



## Description

The control action is Proportional + Integral (P+I). This ensures accurate temperature control in all operating conditions. The controller is suitable for wall mounting or on a fan-coil chassis using optional remote air sensor.

In a 2-pipe-system it is possible to activate the summer/winter changeover by a switching contact or by a sensor installed on the pipe of the fan coil inlet. The controller is provided with two pre-set modes for controlling the room temperature: Comfort and Economy to which two temperature levels are linked and selectable directly on the device or by a digital input. The room sensor is located inside the device and is automatically overridden if the optional remote sensor is fitted. Available commands: set-point adjustment knob, push-bottoms for setting Comfort/Economy mode and summer/winter changeover, manual fan speed switch and off switch of controller (the push-bottoms and leds are not available on RTA19C e RTA29C models).

## Technical specifications

- 2 or 4 pipes fan coil applications
- Proportional + integral digital controller
- Fan speed control with 0-10 V DC modulating output or 3 fan speeds
- ON-OFF or PWM control action for actuators
- Output voltage for valves 230 V AC, fan motor 0-10 V DC or 230 V AC
- Power supply 230 V AC, 50/60 Hz
- CE certification
- **RTA29** has communication output with Modbus RTU protocol



Models	Comunication
RTA19	-
RTA29	Modbus RTU

## General information

The microprocessor models RTA19 and RTA29 are designed to control heating and cooling 2- and 4-pipe-systems. These controllers are suitable for fan coil controls with electrical heater resistance or fan coils combined with floor heating systems.

## Inputs and Outputs

### Digital Inputs

*Presence contact or time program: (terminals M13-M15)*

The contact open indicates the presence in the room (occupied room) and activates the set point on Comfort mode.

*Window: (terminals M13-M16)*

The contact open indicates the closed window and normal operation. The closing of the contact indicates the opening of the window and the changeover to antifrost operation. This causes valves closure and fan stop. The frost protection activates an ambient set point of 4°C.

*Summer / Winter switching: (terminals M13-M14)*

The contact close indicates the presence of hot water in the piping. This causes switching to winter operation. Summer/winter switching can also be carried out by using a temperature sensor connected to the M13-M12 terminals.

### Analog Inputs

*Air temperature sensor: (terminals M11-M13)*

This sensor is normally positioned on the fancoil return air and has priority on the controller's internal sensor.

*Water temperature sensor: (terminals M12-M13)*

If the sensor is present then activate by parameter 8 setting to default on „Without sensor“.

This sensor can be used for summer/winter switching as for fan operation and as well for both functions.

*Summer/winter switch:*

The sensor detects the water temperature at the fancoil. If the water temperature falls below the value set in parameter 14, summer operation is activated. If the water temperature rises above the value set in parameter 15, winter operation is activated.



If the water temperature is stable between the values set in parameters 14 and 15, the controller is set to OFF and switches to anti-freeze protection.

**Fan operation approval:**

In 2- or 4-pipe-systems the sensor is positioned on the return piping after the heating battery. This gives approval to the fan operation. With the parameters 14 and 15 the temperature approval values for fan operation can be set.

**Sensor set for both functions:**

In 2-pipe fancoil systems the sensor detects the water temperature and allows summer/winter changeover. The fan operation is switched on with a delay that can be set by parameter 22 (Default value: 120 sec).

**Analogue and digital outputs**

**Fan:**

Fan speed control, proportional output 0-10 V DC, 1 mA (terminals M9 and M10)  
 Additional fan outputs with 3 speeds, 230 V AC 50 Hz, max. 1.25 A (3 A peak) (terminals M3, M4, M5, M6)

**Actuator heating valve:**

Output 230 V AC 0,8 A suitable for controlling max 4 thermal actuators (terminal M3 and M8).

**Actuator cooling valve:**

Output 230 V AC 0,8 A suitable for controlling max 4 thermal actuators (terminal M3 and M7).

**Auxiliary output:**

230 V AC 0,8 A (terminals M3 and M7).

**Technical features**

<b>Control range</b>	10...30°C		
<b>Power supply</b>	230 V AC, 50/60 Hz		
<b>Outputs (hot and cold water)</b>	PWM		
	On-Off		
<b>Output fan</b>	0-10 V DC output – 1 mA max 10 Kohm load		
	3 speed output, 230 V AC, max 1,25 A		
<b>Knob and selectors</b>	Temperature levels	Comfort / Economy	Digital input
	Working mode	Summer/Winter	Digital or analog input
	Fan	Modulating Auto-0-1-2-3 or Auto-0-1-2-3	5-position selector
	Set point	Temperature: 10...30°C	Knob
<b>Analogue Inputs</b>	Room Temperature	Return air sensor (remote)	NTC10K
	Water Temperature	Contact or immersion sensor	NTC10K
<b>Digital Inputs</b>	Fan approval / summer/winter switching		
	Window open		
	Presence / time program		
<b>Proportional band</b>	2 K		
<b>Neutral zone</b>	From 0 to 4 K		
	2-pipes system		
	4-pipes system		
<b>Housing</b>	2-pipes system with auxiliary output		
	Single housing		
<b>Protection class</b>	IP30		
<b>Working temperature</b>	0...45°C		
<b>Storage temperature</b>	-10...+50°C		
<b>Working humidity</b>	20...80% RH, non condensing		



## Fan operations

The fan works if thermostat is enabled or if the water temperature sensor detects a temperature value higher than the set value (parameter # 15) if these devices are connected.

The fan is controlled with the 5-position selector.

The controller can regulate both fan coil fans with three speeds and those with a 0 ... 10 V DC control.

A = Automatic operation with proportional control 0 ... 10 V DC or 3 speeds.

0 = Fan off (OFF). With the selector in this position the valves are also closed.

The antifreeze function is activated.

1 = Fan speed 1

2 = Fan speed 2

3 = Fan speed 3

In normal operating mode, the fan operation depends on:

1. Room temperature value with respect to set point
2. Position of SEL2 selector
3. Setting the parameter
4. Default value: Thermostatic operation. The fan is ON only when the set point is not satisfied in both heating and cooling. Possible Alternative Selections:
  - a. Continuous operation. The fan is ON when set point is not satisfied and with set point satisfied in operation at low speed.
  - b. OFF in heating, ON in cooling. Application that can be set with parameter # 3.
  - c. ON in heating, OFF in cooling mode. Application that can be set with parameter # 3.

The following factors can also interact with normal operation:

1. SEL2 selector in position 1, 2 or 3
2. Parameter Value 22

In AUTO mode, the controller continuously controls fan speeds between the minimum and the maximum or between speeds 1, 2 and 3 if the set point is not satisfied. The fan speed varies depending on the room temperature distance from the set point.

The difference between the temperature at which summer/winter switchover occurs and the set point is called DEAD BAND. In normal operation, the set point does not change between the heating and the cooling mode.

In manual operation, the speed of the fan is fixed by the position of the speed selector. The fan speeds are determined by the speeds min, speed med and max speed. Temperature regulation switches the fan at different speeds.

A minimum voltage is required to start the fan with 0 ... 10 V DC. This value can only be changed with the appropriate software tool. This value is also the minimum value for speed 1. The user without the software tool can only increase the minimum fan voltage/speed value.

The fan speed default values are:

Minimum fan speed, parameter # 25, default value = 1,33 V

Average fan speed, parameter # 26, default value = 2,667 V

Max fan speed, parameter # 27, default value = 3,333 V

Using the set point knob, default values can be changed in 333 mV shots (21 shots using the 10°C to 30° C scale including 0 mV shutter speed)

Using the same method the output voltage can be changed in the range between 1,333 and 8,00 V.

### Preset dynamic values

speed 1: incremental value, parameter 28 = 0 V, (minimum preset speed + speed 1 = 1,333 V = minimum speed)

speed 2: incremental value, parameter 29 = 2,333 V, (medium preset speed + speed 2 = 4,00 V = medium speed)

speed 3: incremental value, parameter 30 = 6,667 V, (maximum preset speed + speed 3 = 10,00 V = maximum speed)

During the cooling cycle, if the set point is satisfied, the fan continuous to operate at speed 1 for 2 minutes and then it stops.

### Destratification cycle (with remote air sensor only)

When using a remote air temperature sensor and the set point is satisfied, the fan is started according to the times set by parameters # 20 and # 21 to allow the temperature sensor to detect the correct room air temperature value.

### Fan start delay

In winter mode, the fan starts after a delay set with parameter # 22 to avoid cool air circulation before the battery warms up. The delay on starting the fan is reset when the electrical resistance is used as the primary output (see parameter selection # 3): 2 hot / cold tubes + electric resistance S/W, 2 cooling tubes + PWM electrical resistance.

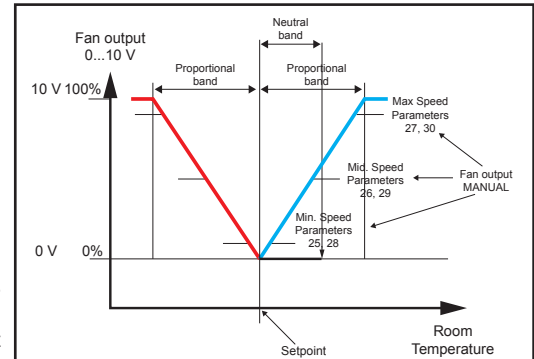
Cooling mode, if the set point is satisfied, the fan continues to run at speed 1 for 2 minutes and then it stops.

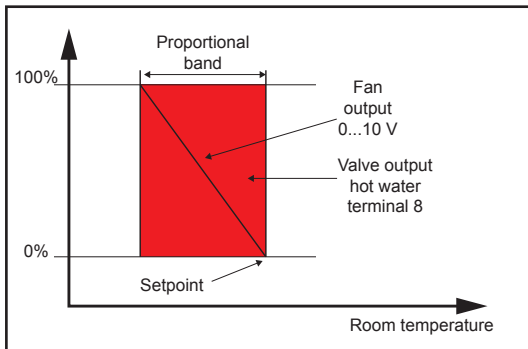
### Heating and cooling outputs

#### Control output

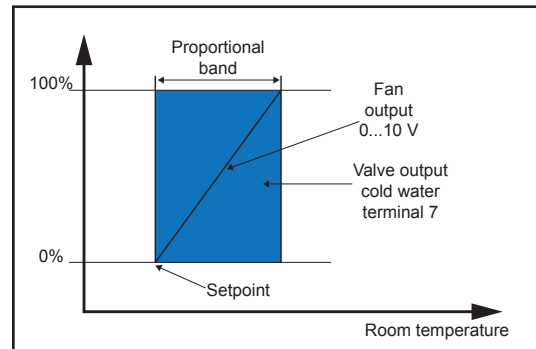
Setting parameter 5 to "ON-OFF". With this setting, the adjustment algorithm works on 6 cycles / hour and changes the ON time based on the P+I setting. For example, if the room temperature is equal to 50% of the proportional band (eg. 20° C set point, 2 K proportional band, room temperature 19° C), the heating output will be 5 minutes ON and 5 minutes OFF .

Setting parameter 5 to "PWM". With this setting, the adjustment algorithm works on a 1-second-cycle by changing the ON time according to the P+I control signal. For example, if the room temperature is at a value equal to 50% of the proportional band (eg set point 20° C, proportional band 2 K, room temperature 19° C) the output will be 0.5 sec. ON and 0.5 sec. OFF.

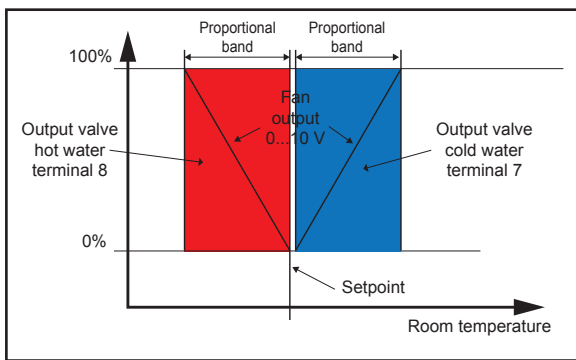




**2-PIPES FAN COIL WITH AN ON-OFF OR PWM HEATING OUTPUT**  
The set point is set to the upper limit of the proportional band so that the valve is closed if the room temperature is above the set point.



**2-PIPES FAN COIL WITH ON-OFF OR PWM COOLING OUTPUT**  
The set point is set to the lower limit of the proportional band so that the valve is closed if the room temperature is below the set point.



**4-PIPES FAN COIL WITH ON-OFF OR PWM COOLING OUTPUT**  
The set point is set to the upper limit of the proportional heating band at the lower limit of the proportional cooling band.

### Floor heating/cooling + 2-pipe fan coil

Select this application by setting parameter #3 to:

Floor heating/cooling system + fancoil 2 cool/heat pipes

The fan coil valve is connected to terminal 8 and the floor valve is connected to terminal 7.

Setting of cool/heat switching by parameter #9.

### Electrical resistance

With parameter #3 it is possible to set the operation with electrical resistance in 2-pipe systems.

The controller RTA19 or RTA29 supports the connection of an electrical resistance to terminals 3 and 7.

### Electrical resistance as auxiliary

The electrical resistance is controlled by an ON-OFF algorithm in sequence to the heating valve.

Parameter #3 set as: 2 tubes.

### Electrical resistance as primary

A) Electrical resistance in sequence with the cooling valve.

Parameter #3 set as: 2 cooling pipes + PWM electrical resistance.

This application refers to fan coil cooling systems and electrical resistance for heating.

The electrical resistance is connected to terminal 8 and has a PWM control while the fan coil valve (cooling) is connected to terminal 7. The maximum power handled directly for electrical resistance is 185 W.

In the case of higher powers, an external auxiliary device suitable for PWM control can be used.

B) Electrical resistance as auxiliary in Winter and as primary in Summer.

Set parameter #3 as: 2 heating/cooling pipes + electric resistance S/W.

### Control outputs

Setting parameter #5 to "ON-OFF"

With this selection, the adjustment algorithm works on 6 cycles / hour and changes the ON time as a function of the P + I setting.

For example: set point setting: 20° C; proportional band: 2 K

If the room temperature is at 50% of the proportional band, the output will be 5 minutes ON and 5 minutes OFF.

Setting parameter 5 to "PWM". With this selection, the control algorithm works on cycles of 1 second changing the ON and OFF time as a function of the P + I setting.

For example: set point setting: 20° C; proportional band: 2 K

If the room temperature is at 50% of the proportional band, the output will be 0.5 seconds ON and 0.5 seconds OFF.

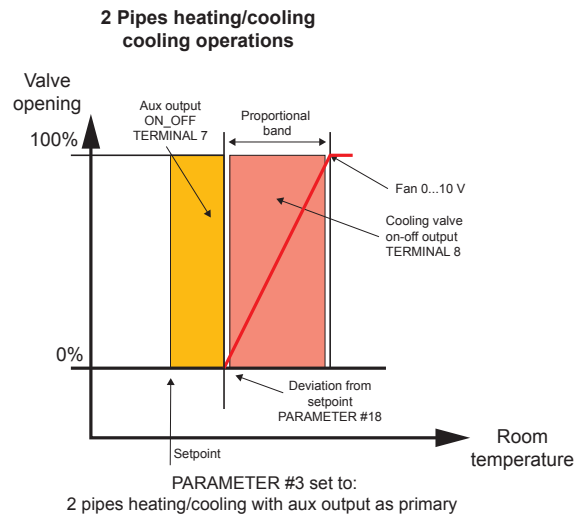
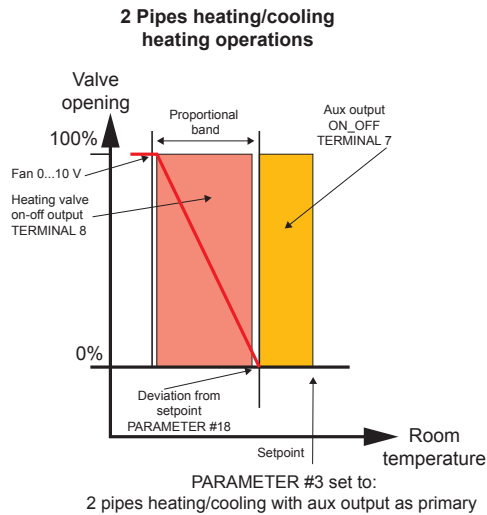


With 2-pipe systems it is also possible to control a second heating circuit by connecting an actuator / valve to the cooling output (terminal 7), whereas the fan coil actuator / valve is connected to the heating output (terminal 8).

By parameter #3 you can select the priority of the auxiliary output insertion:

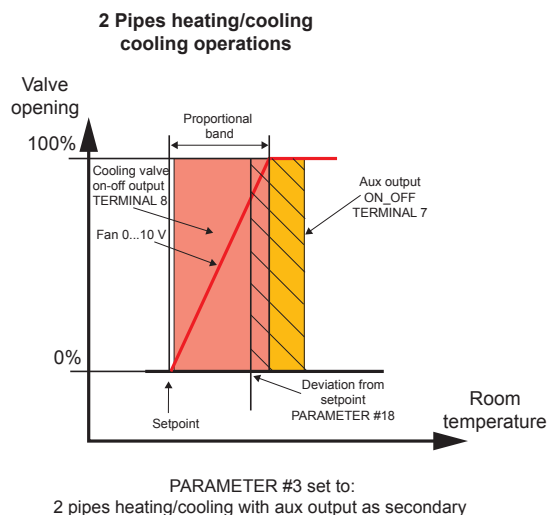
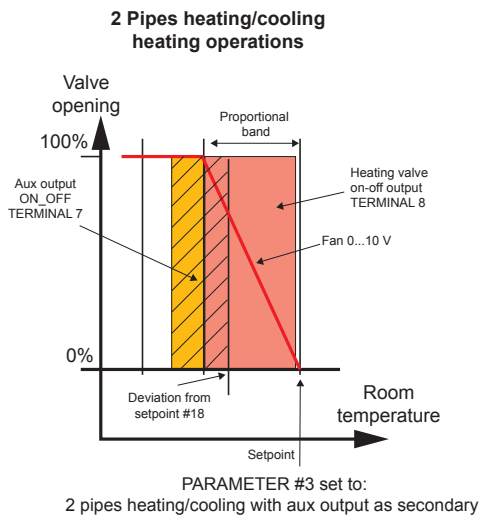
A) auxiliary output as primary output means that when the room temperature drops below the set point, the auxiliary output is activated immediately whereas the fancoil valve and fan are switched on if the room temperature falls below the set point value less than the set value by parameter #18. The auxiliary output is deactivated if the room temperature rises above the set point with an anti-oscillation time set by parameter #23 (default value: 60 sec.).

See diagram below showing heating and cooling operation.



b) auxiliary output set as secondary output means that when the room temperature falls below the set point the fan coil valve and fan are switched on immediately and the auxiliary output is activated if the room temperature drops below the set point minus a set value by parameter #18. The auxiliary output is deactivated if the room temperature rises above the set point minus the set value by parameter #18 with an anti-oscillation time set with parameter #23 (default value: 60 sec.).

See diagram below showing heating and cooling operation.



## CHANGE OF OPERATING MODES

### Summer/winter changeover

In 2-pipe systems the summer/winter changeover is made through a contact connected to terminal 13 or the temperature sensor connected to terminal 11.

In the 4-pipe systems with the thermostat in heating mode the summer/winter switching is triggered by the room temperature sensor: changes from winter to summer when room temperature rises above the set point plus the neutral band value (see parameter #2, default value: 4 K).

The room set point value remains the same (value in winter). If you want a higher value, you must change this value using the set point knob.

With the thermostat in cooling mode the summer/winter changeover is carried out by the room temperature sensor: changes from summer to winter when the room temperature decreases below the set point minus the neutral band value (see parameter #2, default value: 4 K. The room set point value remains the same (value in summer).

If you want a lower value you must change that value using the set point knob.



## INSTALLATION

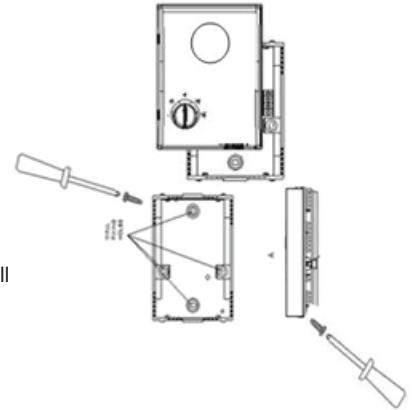
The controller is a temperature control device of a definite area in a fan coil system. The controller must be positioned approximately at 1.5 m from the floor in a position exposed to air circulation and should not be affected by:

- current or dead zones behind doors or in corners
- hot or cold air coming from air channels
- solar irradiation or radiation produced by other household appliances
- unheated or cooled areas such as outside walls located behind the thermostat
- tubes or chimneys integrated into the wall

**IMPORTANT:** This product must be installed in accordance with local laws and directives and only by qualified personnel. Disconnect the power supply before installing or uninstalling the thermostat.

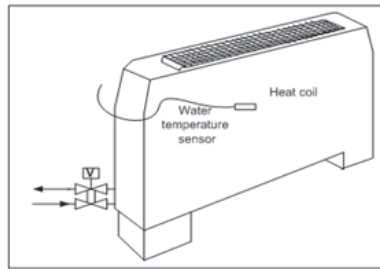
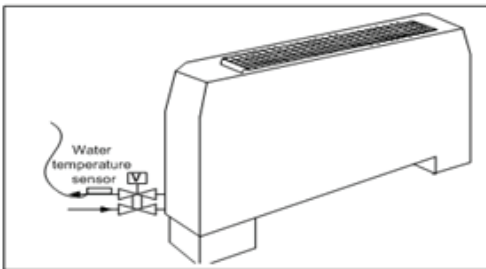
### Installation of the room controller:

1. Use a screwdriver to loosen the locking screw at the bottom of the thermostat so that the cover can be removed.
2. Pass the cables through the holes in the back of the thermostat and then secure the housing to the wall with the screws.
3. Tighten the cables to the terminals, taking care to follow the wiring diagram.
4. Replace the cover and secure it by tightening the screw at the bottom of the housing.



### Mounting of water temperature sensor:

1. Water temperature sensor for summer/winter changeover: place the sensor upstream of the valve as shown in the drawing below.
2. Water temperature sensor for summer/winter changeover and fan approval: place the sensor upstream of the valve as shown in the drawing below.
3. Water temperature sensor for fan approval: place the sensor inside the heating battery as shown in the drawing below.



### Controller electrical connections:

The terminals are suitable for 1.5 mm<sup>2</sup> cables.

### Connecting actuators to 4-pipe systems:

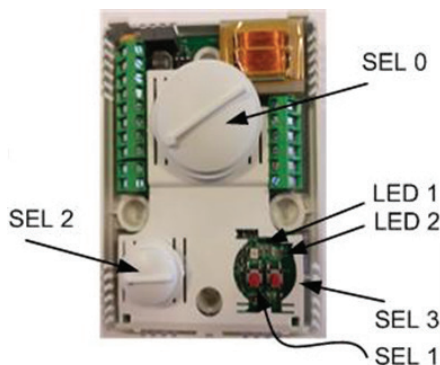
Actuators must be connected to terminals 8 and 3 (heating valve actuator) and between 7 and 3 (cooling valve actuator).

### Connection of actuator to 2-pipe systems:

The actuator must be connected to the output of heating valve on terminal 8 and 3.

### Start-up, manual parameter setting procedure

The thermostat allows manual access to parameters of level 1, parameters 1 to 11. Parameters 12 to 33 can be modified only by factory with a supervisory tool.





To access the parameters, remove the cover.

The SEL 0 knob allows parameter selection (1 to 10) (see parameter table on page 8).

The fan speed selector SEL2 allows you to set the value of the selected parameter.

The buttons SEL1 and SEL3, when simultaneously pressed for 5 seconds, allow access to the "parameter setting mode".

SEL1 is used as the "ENTER" button when pressed during the programming phase and confirms the new set value.

If pressed for 5 seconds during programming, SEL1 saves the parameter setting (the green LED flashes 3 times indicating that the data have been saved).

By rotating the SEL0 knob, LED1 will turn green or red by indicating the value that has been saved.

#### Parameter setting or changing:

To access the "parameter setting mode" procedures as follows:

1. Turn the knob SEL0 at 10 degrees.
2. Turn the switch SEL2 to AUTO.
3. Press the SEL1 and SEL3 buttons together for >5 sec.

After pressing the buttons for at least 5 seconds, the LED1 starts flashing alternately green and red for 3 seconds indicating that you have entered "parameter setting mode".

After 3 seconds the LED returns green if the current parameter corresponds to the value selected with the knob SEL0. The LED turns red if the current parameter does not match the selected value.

To change the value of a parameter, set the SEL2 selector to the desired value (the LED will turn red) and then press the SEL1 button until the LED is green again.

To save the new setting to the controller's permanent memory, press SEL1 for more than 5 seconds, the green LED will blink 3 times to confirm the new parameter setting.

After saving the new value (or new values), the controller exits the "parameter configuration mode".

The sequence described above is valid for the configuration of all the parameters that can be selected with the knob SEL0.

To conclude: Select the parameter by rotating the knob SEL0 and then setting the value with the switch SEL2.

#### Check of the parameter setting:

Simply by rotating the selector SEL2 you can check which value has been set for a specific parameter. (Green LED = set value, red LED = different value). If no action is taken for 2 minutes, the controller will return to the normal operating state.

#### Reset default values

1. Enter the programming mode (as described in the STARTUP section).
2. Set SEL0 to 30°C
3. Set SEL2 to position 2

The LED2 will flash quickly to indicate that the default parameters have been selected.

4. Press the SEL1 button

The green LED1 on the controller will flash 3 times to indicate that the controller has saved the default parameters.

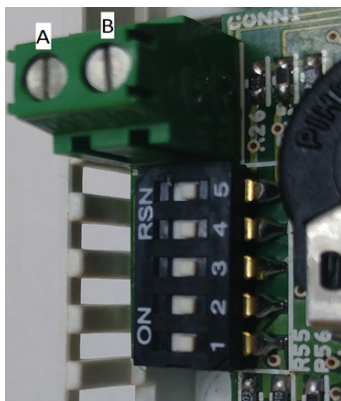
#### Setting of manual fan speeds:

To enter the setting of manual fan speed:

1. Place SEL2 on the speed value you want to set and position SEL0 at 10°C.
2. Press SEL 2 and SEL3 together for 10 seconds. The LEDs will flash alternately.
3. Rotate SEL0 to the desired voltage/speed value, then press SEL1 for 5 seconds. The green LED will blink 3 times indicating that the value has been set.
4. Repeat steps 1-3 to set other incremental values.

Fan speed steps – Incremental values											
Dial Position °C	10°C	11°C	12°C	13°C	14°C	15°C	16°C	17°C	18°C	19°C	20°C
mV output	0	333	667	1000	1333	1667	2000	2333	2667	3000	3333
Dial Position °C	21°C	22°C	23°C	24°C	25°C	26°C	27°C	28°C	29°C	30°C	
mV output	3667	4000	4333	4667	5000	5333	5667	6000	6333	6667	

#### Connection and setting Modbus addresses (RTA29 only)



The connection to the Modbus is carried out with 2 wires connected to the terminals located on the left side of the controller. See the figure besides (A and B).

Follow the instructions given in the Modbus standards regarding the type of cable, length and especially the cable position relative to line voltage cables.

The bus address of the controller is set using the dip switches located on the left side of the controller. See the figure below.

Be careful not to assign the same address to more than one controller on the same bus.



Address	1	2	3	4	5
0	OFF	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	OFF	OFF
2	OFF	ON	OFF	OFF	OFF
3	ON	ON	OFF	OFF	OFF
4	OFF	OFF	ON	OFF	OFF
5	ON	OFF	ON	OFF	OFF
6	OFF	ON	ON	OFF	OFF
7	ON	ON	ON	OFF	OFF

Address	1	2	3	4	5
8	OFF	OFF	OFF	ON	OFF
9	ON	OFF	OFF	ON	OFF
10	OFF	ON	OFF	ON	OFF
11	ON	ON	OFF	ON	OFF
12	OFF	OFF	ON	ON	OFF
13	ON	OFF	ON	ON	OFF
14	OFF	ON	ON	ON	OFF
15	OFF	ON	ON	ON	ON

Address	1	2	3	4	5
16	OFF	OFF	OFF	OFF	ON
17	ON	OFF	OFF	OFF	ON
18	OFF	ON	OFF	OFF	ON
19	ON	ON	OFF	OFF	ON
20	OFF	OFF	ON	OFF	ON
21	ON	OFF	ON	OFF	ON
22	OFF	ON	ON	OFF	ON
23	ON	OFF	ON	ON	ON

Address	1	2	3	4	5
24	OFF	OFF	OFF	ON	ON
25	ON	OFF	OFF	ON	ON
26	OFF	ON	OFF	ON	ON
27	ON	ON	OFF	ON	ON
28	OFF	OFF	ON	ON	ON
29	ON	OFF	ON	ON	ON
30	OFF	ON	ON	ON	ON
31	ON	ON	ON	ON	ON

### Table of 1st level parameters

The parameters below are those that can be directly modified by the controller.

Knob position SEL 0	Parameter	Parameter to set	Parameter description	Default value	Switch position		Switch position	Switch position
				SEL 1 AUTO	SEL 1 OFF	SEL 1 1	SEL 1 2	SEL 1 3
10	1	Comfort set point range	Min. and max. values for set point temperature	10 - 30	12 - 28	13 - 27	14 - 26	15 - 25
12	2	Dead band	Defines the dead band	4 K	3 K	2 K	1 K	0 K
14	3	Plant type	Type of system	2-pipe	4-pipe	floor system heat/cool+2-pipe fan coil cool/heat	2 pipes cool + electrical resistance PWM (terminal 4)	2 pipes heat / cool + electrical resistance s/w
16	4	Fan	Defines the fan operating mode in the dead band	thermostatic mode s/w	continuous mode s/w	OFF in cooling mode ON in heating mode	OFF in heating mode ON in cooling mode	
18	5	Output type	Defines the type of control output. Depends on which type of actuator is used	ON-OFF	PWM			
20	6	Window contact	Defines if the window contact is normally open or normally closed	Active = CONTACT OPEN i.e. contact open = window close	Active = CONTACT CLOSE i.e. contact open = window open			
22	7	Destratification	Enable or disable the destratification function	Disabled	Enabled	Disabled		
24	8	Function of water temperature sensor	Defines the function of the water temperature sensor	s/w switch more fan consent	s/w changeover		No sensor used	
26	9	s/w switching	Defines s/w switching mode	Contact or water temperature sensor NTC 10K		From controller		
28	10	Offset detection room sensor	Changes the reading of the temperature sensor with an offset	0	+ 1 K	- 1 K	+ 2 K	- 2 K
30	11	RESET	Reset all the default values		Set to zero the maintenance hours of the filter		Resets all parameters to default values	

The parameters listed in the following table can only be modified with the connection with a supervisory software connected to the Modbus RS485 port.





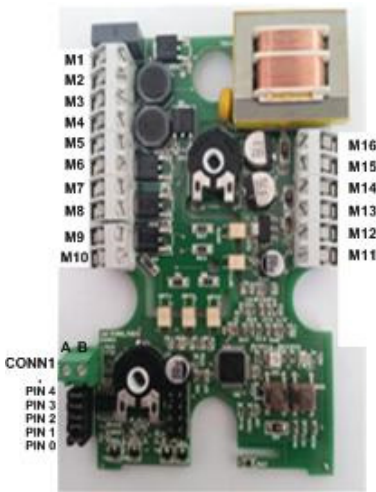
**Table of 2nd level parameters (available only with supervisory software)**

The parameters #31 e 32 are available for RTA29 only.

No.	Name	Description	Range	U.M.	Resolution	Default
12	Proportional band	Used to set the proportional band field	1...5	°C	0,1	2
13	Delta economy	Used to set the reduction value (in winter) or increase (in summer) for economy mode	1...10	°C	1	2
14	Permitted temperature fan in winter status	Sets the permitted fan operation temperature in winter or s/w switching temperature if parameter 9 = sensor / contact	20...60	°C	0,1	38
15	Permitted temperature fan in summer status	Sets the permitted fan operation temperature in summer or s/w switching temperature if parameter 9 = sensor / contact	5...25	°C	0,1	14
16	Frost protection	Sets the frost protection temperature	0...10	°C	0,1	4
17	Filter operation hours (300 hours x K)	Sets the fan coil operating hours beyond which filter maintenance is required. Value 0 means that reporting is excluded.	0...20	h x K	1	0
18	K deviation for auxiliary output	Set the temperature difference value over the set point for auxiliary output activation	0...10	K	0,1	0,5°
19	Valve exercise	Enables valve exercise functionality	Enabled disabled	-	-	Disabled
20	Time range for de-cyclization cycle	Set the time between two deactivation cycles. Note: it only applies the cycle is activated with parameter # 8	1...60	min	1	15
21	Time of destratification	Sets the fan activation time during the deactivation cycle	1...10	min	1	1
22	Fan start delay in heating	Sets the fan start delay time after opening the heating valve	0...250	s	1	120
23	Auxiliary output anti-swing time	Sets the auxiliary output time (ON) after reaching the setpoint	0...1000	sec	1	60
24	Not used					
25	Minimum value speed 1	Sets the minimum value for speed 1 in manual operation	2...10 V	mV	0,01 V	2
26	Minimum value speed 2	Sets the minimum value for speed 2 in manual operation	2,667...10 V	mV	0,01 V	2,667
27	Minimum value speed 3	Sets the minimum value for speed 3 in manual operation	3,333...10 V	mV	0,01 V	3,333
28	Incremental speed value 1	Sets the incremental value for speed 1 in manual operation	0...10 V	mV	0,01 V	0
29	Incremental speed value 2	Sets the incremental value for speed 2 in manual operation	0...10 V	mV	0,01 V	2,333
30	Incremental speed value 3	Sets the incremental value for speed 3 in manual operation	0...10 V	mV	0,01 V	6,667
31	Setpoint setting priority	Sets the priority for setting the set point between the thermostat knob (local) and the remote value from Modbus (remote)	Local Remote			Local
32	Fan speed setting priority	Sets the priority for setting the fan speed between the thermostat switch (local) and the remote value from Modbus (remote)	Local Remote			Local



## Electrical wiring



Terminal connection  
 M1 phase power supply  
 M2 neutral supply  
 M3 neutral for outputs (loads)  
 M4 fan speed 1  
 M5 fan speed 2  
 M6 fan speed 3  
 M7 output for cooling actuator/valve  
 M8 output for heating actuator/valve  
 M9 fan output 0 ... 10 V  
 M10 fan output 0 ... 10 V  
 M11 input remote room temperature sensor  
 M12 input water temperature sensor  
 M13 common for analog/digital inputs  
 M14 input summer/winter changeover  
 M15 input Economy contact  
 M16 input window contact

## Dimensions

