Data sheet



Thermostat

KP

For steam, air, gaseous and liquid media

Description

KP thermostats are temperature-operated electric circuit breakers. The thermostats are fitted with single-pole changeover switch (SPDT).

The position of the switch depends on the thermostat setting and sensor temperature. A KP thermostat can be connected and switch to single-phase alternating current motors of up to 2 kW.

Features & benefits

- Wide regulating range
- Small dimensions: space-saving, easy to install in panels
- Shock and impact resistant
- Ultra-short bounce time. Limits wear to an absolute minimum and increases reliability
- Snap action electrical contacts minimize chatter, bounce, and wear, and ensure long term electrical and mechanical reliability
- Electrical connection from front of the unit
    - Makes rack mounting easier and also saves space
- Suitable for alternating current and direct current
- Screwed wiring, makes rewiring easy
- Manual trip allows electrical function test without tools
- Versions with automatic and manual reset available

Ordering

Product code numbers

Product Type	Temperature range [°F] [min]	Temperature range [°F] [max]	Diff. @ Min. range setting[°F] [min]	Diff. @ Min. range setting[°F] [max]	Reset function	Cap. tube length fraction [in]	Max. sensor temperature [°F]	Code number
KP79	120	210	9.0	27.0	Auto	80 in	302.0	060L223866
KP79	120	210			Manual Max	80 in	302.0	060L223966
KP81	175	240	11.0	36.0	Auto	80 in	392.0	060L224066
KP81	175	240			Manual Max	80 in	392.0	060L224166

Note: the differential is fixed at 10 for 060L223966 and 16 for 060L224166.

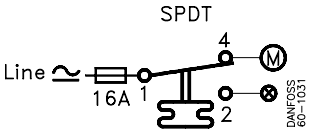
Accessories code numbers

Table: Code number

Type designation	Used for product	Parts included	Code number
Angle bracket	KP MP	4x screw 10-32 UNF	060-105366
Top cover	KP single		060-109766

Functions

Table: Contact system and application

Switch type - single pole double throw	Switch action	Application
	Terminals 1 – 4 close high and open low Terminals 1 – 2 can be used as low temperature alarm	Low pressure cut-out
	Terminals 1 – 2 open high and close low Terminals 1 – 4 can be used as high temperature alarm	High pressure cut-out

Settings

Thermostats with automatic reset
Set the cut-out temperature on the RANGE scale and differential on the DIFF scale. Restart temperature is equal to the cut-out temperature minus differential value.

Note: The differential scale is only a reference. The exact value of distances on the scale depends on where in its range the switch cut-in is set. Use the differential scale as a guide, and if precise function is required, establish the differential setting by comparing function with an accurate thermometer in the controlled zone.

Thermostats with manual reset
Set the cut-out temperature on the range scale.

The differential is fixed. Restart the system by pressing the reset button after the temperature of the sensor falls to a value equal to the range scale setting minus the fixed differential.

Terminology

Differential
The differential is the difference between the cut-in and cut-out temperatures.
The differential is necessary for satisfactory automatic operation of the controlled system.

Mechanical differential (intrinsic differential)
The mechanical differential is the differential set by the differential spindle.

Reset:
1. **Manual reset:** Units with manual reset can only be restarted after activation of the reset button. On max reset units the set value is equal to cut-out value for rising temperature.
2. **Automatic reset:** Units with automatic reset is restored to operational mode automatically.

Snap function
A specific contact force is maintained until snap is initiated. The time over which contact force reaches zero is a few milliseconds; therefore, contact bounce cannot occur as a result, for example, of slight vibrations before cut-out. The snap-action contact system will continue to function even when micro-welds are created between the contacts during cut-in. The force created to separate the contacts is strong and instantly shears off all contact surface welds that have been created as the result of cut-in action. These design features ensure that the cut-out point of the KP switch remains very accurate and completely independent of the magnitude of the current load.

FLA - Motor Full Load Amperes
FLA is the largest current that a motor or other device is designed to carry at rated voltage and other specific conditions. Also often called current at rated conditions.

LRA - Locked Rotor Amperes
LRA is the current in amperes drawn by an electric motor with the shaft or rotor immobilized.

Product details

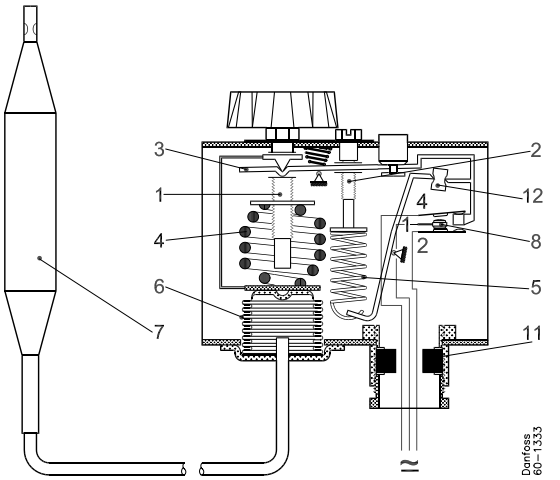
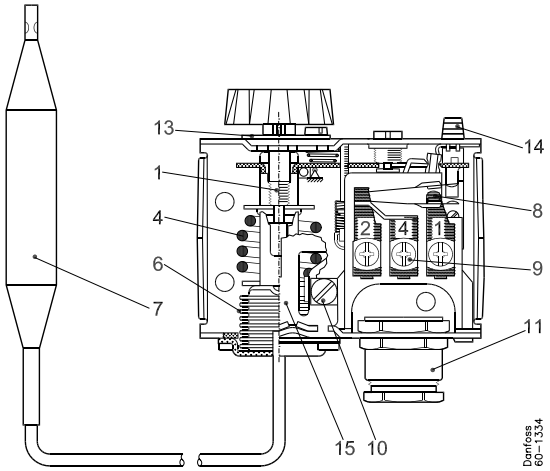
General data

Table: Thermostats

Features			Descriptions
Ambient temperature			-40 – 150 ˚F (175 ˚F for short period of time)
Sensor material			Tinned copper Cu/Sn5
Wire dimension			12 AWG max.
Contact system			SPDT – single pole double throw
Contact load	Alternating current	FLA	0.5 ~ 16 A / 120 V AC 0.5 ~ 8 A / 240 V AC
		LRA	96 A / 120 V AC 48 A / 240 V AC
	Direct current		240 V DC: 12 W pilot duty
Enclosure			NEMA ~ 1 (when mounted on a flat surface with all unused holes covered)
Cable entry			Integral ½ in female NPSM swivel cable connector, allows direct attachments of ½ in. male pipe thread connector

Design

Table: Design and function

Key sketch of KP 79, KP 81 thermostats	Simplified drawing of KP thermostat without front cover and scale. Version with manual reset.
	

1	Range setting spindle
2	Differential setting spindle
3	Main arm
4	Main spring
5	Differential spring
6	Bellows
7	Temperature sensors
8	Contact system

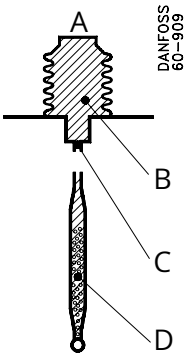
9	Terminals
10	Ground terminal
11	Cable entry: ½ in female cable gland
12	Tumbler
13	Locking screw
14	Manual reset
15	Distance plate

The contact system of KP switches has a snap-action function and the bellows moves only when cut-in or cut-out set point is reached.

The design has the following advantages:

- Higher contact load
- Ultra short bounce time
- Long mechanical and electrical lifetime
- High resistance to vibrations and pulsations

Thermostat charge

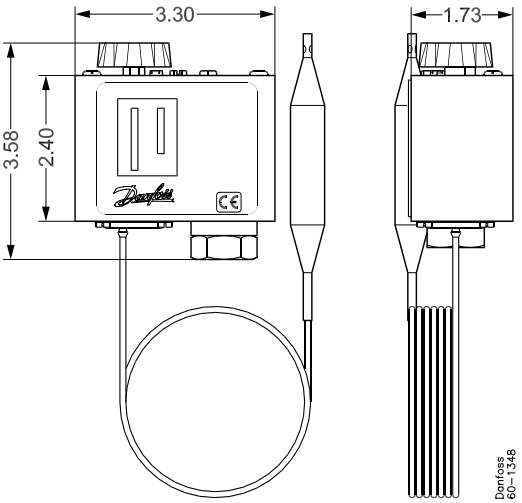


A	Adsorption charge
B	Bellows
C	Capillary tube
D	Sensor

Sensors with adsorption charges contain a superheated gas together with a solid having a large adsorption surface. The sensor can be placed in zones that are warmer or colder than the switch housing and capillary tube, but variations of more than 70 °F may influence scale accuracy.

Dimensions

Figure: KP 79, KP81



Units are in inch

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.

When you click on the link you will be directed to the latest version of the 'Declaration of Conformity'. Products developed and sold before this date of issue conform to the directives/standards in force at the time of their sale.

Approval type	Title	Issuer	Approval topic
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Mechanical Safety Certificate	UL MH27572	UL - Underwriters Laboratories inc.	
Electrical Safety Certificate	UL E31024	UL - Underwriters Laboratories inc.	
Electrical Safety Certificate	EAC KZ 7100841.01.01.01391	EAC - Eurasian Customs Union	EMC
Pressure Safety Certificate	LLC CDC EURO-TYSK UA.TR.089.1015.05-22	LLC CDC EURO TYSK - Ukraine	Pressure
Marine Certificate	BV 02281-K0 BV	BV - Bureau Veritas	Marine
Marine Certificate	DNV TAA000026F Rev.01	DNV	
UA Declaration	Danfoss UA 2024-07-25 cooling sensors	Danfoss	EMC, LVD
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Marine Certificate	RINA ELE290225XG	RINA - Registro Italiano Navale	
Manufacturer's Declaration	Danfoss MD 060-9638.AB	Danfoss	China RoHS
EU Declaration	EU DOC PL01 Packaging	Danfoss	Packaging

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