Room Thermostats

RAB20...

Room thermostat for heating or cooling
Changeover function (with external automatic aquastat)
Two-postition control
Manual three-speed fan switch
Switching voltage AC 250 V
Control output ON/OFF

Use

The RAB20... room thermostat is used in heating or cooling systems to maintain the selected room temperature.

Typical use:
- Commercial buildings
- Residential buildings
- Light industrial buildings

In conjunction with
  - zone valves
  - thermal valves
  - fans
  - aquastats

Functions

Heating

If the room temperature falls below the selected setpoint, the heating contact will close.
If the room temperature exceeds the selected setpoint, the cooling contact will be closed.

**Fan speed**

There are two possibilities to control the fan speed:

a) Manually by means of the three-speed fan switch on the thermostat for continuous operation

b) Automatically by switching to the select fan speed via the thermostat for controlled operation. In that case – prior to commissioning – the jumper positions corresponding to the functions must be selected. There are three choices of jumper positions available on printed circuit board:

- SR1  Select fan speed as continuous operation
- SR2  Auto  Fan is switched with the cooling valve
- SR3  Auto  Fan is switched with the heating valve

**Ventilation**

When the ventilation function is selected (RAB20.1 only) on the front cover of the slide switch, the heating and cooling contacts are always open and the fan operates at the selected speed.

**Changeover**

If required, heating or cooling can be selected externally (aquastat).

**Function diagrams**

![Function diagrams](diagram.png)

**Type summary**

Two-pipe fan coil room thermostat for use with 3-speed fan, external (automatic) changeover

<table>
<thead>
<tr>
<th>Type of unit</th>
<th>Type reference</th>
<th>Data sheet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motoric on/off actuator</td>
<td>SFA21...</td>
<td>4863</td>
</tr>
<tr>
<td>Thermal actuator (for radiator valve)</td>
<td>STA21...</td>
<td>4893</td>
</tr>
<tr>
<td>Thermal actuator (for small valve 2,5 mm)</td>
<td>STP21...</td>
<td>4878</td>
</tr>
</tbody>
</table>

**Equipment combinations**

**Accessories**

<table>
<thead>
<tr>
<th>Description</th>
<th>Type reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adapter plate 120 x 120 mm for 4&quot; x 4&quot; conduit boxes</td>
<td>ARG70</td>
</tr>
<tr>
<td>Adapter plate 96 x 120 mm for 2&quot; x 4&quot; conduit boxes</td>
<td>ARG70.1</td>
</tr>
<tr>
<td>Adapter plate for surface wiring 112x130 mm</td>
<td>ARG70.2</td>
</tr>
</tbody>
</table>

**Technical design**

Key features of the RAB20... fan coil room thermostat:

- Two-position control
- Gas-filled diaphragm
Adjustments

The required temperature can be selected by a setpoint adjuster on the front of thermostat. The setpoint setting range can be mechanically limited by means of setpoint limiter under the cover.

Notes

Mounting, installation and commissioning

The thermostat should be located where the air temperature can be sensed as accurately as possible, without getting adversely affected by direct solar radiation or other heat or refrigeration sources.

Mounting height is about 1.5 m above the floor.

The unit can be fitted to most commercially available recessed conduit boxes or directly on the wall.

Only authorised personnel may open the unit to perform service (Caution: 250 V!). The unit must be isolated from the mains supply before opening.

When installing the unit, fix the baseplate, first then hook on the thermostat body and make the electrical connections. Then fit the cover and secure it (also refer to separate mounting instructions).

The thermostat must be mounted on a flat wall.

The local electrical regulations must be complied with.

If there are thermostatic radiator valves in the reference room, set them to their fully open position.

The unit must be isolated from the mains supply before opening.

Maintenance

The room thermostat is maintenance-free.

Mechanical design

The diaphragm is filled with environmentally friendly gas.

The thermostat housing is made of plastic.

Technical data

<table>
<thead>
<tr>
<th>Power supply</th>
<th>Switching capacity</th>
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<tbody>
<tr>
<td>Voltage</td>
<td>AC 250 V</td>
</tr>
<tr>
<td>Current</td>
<td>0.2…6 (2) A</td>
</tr>
<tr>
<td>Frequency</td>
<td>50 or 60 Hz</td>
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</table>

<table>
<thead>
<tr>
<th>Operational data</th>
<th>Switching differential SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setpoint setting range</td>
<td>≤1°K</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Environmental conditions</th>
<th>Operation to IEC 721-3-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climatic conditions</td>
<td>class 3K5</td>
</tr>
<tr>
<td>Temperature</td>
<td>0…+50 °C</td>
</tr>
<tr>
<td>Humidity</td>
<td>&lt;95 % r.h.</td>
</tr>
<tr>
<td>Pollution degree</td>
<td>normal, to EN 60730</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Transport / storage</th>
<th>to IEC 721-3-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climatic conditions</td>
<td>class 2K3/1K3</td>
</tr>
<tr>
<td>Temperature</td>
<td>-20…+50 °C</td>
</tr>
<tr>
<td>Humidity</td>
<td>&lt;95 % r.h.</td>
</tr>
<tr>
<td>Mechanical conditions</td>
<td>class 2M2</td>
</tr>
<tr>
<td>Packaging</td>
<td>single packaging / min. order 20 pieces</td>
</tr>
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</table>
Norms and standards

Conformity to
Low voltage directive 73/23/EEC and 93/68/EEC
Product standard EN 60730

C-Tick conformity to
EMC emission standard AS/NSZ 4251.1:1994

Safety standard II to EN 60730
Degree of protection IP30 to EN 60529

Screw terminals for 2 x 1.5 mm² or 1 x 2.5 mm², min. (0.5 mm²)
Weight 0.14 kg
Colour white, NCS S 0502-G (RAL 9003)

Connection diagram

Heating or cooling

D1 Zone valve or thermal valve for heating or cooling
L Switching voltage AC 250 V
M1 3-speed fan
N Neutral
N1 Room thermostat
S1 Aquastat e.g. Z182 / RYT182
Q1 Control output "Fan speed I", AC 250 V
Q2 Control output "Fan speed II", AC 250 V
Q3 Control output "Fan speed III", AC 250 V
Y1 Control output "Valve actuator heating", AC 250 V
Y2 Control output "Valve actuator cooling", AC 250 V

Changeover for heating or cooling with external aquastat

D1 Zone valve or thermal valve for heating or cooling
L Switching voltage AC 250 V
M1 3-speed fan
N Neutral
N1 Room thermostat
S1 Aquastat e.g. Z182 / RYT182
Q1 Control output "Fan speed I", AC 250 V
Q2 Control output "Fan speed II", AC 250 V
Q3 Control output "Fan speed III", AC 250 V
Y1 Control output "Valve actuator heating", AC 250 V
Y2 Control output "Valve actuator cooling", AC 250 V

Dimensions

Unit

Baseplate

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