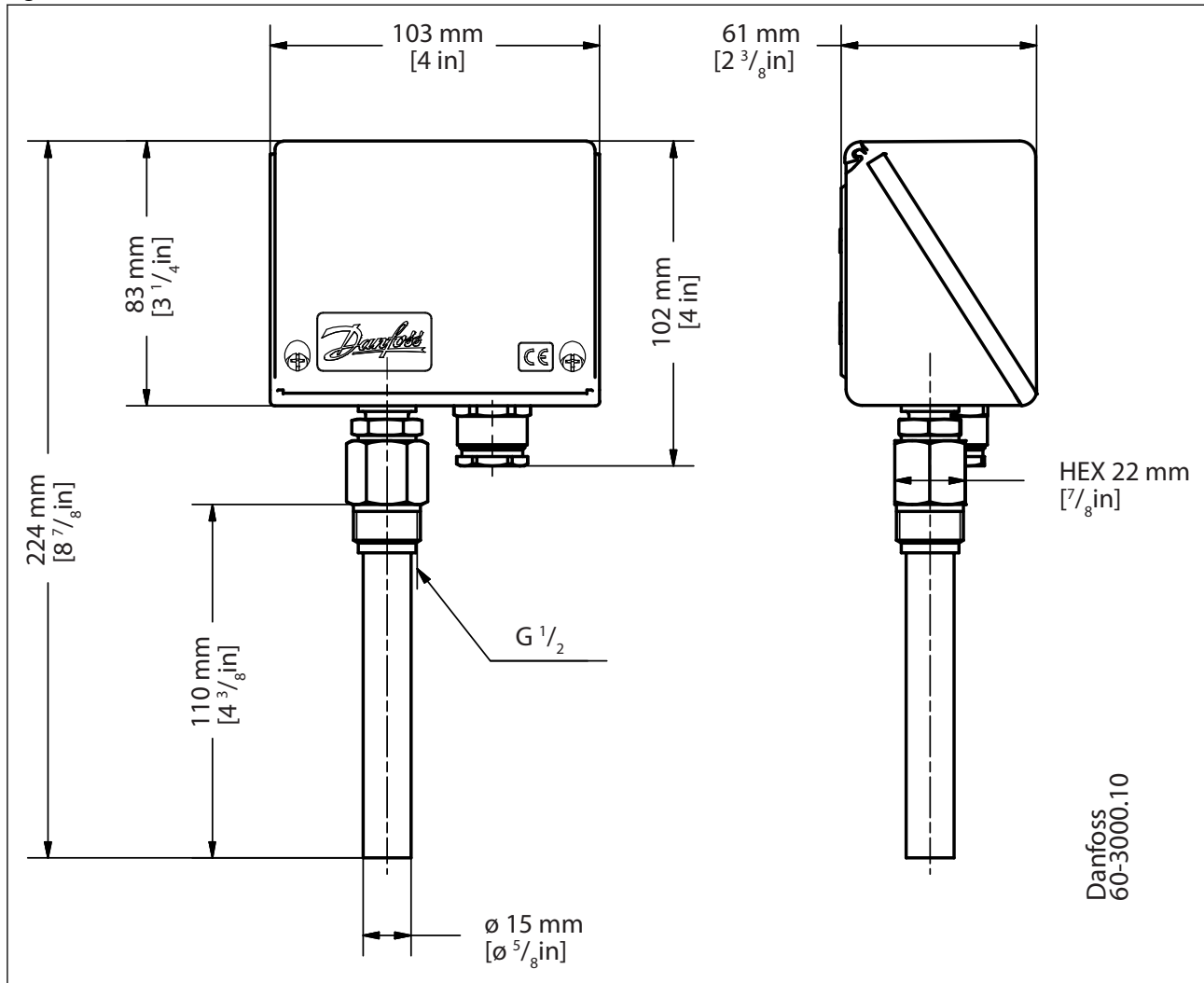
The charge consists partly of a superheated gas and partly of a solid having a large adsorption surface.

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 $\Delta t$		Reset	Max. sensor temp.	Sensor pocket length	Code no.
				Lowest temperature	Highest temperature				
				[°C]	[°C]				
Adsorbition <sup>(1)</sup>	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

<sup>(1)</sup> 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](http://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

## Online support

Danfoss offers a wide range of support along with our products, including digital product information, software, mobile apps, and expert guidance. See the possibilities below.

### The Danfoss Product Store



The Danfoss Product Store is your one-stop shop for everything product related—no matter where you are in the world or what area of the cooling industry you work in. Get quick access to essential information like product specs, code numbers, technical documentation, certifications, accessories, and more.

Start browsing at [store.danfoss.com](https://store.danfoss.com).

### Find technical documentation



Find the technical documentation you need to get your project up and running. Get direct access to our official collection of data sheets, certificates and declarations, manuals and guides, 3D models and drawings, case stories, brochures, and much more.

Start searching now at [www.danfoss.com/en/service-and-support/documentation](https://www.danfoss.com/en/service-and-support/documentation).

### Danfoss Learning



Danfoss Learning is a free online learning platform. It features courses and materials specifically designed to help engineers, installers, service technicians, and wholesalers better understand the products, applications, industry topics, and trends that will help you do your job better.

Create your Danfoss Learning account for free at [www.danfoss.com/en/service-and-support/learning](https://www.danfoss.com/en/service-and-support/learning).

### Get local information and support



Local Danfoss websites are the main sources for help and information about our company and products. Find product availability, get the latest regional news, or connect with a nearby expert—all in your own language.

Find your local Danfoss website here: [www.danfoss.com/en/choose-region](https://www.danfoss.com/en/choose-region).

### Spare Parts



Get access to the Danfoss spare parts and service kit catalog right from your smartphone. The app contains a wide range of components for air conditioning and refrigeration applications, such as valves, strainers, pressure switches, and sensors.

Download the Spare Parts app for free at [www.danfoss.com/en/service-and-support/downloads](https://www.danfoss.com/en/service-and-support/downloads).

### Coolselector®2 - find the best components for you HVAC/R system



Coolselector®2 makes it easy for engineers, consultants, and designers to find and order the best components for refrigeration and air conditioning systems. Run calculations based on your operating conditions and then choose the best setup for your system design.

Download Coolselector®2 for free at [coolselector.danfoss.com](https://coolselector.danfoss.com).

Any information, including, but not limited to information on selection of product, its application or use, product design, weight, dimensions, capacity or any other technical data in product manuals, catalogues descriptions, advertisements, etc. and whether made available in writing, orally, electronically, online or via download, shall be considered informative, and is only binding if and to the extent, explicit reference is made in a quotation or order confirmation. Danfoss cannot accept any responsibility for possible errors in catalogues, brochures, videos and other material. Danfoss reserves the right to alter its products without notice. This also applies to products ordered but not delivered provided that such alterations can be made without changes to form, fit or function of the product. All trademarks in this material are property of Danfoss A/S or Danfoss group companies. Danfoss and the Danfoss logo are trademarks of Danfoss A/S. All rights reserved.