SIEMENS 3016





RAB21.1

# **Room Thermostats**

**RAB21..** 

For two-pipe fan coils

- Room thermostat for heating or cooling
- Changeover function (with external automatic aquastat)
- Two-postition 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

# Cooling

If the room temperature falls below the selected setpoint, the heating contact will close.

If the room temperature exeeds 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) Antomatically 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

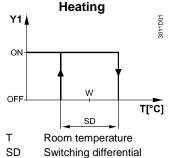
Ventilation

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.

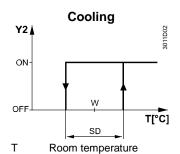
Changeover

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

# **Function diagrams**



SD Switching differential
W Room temperature setpoint
Y1 Valve output signal " **Heating** "



SD Switching differential
W Room temperature setpoint
Y2 Valve output signal " Cooling "

# Type summary

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

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

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# **Equipment combinations**

Type of unit	Type reference	Data sheet*)
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 VVI46	SUA21	4830
(2 position on/off)		

<sup>\*)</sup> The documents can be downloaded from <a href="http://siemens.com/bt/download">http://siemens.com/bt/download</a>.

Description	Type refernce
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.

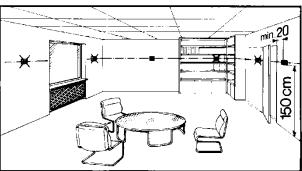
The setpoint setting range can be mechanically limited by means of setpoint limiter under the cover.

#### **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.



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.



# 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.

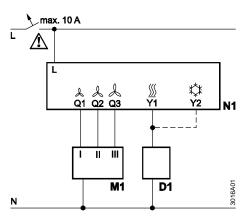
- Dispose of the device via the channels provided for this purpose
- Comply with all local and currently applicable laws and regulations.

#### Technical data

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Power supply	Switching capacity Voltage Current Frequency	AC 24250 V 0.26 (2) A 50 or 60 Hz	
<u> </u>	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 <sup>2</sup> (min. 0.5 mm <sup>2</sup> )	
Operational data	Switching differential SD	≤1 K	
	Setpoint setting range	830 °C	
Environmental conditions	Operation Climatic conditions Temperature Humidity Pollution degree	to IEC 60721-3-3 Class 3K5 050 °C <95 % r.h. normal, to EN 60730-1	
	Transport / storage Climatic conditions Temperature Humidity Mechanical conditions	to IEC 60721-3-2 Class 2K3/1K3 -2050 °C <95 % r.h. Class 2M2	
Industry standards	EU Conformity (CE)	CE1T3015xx *)	
	RCM Conformity	CE1T3561en_C1 *)	
	Safety standard  Degree of protection of housing	II to EN 60730-1 IP30 to EN 60529	
Environmental compatibility	The product environmental declaration CE1E3015 <sup>1)</sup> 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)	

<sup>\*)</sup> The documents can be downloaded from <a href="http://siemens.com/bt/download">http://siemens.com/bt/download</a>.

#### Heating or cooling

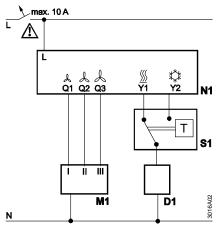


- D1 Zone valve or thermal valve for
  - heating or cooling
- 1 Switching voltage AC 24...250 V
- Ν Neutral

Υ1

- M1 3-speed fan
- N1 Room thermostat
- Control output "Fan speed I", AC 24...250 V Q1
- Control output "Fan speed II", AC 24...250 V Q2
- Control output "Fan speed III",
  - AC 24...250 V 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)



- Zone valve or thermal valve for
  - heating or cooling via Aquastat
- Switching voltage AC 24...250 V
- Ν Neutral

D1

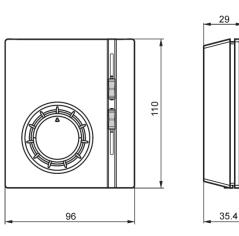
L

Y1

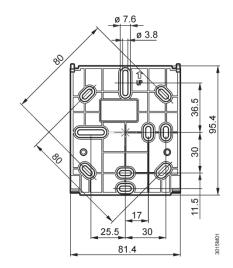
- M1 3-speed fan
- N1 Room thermostat
- Q1 Control output "Fan speed I",
  - AC 24...250 V
- Q2 Control output "Fan speed II",
  - AC 24...250 V
- Q3 Control output "Fan speed III", AC 24...250 V
  - Control output "Valve actuator heating",
- AC 24...250 V Y2 Control output "Valve actuator cooling",
  - AC 24...250 V
- S1 Aquastat e.g. RYT182

#### **Dimensions**

# Room thermostat



# Base plate



# 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.

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