

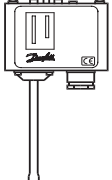
Installation guide

Pressure switch

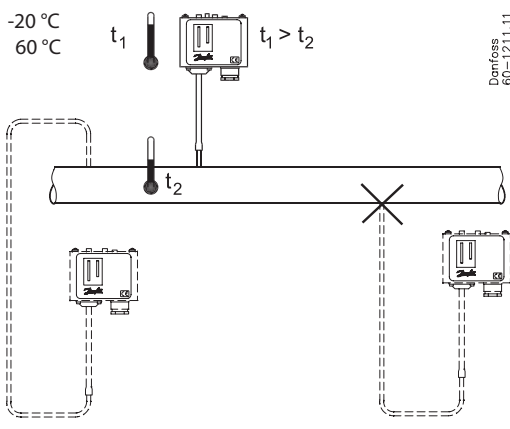
Types KP 1E, KP 7EW, KP 7EB

060R9516

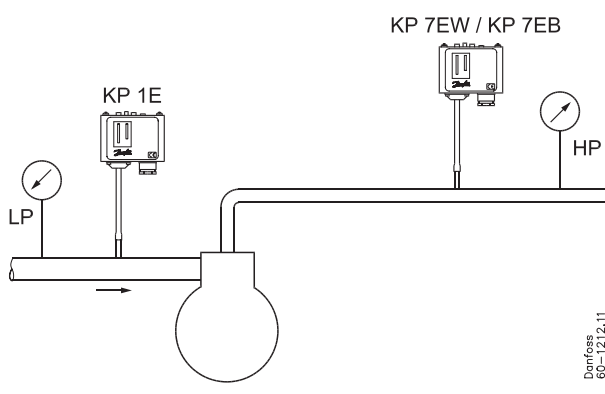
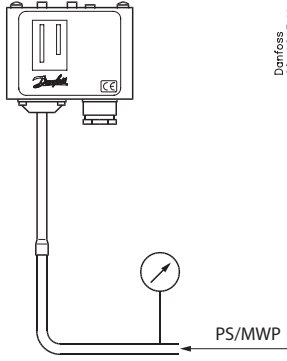
Refrigerants: HC, HCFC, HFC



t_1 min: -20 °C
 t_1 max: 60 °C
 $t_1 > t_2$

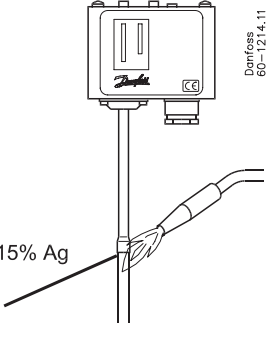


Relative humidity RH: 30 – 98%
 Vibration resistance: 4g (10 – 1000 Hz)

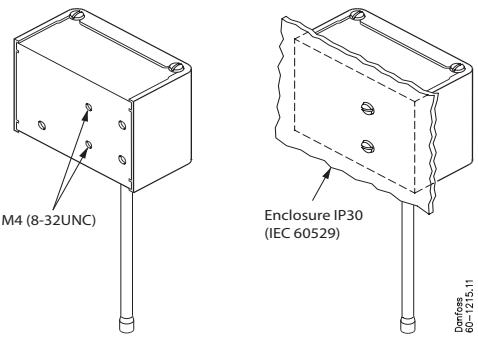



Pressure	Type	Regulating range [bar]	Differential Δp [bar]	Max. Working Pressure PS/MWP [bar]	Function*	Code no. Connection 1/4 in. ODF solder
Low	KP 1E	-0.2 – 7.5	0.7 – 4.0	17	PSL	060-530066
Low	KP 1E	-0.9 – 7.0	0.7	17	PZL	060-530266
High	KP 7EW	8 – 32	1.8 – 6.0	32	PSH	060-530466
High	KP 7EB	8 – 32	4	32	PZH	060-530666

* PSL, PZL, PSH, PZH according to EN12266: 1998

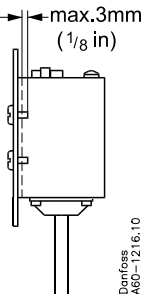


15% Ag



M4 (8-32UNC)

Enclosure IP30 (IEC 60529)



max. 3mm (1/8 in)

Note: Do not expose to direct sunlight.

Electrical connection

The KP-E pressure switch placed in explosive zone must always be wired through reliable Ex zener barrier, placed outside ex-zone, to ensure insufficient energy supply to cause the ignition of surrounding atmosphere by an electrical spark or the heating of components of circuitry.

The equipment to be used for electrical load limiting must always be approved for use in the zone concerned.

Cables and cable entries approved for the application must be used and can not be in contact with sharp edges. Cables must be connected with adequate stress relief that way that pulling forces can not be carried through the cable to the terminal.

Note:

A particular system can be classified in different zones, for different parts of the system.

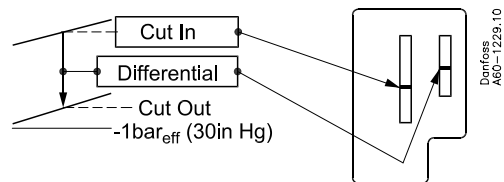
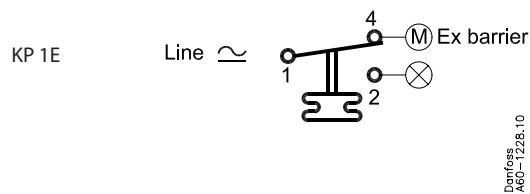
Intrinsic safety protection method

EX - zone	Non EX - zone	Electrical data for intrinsically safe specification (for all KP-E types):	Product marking
<p>KP-E</p>	<p>EX certified Zener barrier Signal</p>	<p>Pi max: 1 W Ui max: 30 V Ii max: 0.1 A Ci max: 0.5 nF Li max: 0.2 μH</p>	<p> II 3G Ex ic IIB T6Gc</p>

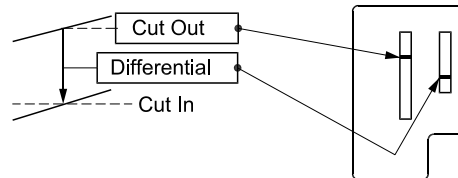
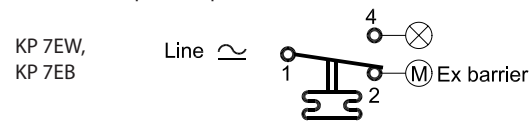
Must be used with certified Ex ic barrier (product matching) satisfying the input parameters.

Contact function

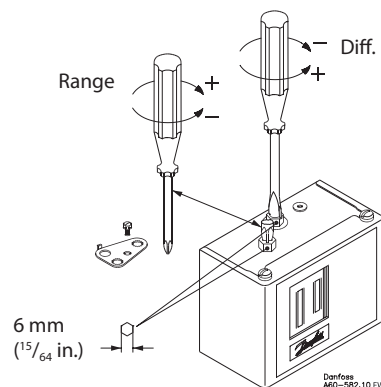
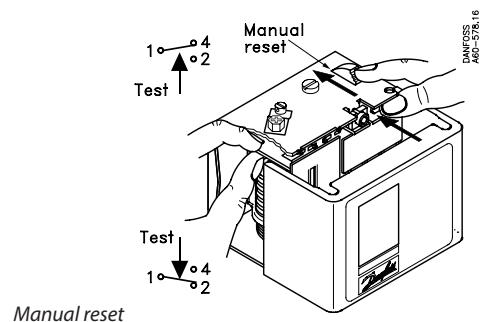
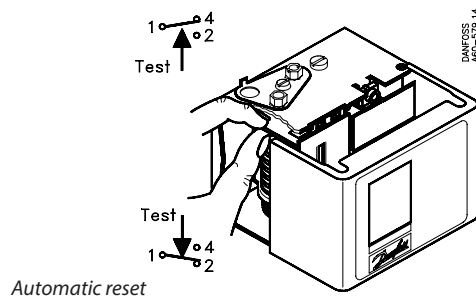
Contact 1-4 opens on pressure drop:



Contact 1-2 opens on pressure rise:



Manual trip function





Safety requirements

1. The refrigeration system must always comply with European Ex installation standard, EN 60079-14, any local directive and legislation as well as any other regulation applying in the area of installation.
2. KP-E switch must be used only with reliable means of limiting the voltage and current to prevent sparks between the contact surfaces. The equipment to be used for electrical load limiting must always be approved for use in the zone concerned.
3. Cable and cable entries approved for the application must be used. Cables must not be in contact with sharp edges. The cable must be connected with adequate stress relief in order to prevent that pulling forces can be carried through the cable to the terminal.
4. In the event of pressure pulsations in the system, where the switch is connected, these must be effectively damped to prevent fatigue failure on the bellows. The cycle frequency of the KP-E switch must be kept as low as possible. The vibration level must be kept as low as possible.
5. It is recommended to regularly check the function of the KP-E switch.
6. Only apparatus designed, constructed and released by Danfoss must be used for application concerned. Danfoss can accept no responsibility in case of alterations made on the pressure switches or the use of them against the instructions of Danfoss.
7. Any overload of the KP-E switch must be prevented. Overloaded or damaged apparatus must be exchanged.
8. Only authorised persons, who are certified in installing and maintaining refrigeration system may do the installation, maintenance and exchange of the switch.
9. Use only appropriate tools.
10. Dispose of the switch in an environmentally-friendly way.
11. KP-E switches must be installed in area where is low risk of mechanical damage.
12. Components within the equipment can exceed the enclosure temperature by 1K (1 °C). When the media temperature exceeds 80 °C, it is the responsibility of the user to ensure that the media temperature does not cause a thermal ignition risk on parts between the media and the switch enclosure thus it is recommended that maximum media temperature on pressure switch is limited to 80 °C.
13. Isolation of the intrinsically safe circuit to ground and to the contact mounting screw has been verified through 500VACrms dielectric strength testing, carried out in accordance with IEC 60079-11:2011 section 10.3.
14. The max. applicable length of the cable connected to the KP-E depends on cable capacity and inductivity. Capacitance and inductivity of the cable together with Ci and Li of KP-E must fit requirements of applied zener barrier.