



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 24...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**

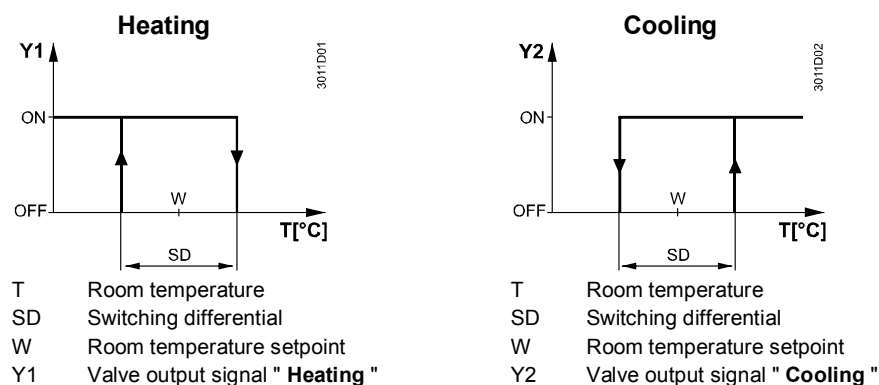
Ventilation

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 **RAB21**

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

Equipment combinations

Type of unit	Type reference	Data sheet ¹⁾
Motoric on/off actuator	SFA21..	4863
Thermal actuator (for radiator valve)	STA21..	4893
Thermal actuator (for small valve 2.5 mm)	STP21..	4878
Electromotoric actuator for zone valve VV146.. (2 position on/off)	SUA21..	4830

¹⁾ The documents can be downloaded from <http://siemens.com/bt/download>.

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.

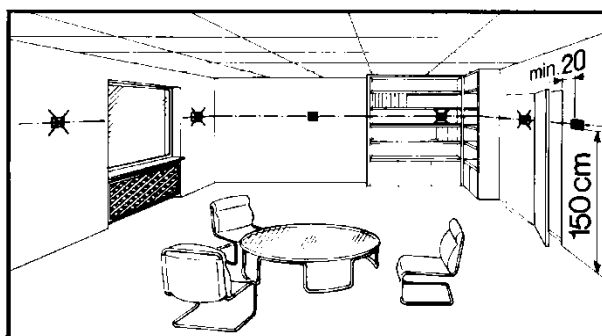
The setpoint setting range can be mechanically limited by means of setpoint limiter under the cover.

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.



Warning: 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 base plate, 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.



Warning!

No internal line protection for supply lines to external consumers (Q1, Q2, Q3, Y1, Y2)

Risk of fire and injury due to short-circuits!

- Adapt the line diameters as per local regulations to the rated value of the installed overcurrent protection device.

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

Type (ASN)	Part number (SSN)	Description
RAB21	S55770-T227	Room thermostat RAB21
RAB21.1	S55770-T228	Room thermostat RAB21.1

Disposal

The devices are considered electronics devices for disposal in term of European Directive 2012/19/EU and may not be disposed of as domestic waste.

- Dispose of the device via the channels provided for this purpose
- Comply with all local and currently applicable laws and regulations.

Technical data**Power supply**

Switching capacity	
Voltage	AC 24...250 V
Current	0.2...6 (2) A
Frequency	50 or 60 Hz

**No internal fuse**

External preliminary protection with max. C 10 A circuit breaker in the supply line required under all circumstances

Screw terminals for	2 x 1.5 mm ² (min. 0.5 mm ²)
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Operational data

Switching differential SD	≤1 K
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Setpoint setting range	8...30 °C
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Environmental conditions

Operation	to IEC 60721-3-3
Climatic conditions	Class 3K5
Temperature	0...50 °C
Humidity	<95 % r.h.
Pollution degree	normal, to EN 60730-1

Transport / storage	to IEC 60721-3-2
Climatic conditions	Class 2K3/1K3
Temperature	-20...50 °C
Humidity	<95 % r.h.
Mechanical conditions	Class 2M2

Industry standards

EU Conformity (CE)	CE1T3015xx ^{*)}
RCM Conformity	CE1T3015en_C1 ^{*)}
Safety standard	II to EN 60730-1
Degree of protection of housing	IP30 to EN 60529

Environmental compatibility

The product environmental declaration CE1E3015^{*)} contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).

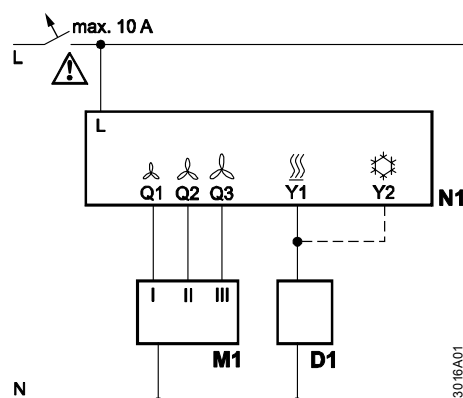
Mechanical design

Weight	0.14 kg
Colour	white, NCS S 0502-G (RAL 9003)

^{*)} The documents can be downloaded from <http://siemens.com/bt/download>.

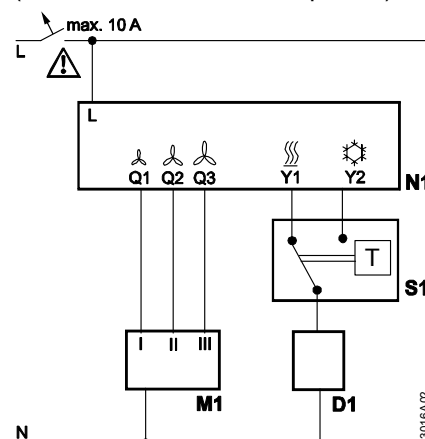
Connection diagrams

Heating or cooling



- D1 Zone valve or thermal valve for **heating or cooling**
 L Switching voltage AC 24...250 V
 N Neutral
 M1 3-speed fan
 N1 Room thermostat
 Q1 Control output "Fan speed I", AC 24...250 V
 Q2 Control output "Fan speed II", AC 24...250 V
 Q3 Control output "Fan speed III", AC 24...250 V
 Y1 Control output "Valve actuator **heating**", AC 24...250 V
 Y2 Control output "Valve actuator **cooling**", AC 24...250 V

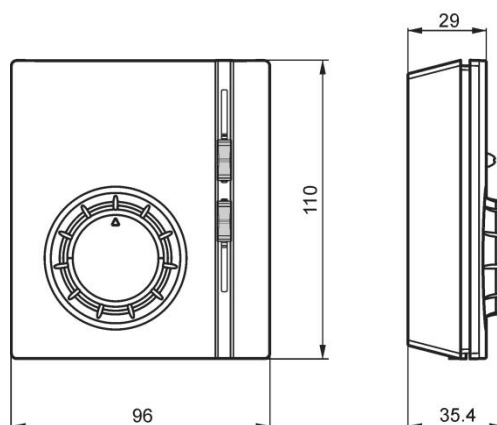
Changeover for heating or cooling (with external automatic aquastat)



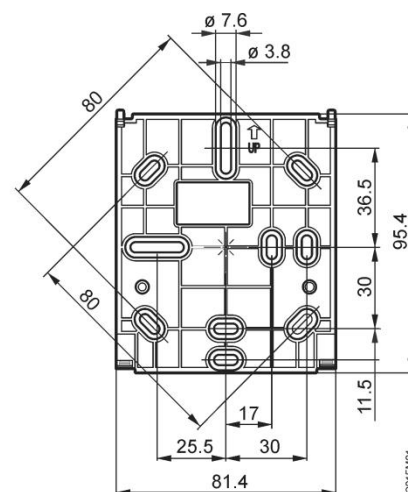
- D1 Zone valve or thermal valve for **heating or cooling** via Aquastat
 L Switching voltage AC 24...250 V
 N Neutral
 M1 3-speed fan
 N1 Room thermostat
 Q1 Control output "Fan speed I", AC 24...250 V
 Q2 Control output "Fan speed II", AC 24...250 V
 Q3 Control output "Fan speed III", AC 24...250 V
 Y1 Control output "Valve actuator **heating**", AC 24...250 V
 Y2 Control output "Valve actuator **cooling**", AC 24...250 V
 S1 Aquastat e.g. RYT182

Dimensions

Room thermostat



Base plate



Remarks

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.