



RAB21



RAB21.1

## Room Thermostats

## RAB21...

For two-pipe fan coils

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

### Use

The RAB21 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 and thermal valves
- fans
- aquastats

## Functions

- Heating** If the room temperature falls below the selected setpoint, the heating contact will close.
- Cooling** 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:
- Manually by means of the three-speed fan switch on the thermostat for continuous operation
  - 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**

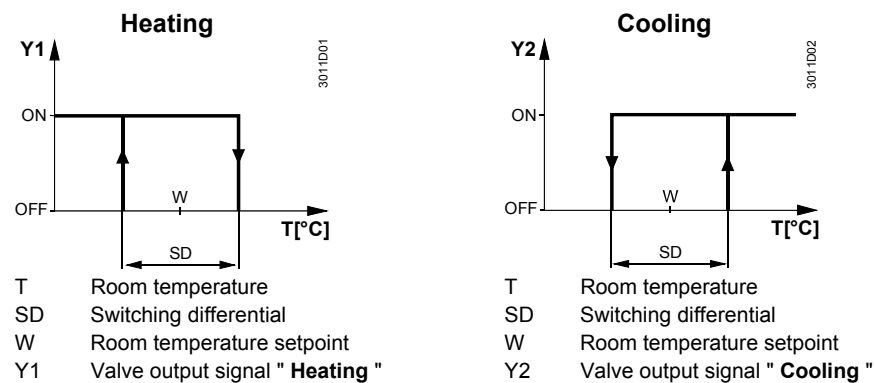
SR2 **Auto**  **Fan is switched with the cooling valve**

SR3 **Auto**  **Fan is switched with the heating valve**

**Ventilation** When the ventilation function is selected  (RAB21.1 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



## Type summary

Two-pipe fan coil room thermostat for use with 3-speed fan, external (automatic) changeover	<b>RAB21</b>
Two-pipe fan coil room thermostat for use with 3-speed fan, external (automatic) changeover and ventilation function	<b>RAB21.1</b>

## Equipment combinations

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

## Accessories

Description	Type reference
Adapter plate 120 x 120 mm for 4" x 4" conduit boxes	ARG70
Adapter plate 96 x 120 mm for 2" x 4" conduit boxes	ARG70.1
Adapter plate for surface wiring 112x130 mm	ARG70.2

## Technical design

Key features of the RAB21... fan coil room thermostat:

- Two-position control
- Gas-filled diaphragm

## Adjustments

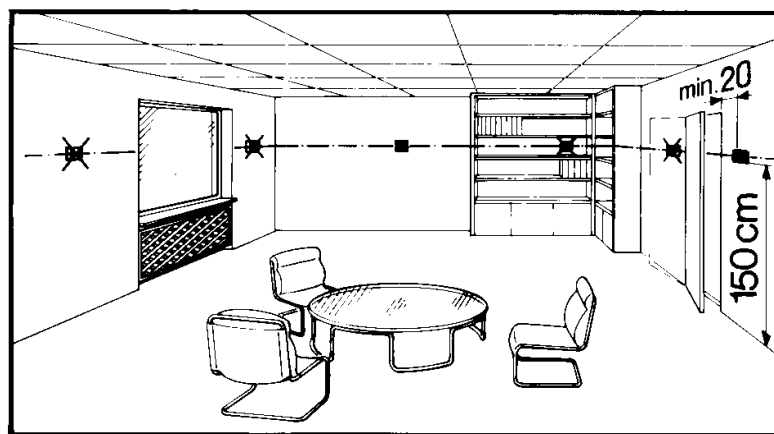
The required temperature can be selected by a setpoint adjuster on the front of thermostat.

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.



**AC 250 V**

Only authorised personnel may open the unit to perform service. 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.

### Maintenance

The room thermostat is maintenance-free.

### Mechanical design



The diaphragm is filled with environmentally friendly gas.

The thermostat housing is made of plastic.

## Ordering

<i>Typ (ASN)</i>	<i>Partnumber (SSN)</i>	<i>Description</i>
RAB21	S55770-T227	Room thermostat RAB21
RAB21.1	S55770-T228	Room thermostat RAB21.1

## Technical data

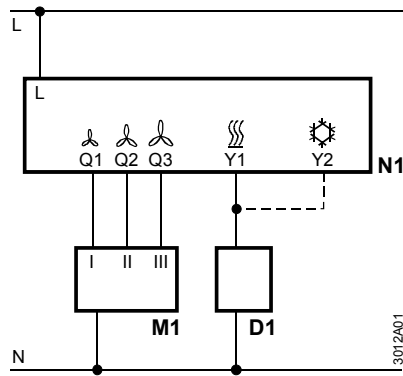
<b>Power supply</b>	Switching capacity	
	Voltage	AC 250 V
	Current	0.2...6 (2) A
	Frequency	50 or 60 Hz
	Screw terminals for	2 x 1.5 mm <sup>2</sup> (min. 0.5 mm <sup>2</sup> )
<b>Operational data</b>	Switching differential SD	≤1 K
	Setpoint setting range	8...30 °C
<b>Environmental conditions</b>	Operation	to IEC 721-3-3
	Climatic conditions	Class 3K5
	Temperature	0...+50 °C
	Humidity	<95 % r.h.
	Pollution degree	normal, to EN 60730-1
	Transport / storage	to IEC 721-3-2
	Climatic conditions	Class 2K3/1K3
	Temperature	-20...+50 °C
	Humidity	<95 % r.h.
	Mechanical conditions	Class 2M2
<b>Industry standards</b>	Electromagnetic compatibility	
	Emissions (Residential, business and commercial)	EN 55014
	 - Conformity	
	EMC guidelines	2004/108/EC
	Low voltage directive	2006/95/EC
	 - Conformity	
	Australian EMC Framework	CISPR 14-1: 2009
	Radio Interference Emission Standard	
	Environmental compatibility	
	The product environmental declaration	2002/95/EC (RoHS)
Safety standard	II to EN 60730-1	
Degree of protection of housing	IP30 to EN 60529	
Weight	0.14 kg	
Colour	white, NCS S 0502-G (RAL 9003)	

## Disposal

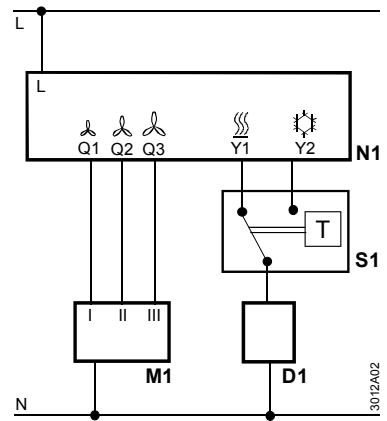


*Dispose of the device as electronic waste in compliance with European directive 2002/96/EEC (WEEE) and not as municipal waste. Observe all relevant national regulations and dispose of the unit correctly. Observe all local and applicable laws.*

## Connection diagrams



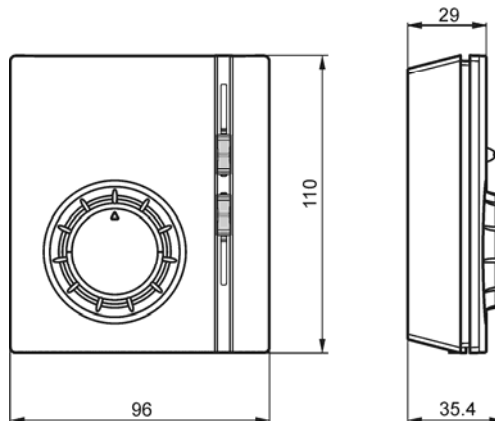
- D1 Zone valve or thermal valve for **heating or cooling**
- L Switching voltage AC 250 V
- N Neutral
- M1 3-speed fan
- N1 Room thermostat
- Q1 Control output "Fan speed I", AC 250 V
- Q2 Control output "Fan speed II", AC 250 V
- Q3 Control output "Fan speed III", AC 250 V
- Y1 Control output "Valve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



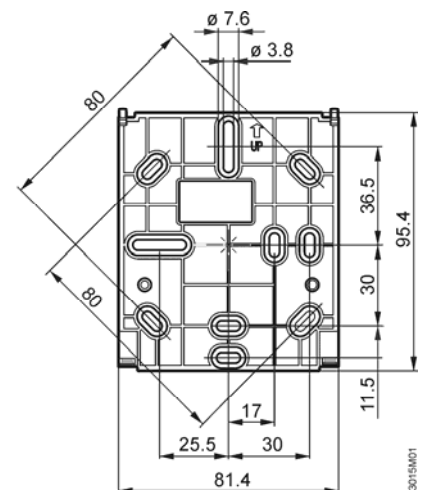
- D1 Zone valve or thermal valve for **heating or cooling** via Aquastat
- L Switching voltage AC 250 V
- N Neutral
- M1 3-speed fan
- N1 Room thermostat
- Q1 Control output "Fan speed I", AC 250 V
- Q2 Control output "Fan speed II", AC 250 V
- Q3 Control output "Fan speed III", AC 250 V
- Y1 Control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

## Dimensions

### Room thermostat



### Baseplate



**Heating:**

Because of the unavoidable self heating effects of the electrical current, any loads of more than 3 Amperes connected to the unit can influence the control behavior and temperature accuracy in a negative way.

**Cooling:**

Because of the unavoidable self heating effects of the electrical current, any loads of more than 1 Amperes connected to the unit can influence the control behavior and temperature accuracy in a negative way.