Installation guide

Thermostat

Types KP 61 - KP 81

KP 61, KP 62, KP 63, KP 68, KP 69 vapor charge
KP 71, KP 73, KP 75, KP 77, KP 79, KP 81 adsorption charge (cross ambient)

Types

- Auto reset
- Manual reset (w/o hand knob)
- Auto reset w/ hand switch

Bulb types

- Vapor charge
- Adsorption charge

Mounting requirement

Varpor charge

\[ t_2 = t_1 + 2 \, ^\circ \text{C} \] (3.5 \, ^\circ \text{F})

Max. bulb temperature

- KP 61, KP 62, KP 63: 120 \, ^\circ \text{C} \] (250 \, ^\circ \text{F})
- KP 68, KP 69: 80 \, ^\circ \text{C} \] (175 \, ^\circ \text{F})
- KP 71, KP 73: 110 \, ^\circ \text{C} \] (230 \, ^\circ \text{F})
- KP 75: 130 \, ^\circ \text{C} \] (265 \, ^\circ \text{F})
- KP 77: 150 \, ^\circ \text{C} \] (300 \, ^\circ \text{F})
- KP 79: 200 \, ^\circ \text{C} \] (390 \, ^\circ \text{F})

Ambient temperatures

- Min. -40 \, ^\circ \text{C} \] (-40 \, ^\circ \text{F})
- Max. 65 \, ^\circ \text{C} \] (150 \, ^\circ \text{F})

Enclosure

CAUTION: The mounting panel must be plane to avoid damage of control.

Cable entry

- 80 in. cap. tube: min. 16 in.
- 196 in. cap. tube: min. 22 in.

Drip proof IP30

[EN 60529]

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Load Option A

CUT-OUT on temperature drop
Wire terminals 1 - 4:
CUT-IN = High Set Point (HSP)
see “Setting”
CUT-OUT = Low Set Point (LSP)
see “Setting”

Terms 1 - 4 close on temperature rise
Terms 1 - 4 open on temperature drop

Example: CUT-IN = 10 °C (50 °F)
CUT-OUT = 4.5 °C (40 °F)

This means
CUT-IN = HSP = 10 °C (50 °F)
and
CUT-OUT = LSP = 4.5 °C (40 °F)

Note:
S1 = Bellows movement on pressure rise
S2 = Bellows movement on pressure drop
The free terminal can be used for signal purpose.

Load Option B

CUT-OUT on temperature rise
Wire terminals 1 - 2:
CUT-IN = Low Set Point (LSP)
see “Setting”
CUT-OUT = High Set Point (HSP)
see “Setting”

Terms 1 - 2 close on temperature drop
Terms 1 - 2 open on temperature rise

Example: CUT-IN = 0 °C (32 °F)
CUT-OUT = 10 °C (50 °F)

This means
CUT-IN = LSP = 0 °C (32 °F)
and
CUT-OUT = HSP = 10 °C (50 °F)

Manual tripping
(Electrical contacts/wiring test)

Note:
use FINGERS ONLY!
(Do NOT use screwdriver)

Manual reset

To resume control operation after safety cut-out, push reset knob as indicated.

Note:
Man. reset is possible only after a temperature rise of fixed differential (example 5.4 °F)
Adjustment spindles location

Note
Remove lockplate before thermostat adjustment. Replace lockplate after adjustment (if desired).

RANGE
See printed instruction on top of control

\[ \begin{align*} 
\text{increase temp. (warmer): turn CW} \\
\text{decrease temp. (colder): turn CCW} 
\end{align*} \]
(use adjustment knob)

DIFFERENTIAL
See printed instruction on top of control

\[ \begin{align*} 
\text{Increase: turn CW} \\
\text{decrease: turn CCW} 
\end{align*} \]
(use adjustment knob or screwdriver)

Determination of differential

For KP w/ vapor charge and auto. reset (KP 61, KP 62, KP 63, KP 68, KP 69): Use graphs to determine correct differential.

Example:
HSP = 5.6 °C (45 °F) => DIFF (from graph): 7.2 °C (13 °F) (value which has to be set on diff. scale).

For KP w/ adsorption charge (KP 71, KP 73, KP 75, KP 77, KP 79, KP 81):
The differential will be HSP less LSP.

Example: HSP – LSP = DIFF.
7 °C – 5 °C = 2 °C
(45 °F)(35 °F) (10 °F)

Note:
(Load Option A) (Load Option B)
CUT-IN = HSP or CUT-IN = LSP
CUT-OUT = LSP or CUT-OUT = HSP
See “Wiring”
Setting

For KP 61, KP 62, KP 63, KP 68, KP 69, KP 71, KP 73, KP 75, KP 77, KP 79 and KP 81 w/auto reset

KP 61 and KP 71 w/man. reset

1. Adjust range spindle to desired HIGH SET POINT (use hand knob)

2. Adjust differential spindle to desired DIFFERENTIAL

Note:
To find correct differential, see “Determination of differential”

HIGH SET POINT minus DIFFERENTIAL equals LOW SET POINT

Example:

<table>
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<tr>
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<th>LSP</th>
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Note:
(Load Option A) (Load Option B)
CUT-IN = HSP or CUT-IN = LSP
CUT-OUT = LSP or CUT-OUT = HSP
See “Wiring”

KP w/ hand switch

CAUTION:
• Hand switch breaks circuit by micro contact gap.
• Use hand switch for service on refrigeration parts only
• Cut out main switch before service on electrical parts

<table>
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<tr>
<th>Switch position</th>
<th>Contacts position</th>
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<tbody>
<tr>
<td>Aut.</td>
<td>Automatic control operation</td>
</tr>
<tr>
<td>µ Stop</td>
<td>1 and 2 are closed</td>
</tr>
</tbody>
</table>