SIEMENS

3058

RDF210, RDF210.2, RDF210/IR, RDF210.2/IR

Room Temperature Controllers with LCD

with 7-day time program

RDF210…

for 2-pipe fan coil units

for use with compressors in DX type equipment

Output for on / off valve actuator or 1-stage compressor
Operating modes: Normal operation, Auto Timer (energy saving) and Standby
3-speed fan control: Automatic or manual
8 programmable timers
Adjustable commissioning and control parameters
Optional display of room temperature or setpoint
Minimum and maximum setpoint limitation
Operating voltage AC 230 V

Additional features of RDF210
Automatic heating / cooling changeover
Input for heating / cooling changeover or return air temperature sensor

Additional features of RDF210.2
Manual heating / cooling changeover

Optional
Infrared remote control (RDF210/IR, RDF210.2/IR)

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Building Technologies
HVAC Products

Use

For controlling the room temperature in individual rooms and zones that are

- heated or cooled with 2-pipe fan coil units
- cooled with a single compressor in DX type equipment

The controller controls

- a 3-speed fan
- either a valve actuator in a 2-pipe system, or
- a 1-stage compressor in DX type equipment

Suitable for use in systems with

- automatic heating / cooling changeover (RDF210)
- continuous heating or cooling mode (RDF210)
- manual heating / cooling changeover (RDF2110.2)

Functions

- Changeover between heating and cooling mode is either automatic by a QAH11.1 changeover cable temperature sensor or manually
- Maintenance of room temperature either with integrated temperature sensor or external room / return air temperature sensor (only with RDF210)
- Selection of operating mode with the operating mode button or on the controller
- 8 programmable timers for changing over between Normal operation and Energy Saving mode
- 3-speed fan control (automatic or manual)
- Output for 2-position (on / off) valve actuator or 1-stage compressor
- Optional with infrared remote control (only with RDF210…/IR)

Controller

Temperature control

The controller acquires the room temperature via its built-in sensor and maintains the setpoint by delivering 2-position valve control commands or compressor output commands. With the RDF210, an external room temperature sensor (QAA32) or external return air temperature sensor (QAH11.1) can be used instead.
The switching differential is 2 K in heating mode and 1 K in cooling mode (adjustable via parameters P08 and P09).

Display

The display shows the acquired room / return air temperature or the setpoint of the current operating mode. This can be selected via parameter P18. Factory setting is display of the current room temperature.
The heating and cooling symbols on the display show the status of the fan coil. This means that the symbols are also shown while the controller operates in the neutral zone.

If required, room temperature and setpoint can also be displayed in °F in place of °C by changing parameter P17.

Operating modes

The following operating modes are available:

Normal operation

In Normal operation, the controller maintains the setpoint, which can be adjusted via the ⊕ ⊖ buttons. The fan can be set to automatic or manual fan speed: Low, medium or high.

Tip!

The setpoint setting range can be limited to a minimum (P05) and maximum (P06). This helps prevent the waste of energy, thus saving costs.

Auto Timer mode

In Auto Timer mode AUTO, the controller will automatically change over between Normal operation and Energy Saving mode according to the 8 preprogrammed timers. The display shows the Auto Timer mode symbol AUTO and the symbol of the operating mode currently maintained, either Normal operation ☼ or Energy Saving mode ☾.

Energy Saving mode

The setpoints of Energy Saving mode can be adjusted via control parameters P01 and P02.
The default fan speed in Auto Timer mode is automatic fan.

Standby

When the controller is in Standby mode ⏻, the relevant setpoints of heating or cooling are maintained. These setpoints can be adjusted via control parameters P03 and P04. Factory setting of both setpoints is OFF, which means that the controller is not activated when in Standby mode.

Avoiding damage due to moisture

To avoid damage due to moisture in very warm and humid climatic zones resulting from lack of air circulation in Energy Saving mode, the fan can be kept running all the time (e.g. in apartments or shops during unoccupied periods), when setting parameter P20 “ON in dead zone”. In this case, the fan keeps running at minimum fan speed 1.

Control sequences

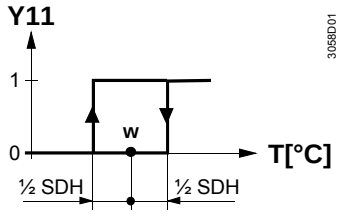
Water-based fan coil application

Used in conjunction with a valve, either for heating / cooling with changeover, heating only or cooling only.

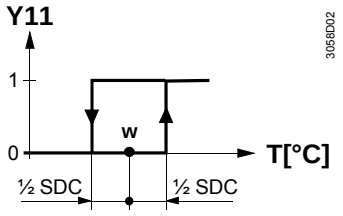
Compressor based application

Used in conjunction with a 1-stage compressor for cooling only or heating only.

Heating mode



Cooling mode



T[°C]	Room temperature	SDH	Switching differential “Heating”
W	Room temperature setpoint	SDC	Switching differential “Cooling”
Y11	Control output “Valve” or “Compressor”		

ON

The valve or compressor receives the **OPEN** command via control output Y11 when

1. the acquired room temperature lies by half the switching differential below the setpoint (heating mode) or above the setpoint (cooling mode), and
2. control output Y11 was not energized for more than the “Minimum output off time” (factory setting 1 minute, adjustable via parameter P16)

OFF

The valve or compressor receives the **CLOSE** command via control output Y11 when

1. the acquired room temperature lies by half the switching differential above the setpoint (heating mode) or below the setpoint (cooling mode), and

2. control output Y11 was energized for more than the “Minimum output on time”; (factory setting 1 minute, adjustable by parameter P15)

Note: Control output Y12 delivers a control command which is inverted to the control command at output Y11 and which can be used for normally open valves.

Heating / cooling mode

With the RDF210, the changeover between cooling and heating takes place either automatically via a heating / cooling changeover sensor or a remote changeover switch. If the controller was set to ”Cooling only” or ”Heating only”, changeover will not be possible (parameter P22, factory setting ”Cooling only”).

With the RDF210.2, when pressing the heating / cooling changeover button, the controller will change from heating to cooling, or vice versa.

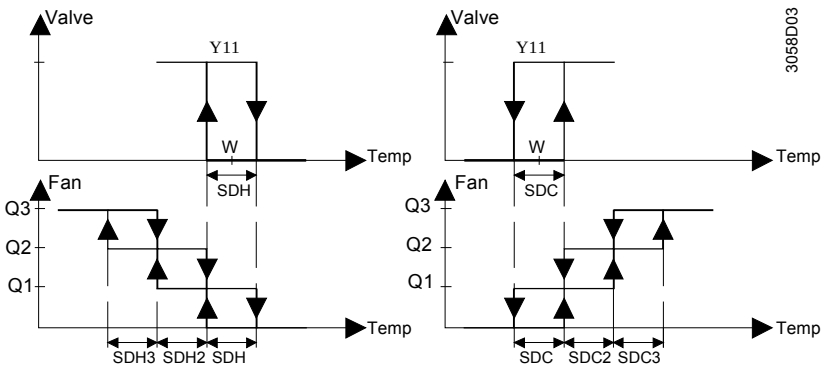
Minimum output on time / off time Y11

The minimum output on time and off time of Y11 can be adjusted from 1…10 minutes via parameters P15 and P16. Factory setting is 1 minute. In this case, any readjustment of the setpoint or of heating / cooling mode changeover will be used immediately for computing the output status and output Y11 may not hold the minimum on / off time of 1 minute.
If parameter P15 or P16 is set to a level above 1 minute, the minimum on / off time of Y11 will be maintained as set, even if the setpoint or changeover mode has been readjusted.

Fan operation

The fan operates either in automatic mode or at the selected speed when using manual mode. In automatic mode, the fan speed depends on the setpoint and the current room temperature. When the room temperature reaches the setpoint, the control valve will close and the fan switch off: Temperature-dependent fan control (see diagram below). The individual switching differentials of the fan speeds can be adjusted via control parameters P08 – P13.

Heating mode *Cooling mode*



Ventilation always on

If desired, fan control can be set to ”Temperature-independent”, which means that ventilation is always on, even within the dead zone, using at least fan speed 1. This can be selected individually for Normal operation using parameter P21 and for Energy Saving mode using parameter P20 (also refer to “Avoiding damage due to moisture”).

Dwelling time

In automatic mode, a dwelling time of 2 minutes (factory setting) is active. The fan maintains that speed for at least 2 minutes before it switches to the next speed. This dwelling time can be adjusted from 1…5 minutes using parameter P14.

Fan start

Whenever the fan starts from standstill, it starts with speed 3 for 1 second in order to guarantee a safe fan motor start (to overcome inertia and friction)

Fan in Auto Timer mode

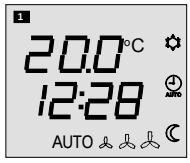
In Auto Timer mode, the default fan mode is automatic. The fan mode can be changed to manual fan speed. With each changeover from Normal operation to Energy Saving mode, or vice versa, the fan will return to default mode automatic.

Auto Timer

The controller provides an Auto Timer mode with 8 programmable timers. In this mode, the controller will automatically change over between Normal operation and Energy Saving mode according to the preprogrammed timers.

Auto Timer during Normal operation

Auto Timer during Energy Saving mode

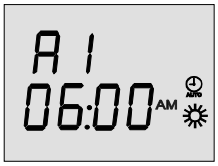


Setting the timers

Each timer has a Normal operation start time and a Normal operation end time which can be applied to several weekdays.
To adjust the time schedule, keep the button depressed for 3 seconds to go to the programmable timer setting mode.
This mode is indicated by displaying Ax (x= auto timer 1...8) and the time xx:xx flashing.

For each auto timer, proceed as follows:

1. The and symbols are displayed. Press or to adjust the Normal operation start time and confirm by pressing .



2. The and symbols are displayed. Press or to adjust the Normal operation end time or Energy Saving start time respectively and confirm by pressing .

3. Symbol 1 will flash. Press or to select or deselect each day and advance to the next day. Confirm setting for actual timer by pressing and advance to the next timer.

The controller will leave the programmable timer setting mode if no button is pressed within 20 seconds. All changes made after the last press of ↵ button will not be saved.

View the timers

Press the button to sequentially review the 8 timers.

Default timer setting

Timers A1…A4 have the following default setting:

Day/s	Time when controller is in Normal operation ☼	
Mo (1) – Fr (5)	06:30 – 08:30 (A1)	17:30 – 22:30 (A2)
Sa (6)	08:00 – 23:00 (A3)	
Su (7)	08:00 – 22:30 (A4)	
	- During the remaining time, controller is in Energy Saving mode ☾ - Timers A5…A8 are free, no default setting	

Reload default timer setting

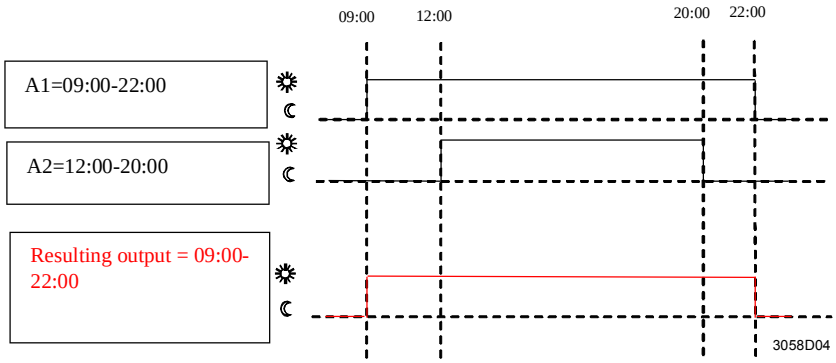
The setting of these timers can be changed to suit individual needs. The default setting can be reloaded any time:

1. Set the controller to Standby ⏻.
2. Press ⊕ and ⊖ simultaneously for 3 seconds. Release them and, within 2 seconds, press 2 times .

Then, the display will show “8888“ during the reloading process.

Overlapping of timer sequences

In case 2, or when several timer sequences overlap, the resulting output is the OR combination of the normal operating mode time of all timers.



7day-time clock

The 7day-time clock supports the 12-hour and 24-hour format. The format is chosen during setting of the time clock as follows:

Setting the time clock

1. Keep the ⏲ button depressed until the time digits start to flash and then press ⊕ or ⊖ to set the time of day. *If the current time is the 24-hour format and you wish to change to the 12-hour format, press ⊕ passing 23:59 or press ⊖ passing 00:00. Vice versa back to the 24-hour format*.
2. Confirm the time of day by pressing ↵ and the weekday indicator starts to flash.
3. Press ⊕ or ⊖ to set the current weekday.
4. Confirm the current weekday by pressing ↵.

Power failure

In case of a power failure, the clock will stop, but its last running time will be stored. This time information will be reloaded and start running after a power up. The clock will flash to indicate that there was a power failure until the time will be confirmed by pressing ↵ or readjusted by folowing the above procedure.

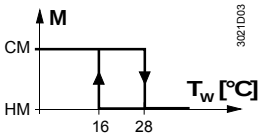
With the RDF210, a return air / external room temperature sensor or heating / cooling changeover sensor can be connected to terminal B1-M. The function of this sensor input is determined by parameter P22.

⚠ Sensor input B1-M is not galvanically separated from the AC 230 V mains supply. Therefore, only a cable temperature sensor and wiring with sufficient insulation must be used.

Automatic heating / cooling changeover

When P22 is set to “Automatic H/C changeover”, the sensor input acts to ensure automatic heating / cooling changeover. The water temperature acquired by the changeover sensor (QAH11.1 + ARG86.3) is used to switch from heating to cooling mode, or vice versa. When the water temperature lies above 28 °C (parameter P24), the controller switches to heating mode; below 16 °C (parameter P23), it switches to cooling mode. If, immediately after switching on, the water temperature lies between the 2 changeover points, the controller will start in heating mode. The water temperature is acquired at 30-second intervals and the operating state is updated.

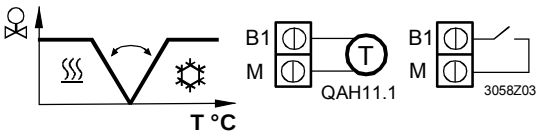
Automatic H/C changeover



M	Operating mode	CM	Cooling mode
T_w	Water temperature	HM	Heating mode

Remote heating / cooling changeover

The QAH11.1 cable temperature sensor for automatic heating / cooling changeover can be replaced by an external switch (suited for mains voltage) for manual remote changeover:



Contact open → heating mode

Contact closed → cooling mode

With parameter P99 (diagnostic value), automatic heating / cooling changeover can be checked.

External room or return air temperature sensor

When parameter P22 is set to “Cooling only” or “Heating only”, sensor input B1-M can be used to connect an external room temperature (QAA32) or a return air temperature sensor (QAH11.1). Changeover is automatic if a sensor is detected at the sensor input. With parameter P98 (diagnostic value), the sensor status can be checked.

Summary B1-M and P22

The following table summarizes the relation between parameter P22, external sensor B1-M and variables which the controller uses for maintaining the temperature:

Parameter P22	*Variables: The controller….*	*No sensor at B1-M*	*QAH11.1/QAA32 at B1-M*
Heating only	is in H/C mode	Heating	Heating
	controls according	Internal sensor	Sensor at B1
Cooling only	is in H/C mode	Cooling	Cooling
	controls according to	Internal sensor	Sensor at B1
Automatic H/C changeover	is in H/C mode	Heating	depending on the temperature from sensor B1-M
	controls according to	Internal sensor	Internal sensor

Error handling

Temperature out of range

When the room temperature is out of the measuring range, which means above 49 °C or below 0 °°C, the display shows the limiting temperature in flashing figures, e.g. “0 °C” or “49 °C”.
If the current setpoint is not OFF (see parameters 1-4) and the controller is in heating mode, and the temperature is below 0 °C, output Y11 will be energized. In all other cases, output Y11 will be deenergized. When the temperature returns to the measuring range, the controller will resume Normal operation.

External sensor failure

In case of an external sensor failure (short-circuit or open-circuit), the controller will immediately switch back to the internal sensor to ensure control.

Should both the external and internal sensor fail, the display will flash “Err” to call the user‘s attention.

Infrared remote control

The RDF210/IR and RDF210.2/IR have an infrared receiver built in. Together with the IRA210 infrared remote control, the following operations can be performed from a remote location:

- Selection of operating mode: Standby, Normal operation or Auto Timer
- Adjustment of setpoint in Normal operation
- Selection of fan mode: Automatic or manual fan speed

Using parameter P25, infrared remote control can be disabled.

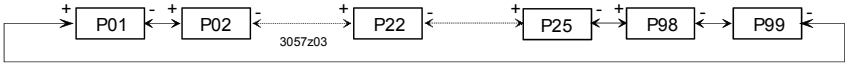
Control parameters

With the RDF210 and RDF210.2, a number of control parameters can be readjusted to optimize the control performance. These parameters can also be set during operation without opening the unit. In the event of a power failure, all control parameter settings will be maintained.

Parameter settings

The parameters can be changed as follows:

1. Set the controller to Standby ⏻.
2. Press buttons ⊕ and ⊖ simultaneously for 3 seconds. Release them and, within 2 seconds, press button ⊕ again for 3 seconds. Then, the display will show “P01“.
3. Select the required parameter by repeatedly pressing buttons ⊕ and ⊖:



4. By pressing buttons ⊕ and ⊖ simultaneously, the current value of the selected parameter appears, which can be changed by repeatedly pressing buttons ⊕ or ⊖.
5. By pressing buttons ⊕ and ⊖ simultaneously again or 5 seconds after the last press of a button, the last parameter will be displayed again.
6. If you wish to display and change additional parameters, repeat steps 3 through 5.
7. 10 seconds after the last display or setting, all changes will be stored and the controller returns to Standby.

Note:

Parameters not used by the RDF210.2 are not available and cannot be displayed.

Parameter reset

The factory setting of the control parameters can be reloaded as follows:

1. Set the controller to Standby ⏻.
2. Press buttons ⊕ and ⊖ simultaneously for 3 seconds. Release them and, within 2 seconds, press operating mode selector button 🌀/⏻ 2 times.

Then, the display will show “888“ during the reloading process.

Control parameters of the RDF210 and RDF210.2

Para-meter	Meaning		Setting range	Factory setting
P01	Setpoint of heating in Energy Saving mode	($Wheat_{Eco}$)	OFF, 5 °C…$Wcool_{Eco}$	16 °C
P02	Setpoint of cooling in Energy Saving mode	($Wcool_{Eco}$)	OFF, $Wheat_{Eco}$…40 °C	28 °C
P03	Setpoint of heating in Standby ⏻	($Wheat_{Stb}$)	OFF, 5 °C…$Wcool_{Stb}$	OFF
P04	Setpoint of cooling in Standby ⏻	($Wcool_{Stb}$)	OFF, $Wheat_{Stb}$ …40 °C	OFF
P05	Minimum setpoint limitation in Normal operation	($Wmin_{Comf}$)	5 °C…$Wmax_{Comf}$	5 °C
P06	Maximum setpoint limitation in Normal operation	($Wmax_{Comf}$)	$Wmin_{Comf}$…40 °C	35 °C
P07	Sensor calibration		-3…+3 K	0 K
P08	Switching differential heating mode SDH		0.5…+4K	2 K
P09	Switching differential cooling mode SDC		0.5…+4K	1 K
P10	Switching differential fan speed 2 in heating mode SDH2		0.5…+4K	1 K
P11	Switching differential fan speed 2 in cooling mode SDC2		0.5…+4K	1 K
P12	Switching differential fan speed 3 in heating mode SDH3		0.5…+4K	1 K
P13	Switching differential fan speed 3 in cooling mode SDC3		0.5…+4K	1 K
P14	Dwelling time of auto fan speeds		1…5 minutes	2 min
P15	Minimum output on time (Y11)		1…10 minutes	1 min
P16	Minimum output off time (Y11)		1…10 minutes	1 min
P17	Selection of °C or °F		°C or °F	°C
P18	Display of temperature or setpoint		OFF: Setpoint ON: Room (or return air) temperature	ON
P20	Fan control in Energy Saving mode		OFF in dead zone ON in dead zone	OFF
P21	Fan control in Normal operation		OFF in dead zone ON in dead zone	OFF
P22	Heating / cooling mode		0: Heating only 1: Cooling only 2: Automatic H/C changeover	1: Cooling only[1)]
P23	Heating / cooling changeover switching point cooling		10…25 °C	16 °C[1)]
P24	Heating / cooling changeover switching point heating		27…40 °C	28 °C[1)]
P25	Infrared receiver (only with RDF.../IR)		0: Disabled 1: Enabled	1
P98	Active temperature sensor		0: Internal sensor 1: External sensor	Diagnostic value
P99	Value of current heating / cooling changeover temperature reading and indication of current mode		100 = input open → ♨ mode 0…49 °C = cur. temp. value 00 = input bridged → ☼mode OFF= not commissioned as automatic H/C changeover	Diagnostic value[1)]

1) Not available with RDF210.2

Type summary

Type reference	Features
RDF210	With input for automatic heating / cooling changeover or return air temperature sensor
RDF210.2	With manual heating / cooling changeover Without input for sensor (only available in AP)
RDF210/IR	Same as RDF210 plus infrared remote control
RDF210.2/IR	Same as RDF210.2 plus infrared remote control (only available in AP)

Equipment combinations

Type of unit	Type reference	Data Sheet
Infrared remote control	**IRA210**	-
Cable temperature sensor	**QAH11.1**	1840
Room sensor	**QAA32**	1747
Changeover mounting kit	**ARG86.3**	1840
Electromotoric on / off valve and actuator	**MVI…/MXI…**	4867
Electromotoric on / off actuator	**SFA21...**	4863
Thermal actuator (for radiator valve)	**STA21...**	4893
Thermal actuator (for small valves 2.5 mm)	**STP21...**	4878
Zone valve actuators (only available in AP, UAE, SA and IN)	**SUA…**	4830

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 112 x 130 mm	ARG70.2

Ordering

When ordering, please give name and type reference:
e.g. **room temperature controller RDF210**

The **IRA210** infrared remote control is to be ordered as separate item

The **QAH11.1** can be used as a return air temperature or heating / cooling changeover sensor. In case it is used as a changeover sensor, the **ARG86.3** changeover sensor mounting kit is to be ordered as a separate item.

Valve actuators are to be ordered as separate items.

The controller consists of 2 parts:

- Plastic housing which accommodates the electronics, the operating elements and the built-in room temperature sensor
- Mounting base

The housing engages in the mounting base and snaps on.
The base carries the screw terminals.

Setting and operating elements

Legend

1 Display of the room temperature, setpoints and control parameters

2 Symbol used when displaying the current room temperature

3 Weekday 1..7 (1 = Monday / 7 = Sunday)

4 Current time of day

5 Standby / fan mode status
Standby mode
AUTO Auto fan active
fan speed low, medium, high

6 in cooling mode
in heating mode

7 Auto Timer mode
Normal operation
Energy Saving mode

8 Buttons for adjusting the setpoints, control parameters and time of day

9 Button for changing fan operation and Standby

10 Button operating mode: Normal operation / Auto Timer mode

11 Button for setting time of day and weekday

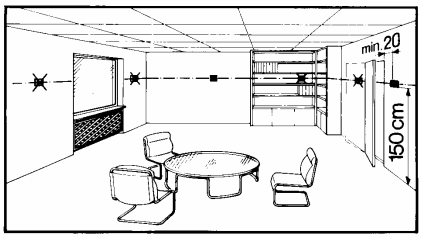
12 Manual heating / cooling changeover (only with RDF210.2)

13 Auto timer program

14 Confirmation

15 Infrared receiver (only with RDF210…/IR)

The room controller can be mounted on a wall or inside the fan coil unit. The mounting location on a wall should not be in niches or bookshelves, not behind curtains, above or near heat sources and not exposed to direct solar radiation. Mounting height is about 1.5 m above the floor.



The controller can be fitted on a recessed conduit box.

When using a heating / cooling changeover sensor, then, before fitting the sensor, thermal conductive paste must be applied to the location on the pipe where the sensor is placed.

Wiring

Also refer to the Mounting Instructions B3058 enclosed with the controller.

⚠
- Wiring, fuse and earthing must be installed in compliance with local regulations. It must be made certain that safety extra low-voltage lines (SELV circuit) are clearly separated from AC 230 V mains voltage cable

⚠
- The cables to the controller, external sensor, fan and valves carry AC 230 V mains voltage and must be appropriate sized

⚠
- Only sensors and valves rated for AC 230 V may be used

⚠
- The AC 230 V mains supply line must have an external fuse or circuit breaker with a rated current of no more than 10 A

⚠
- Maximum 10 changeover contact inputs B1-M can be connected in parallel if an external switch is used in place of a changeover sensor. The switch must be suited for AC 230 V. The cable length must not exceed 80 m overall

Commissioning

After applying power, the controller makes a reset during which all LCD segments flash, indicating that the reset has been correctly made. This takes about 3 seconds. Then, the controller is ready for commissioning by qualified HVAC staff. The control parameters of the controller can be set to ensure optimum performance of the whole system (also refer to “Setting the control parameters”).

Heating / cooling mode
- Only with RDF210: Depending on the application, the heating / cooling mode must be set via parameter P22. Factory setting is “Cooling only”. When using the ”Automatic heating / cooling changeover” function, P22 must be set to “Automatic H/C changeover”.
  Note: When P22 is set to “Automatic H/C changeover”, the integrated sensor is used for acquiring the room temperature

Compressor-based application ⚠
- If the controller is used in conjunction with a compressor, the minimum output on time (parameter P15) and off time (parameter P16) of Y11 must be adjusted in order not to harm the life time of the compressor

Calibrating the sensor
- If the room temperature displayed by the controller dos not accord with the room temperature effectively measured, the temperature sensor can be recalibrated. In that case, parameter P07 must be changed

Setpoint and range limitation
- For comfort and energy saving reasons, it is suggested to review the setpoints and setpoint ranges (parameters P01…P06) and, if necessary, to change them accordingly

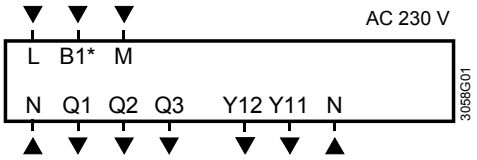
Diagnostic values
- Only with RDF210: Parameters P98 and P99 are diagnostic values and help check the system. With P98, the status of the active temperature sensor is shown and, with P99, the status of the heating / cooling changeover sensor

Technical data

⚠ Power supply	Operating voltage	AC 230 V +10/-15 %
	Frequency	50/60 Hz
	Power consumption	max. 8 VA
Outputs	Fan control Q1, Q2, Q3-N	AC 230 V
	Rating	max. 4(2)A
	Control output Y11-N (N.O.) / Y12-N (N.C.)	AC 230 V
	Rating	max. 4(2)A
Inputs	Changeover or external room temperature sensor B1-M	
	Temperature sensor	QAH11.1, safety class II
⚠	Voltage against earth	AC 230 V
	Cable length	max. 80 m (min. 1.5 mm^2)
	Infrared receiver (only with RDF210…/IR)	
	Transmission distance	≤ 7.5 m
	Orientation angle	≤ ± 30 °
Operational data	Switching differential, adjustable from 0.5...4K	
	Heating mode (factory setting)	2 K
	Cooling mode (factory setting)	1 K
	Setpoint setting range	
	☼ Normal operation	5...40 °C
	☾ Energy Saving mode (only with RDF110)	off, 5...40 °C
	⏻ Standby	off, 5...40 °C
	Factory setting of setpoints	
	☼ Normal operation	20 °C
	☾ Energy Saving in heating / cooling mode	16 °C / 28 °C
	⏻ Standby (heating and cooling mode)	OFF
	Built-in room temperature sensor	
	Measuring range	0…49 °C
	Accuracy at 25 °C	< ± 0.5 K
	Temperature calibration range	± 3.0 K
	Resolution of settings and display	
	Setpoints	0.5 °C
	Current temperature value displayed	0.5 °C
Environmental conditions	Operation	to IEC 721-3-3
	Climatic conditions	class 3K5
	Temperature	0...+50 °C
	Humidity	<95 % r.h.
	Transport	to IEC 721-3-2
	Climatic conditions	class 2K3
	Temperature	−25...+60 °C
	Humidity	<95 % r.h.
	Mechanical conditions	class 2M2
	Storage	to IEC 721-3-1
	Climatic conditions	class 1K3
	Temperature	−25...+60 °C
	Humidity	<95 % r.h.
Norms and standards	CE conformity to	
	EMC directive	89/336/EEC
	Low voltage directive	73/23/EEC and 93/68/EEC
	N474 **C-Tick** conformity to	
	EMC emission standard	AS/NSZ 4251.1:1994

General	Product standards	
	Automatic electrical controls for household and similar use	EN 60 730 – 1
	Special requirements for temperature-dependent controls	EN 60 730 – 2 - 9
	Electromagnetic compatibility	
	Emissions	IEC/EN 61 000-6-3
	Immunity	IEC/EN 61 000-6-1
	Devices of safety class	II to EN 60 730
	Pollution class	normal
	Degree of protection of housing	IP 30 to EN 60 529
	Connection terminals	solid wires or prepared stranded wires 2 x 0.4-1.5 mm^2 or 1 x 2.5 mm^2
	Weight	0.28 kg
	Color of housing front	white, NCS S 0502-G (RAL 9003)

Connection terminals



L, N Operating voltage AC 230 V
B1***** Changeover (QAH11.1+ ARG86.3) or external room temperature sensor (QAH11.1 / QAA32)
M Measuring neutral for sensor

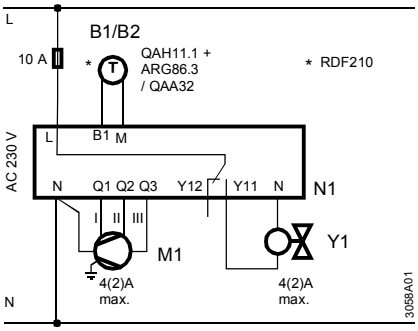
Q1 Control output “Fan speed 1 AC 230 V
Q2 Control output “Fan speed 2 AC 230 V
Q3 Control output “Fan speed 3 AC 230 V
Y11 Control output “Valve” AC 230 V (N.O., for normally closed valves) or output for compressor
Y12 Control output “Valve” AC 230 V (N.C., for normally open valves)

*** Only with RDF210 or RDF210/IR**

Connection diagrams

Application:

2-pipe fan coil units



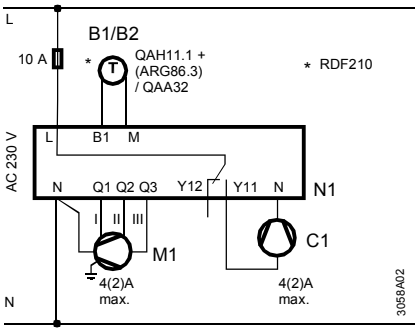
B1***** Return air temperature sensor (QAH11.1) or external room temperature sensor (QAA32)
B2***** Changeover sensor (temperature sensor QAH11.1 + changeover mounting kit ARG86.3)
M1 3-speed fan
N1 Room temperature controller RDF210..
Y1 Zone valve

*** Only with RDF210 or RDF210/IR**

Application:

Compressor

in DX type equipment



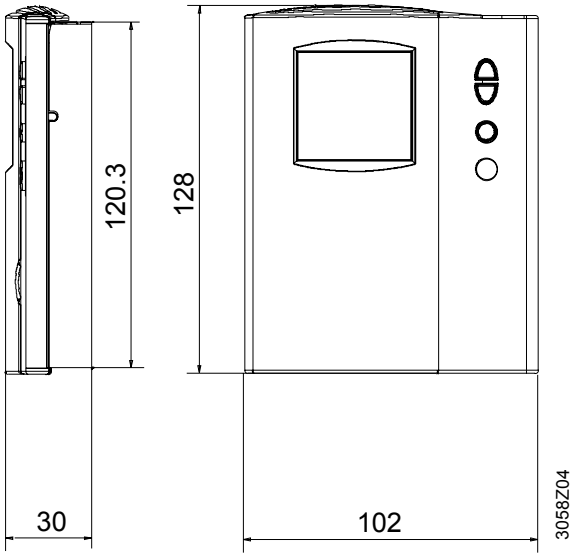
B1***** Return air temperature sensor (QAH11.1) or external room temperature sensor (QAA32)
B2***** Changeover sensor (temperature sensor QAH11.1 + changeover mounting kit ARG86.3)
M1 3-speed fan
N1 Room temperature controller RDF210..
C1 Compressor

- **Only with RDF210 or RDF210/IR**

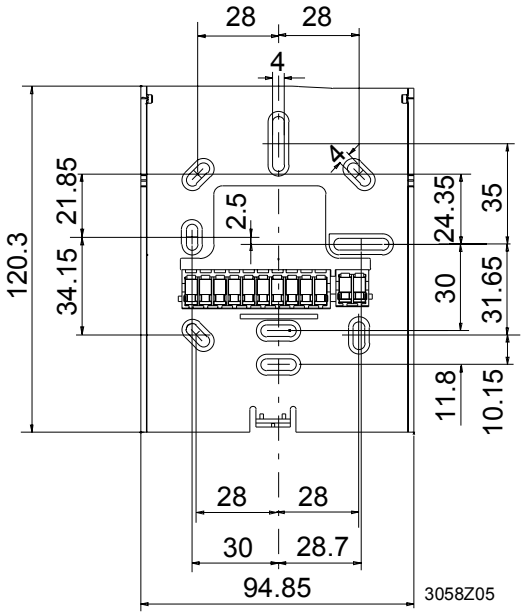
Note: For compressor applications, RDF210 or RDF210/IR is recommended

Dimensions

Controller



Mounting base



Subject to alteration