Technical leaflet

Pressure switches, type KP

Features

- Wide regulating range
- Can be used for pumps and compressors
- Small dimensions.
  Space-saving – easy to install in panels
- Shock and impact resistant
- Ultra-short bounce times.
  Limits wear to an absolute minimum and increases reliability
- Electrical connection from front of unit.
  Makes rack mounting easier and also saves space
- Suitable for both alternating current and direct current
- Cable entry for 6-14 mm diameter cables
- Screwed cable entry makes rewiring easy.
  Standard screwed cable entry
  Pg 13.5 and Pg 16

KP 35 with top cover

Description

Danfoss KP pressure switches are used for regulating, monitoring and alarm systems in industry.
KP pressure switches are recommended for gaseous media (also water, but only when mounted directly on the pipe - do not use capillary tube mounting).

The pressure switches are fitted with a single-pole switch changeover (SPDT). The position of the switch depends on the setting of the pressure control and the pressure in the connector.

Definitions

Range setting
The pressure range within which the unit will give a signal (contact changeover).

Differential
The difference between contact changeover on rising and falling pressure.
The differential is a condition for stable automatic plant operation.

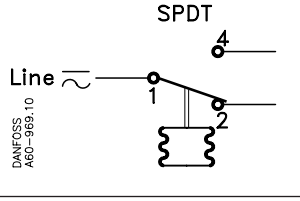
Automatic reset
Units with automatic reset restart automatically after stop.
Min. reset units will restart after the pressure **has risen** by a value greater than that of the fixed differential.
Max. reset units will restart after the pressure **has fallen** by a value greater than that of the fixed differential

Permissible operating pressure
The highest permissible constant pressure or pressure variation the unit can be exposed to.

Pressure controls available only for market in Asia (PL04)

Setting range p_e [bar]	Differential [bar]	Permissible operating pressure p_e [bar]	Max. test pressure [bar]	Pressure connection	Contact material	**Code no.**	Packing format	Type
−0.2 → 7.5	0.7 → 4	17	22	G ¼ A	Ag	**060-113391**	Single 36	KP 35
−0.2 → 7.5				G ¼ A	Au	**060-113491**	Industrial 48	KP 35
2.0 → 14.0				G ¼ A	Au	**060-110891**	Single 36	KP 36
2.0 → 14.0				G ¼ A	Ag	**060-112891**	Industrial 48	KP 36

Technical data

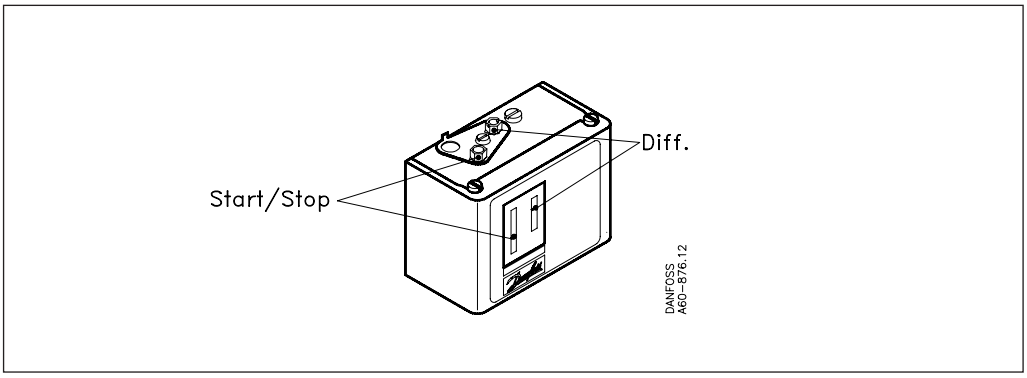
Description		KP 35, 36
Ambient temperature°C		–40 °C - +65 °C (for short periods up to +80 °C)
Media temperature °C		–40 °C - +100 °C
Media		Gaseous media (also water, but only when mounted directly on the pipe - do not use capillary tube mounting).
Parts in contact with medium	Bellows	Tinbronze W.no. 2.1020 to DIN 17662
	Pressure connector	Free-cutting steel (nickel plated), W. no. 1.0737 to EN 10277-3
Contact system		Single-pole changeover switch (SPDT) 
Contact load of silver cadmium contacts (Ag) Contact material: silver cadmium (Ag)		**Alternting current:** AC-1: 16 A, 400 V AC-3: 16 A, 400 V AC-15: 10 A, 400 V **Direct current:** DC-13 12 W, 220 V
Contact load of gold plated silver contacts (Au)		See information page 3
Enclosure, IP 33 grade		Unit must be mounted on a flat surface/ a flat fitting and all unused holes covered
Enclosure, IP 44 grade		Mounted as IP 33 plus fitting of top cover, code no. **060-109766**
Cable connection		Entry for 6-14 mm diameter cables
Mounted on back plate/ wall bracket		Vibration proof in the range 0 to 1000 Hz, 4 g (1 g = 9.81 m/s^2)
Mounted on angle bracket		Not recommended in areas where vibrations occur
Approvals		EN 60947-4-5 and UL

NOTE:
China Compulsory Certificate (CCC) will be completed by July 2008.

Setting

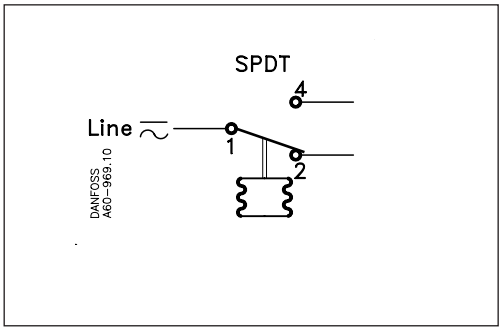
KP pressure switches with automatic reset:
Set the upper limit pressure on the range scale

Then set the lower limit pressure on the DIFF scale (the upper limit minus the differential).



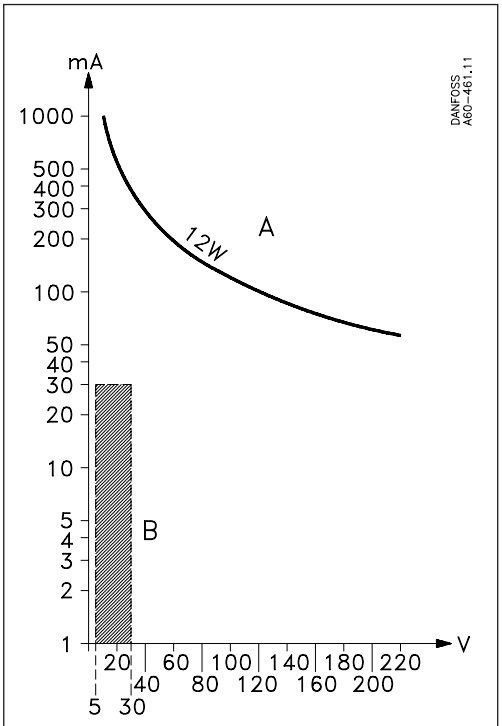
Gold contacts

Contact system
Single pole changeover (SPDT)
Contact material: gold plated silver contacts (Au)



Contact load (when Au surface is burnt away)
Alternating current:
Ohmic load: AC-1: 10 A, 440 V
Inductive load: AC-3: 6 A, 440 V
AC-15: 4 A, 440 V

Direct current: DC-13 12 W, 220 V,

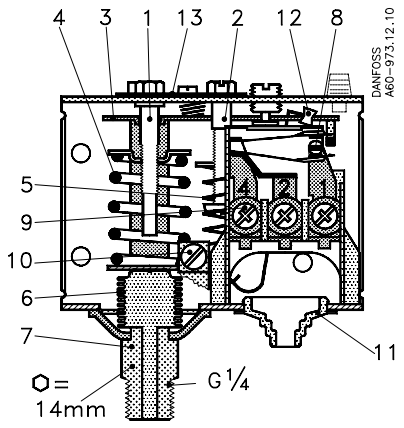


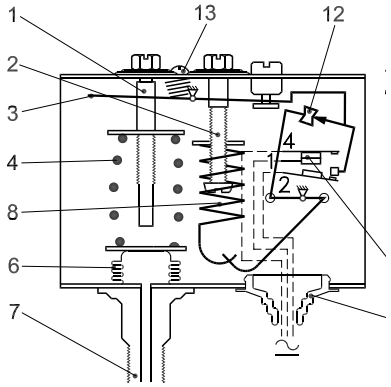
Curve A gives the maximum load.
Hatched area B: Acceptable load for the gold plating of the contact.

Design and function

1. Setting spindle
2. Differential setting spindle
3. Main arm
4. Main spring
5. Differential spring
6. Bellows
7. Connector
8. Contact system
9. Connection terminals
10. Earth terminal
11. Cable entry
12. Tumbler (KP)
13. Locking plate (KP)

Drawing showing principle of **KP** pressure switches





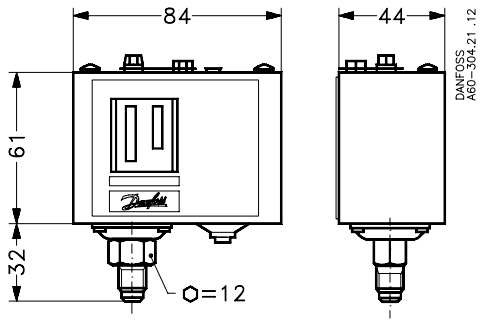
KP features

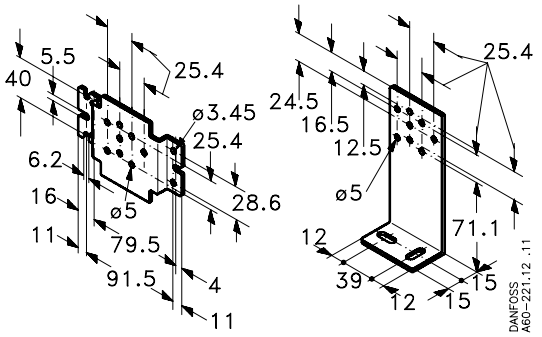
The contact system in KP pressure switches has a snap function. This means that the bellows is active only when the cut-in or cut-out value is reached.
The bellows is connected to the pressure of the controlled plant via the connector (7).

The design of KP pressure switches gives the following advantages:

- High contact load
- Ultra-short bounce times
- Vibration-proof in the range 0-1000 Hz, 4 g (1 g = 9.81 m/s2)
- Long operating life
- High pulsation protection
- Small dimensions – Easy to mount in panels

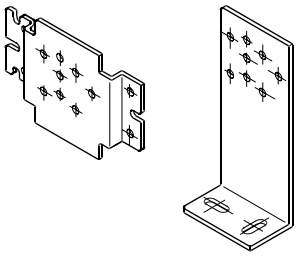
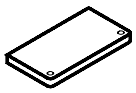
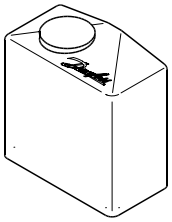
Dimensions and weights





Pressure switches KP 35, KP 36:
Weight approx. 0.3 kg

Accessories for KP pressure switches

Part	Symbol	Description	Total	**Code no.**
Brackets with mounting screws and washers		Wall bracket	10	**060-105566**
		Angle bracket	10	**060-105666**
Screwed cable entry		Screwed cable entry Pg 13.5 with special nut for 6-14 mm cables A standard Pg 16 screwed cable entry can be used for 8-16 mm cables	5	**060-105966**
Sealing screw		For sealing the setting on KP	20	**060-105766**
Top cover		If a bracket is mounted on the bracketplate of the housing, the KP pressure switch will have an IP 44 grade of enclosure. The cover covers the setting spindles	10	**060-109766**
Protective cap		Protective cap for KP pressure switches. To protect the unit against rain and humidity. Grade of enclosure: IP 44 Material: Polyethylene Max. ambient temperature: 65°C Min. ambient temperature: –40°C	7	**060-003166**