



## Ruimteregelaar RCX



*Regio RCX series are controllers with built-in sensors and an RS485 communication port. Controllers in different rooms and zones can be connected to a field bus enabling communication with a central SCADA system, via RS485 (EXOline, BACnet, or Modbus). They can also be used as stand-alone controllers for control of heating and cooling in a single zone or room.*

*The stand-alone Regio controllers can be configured for a specific application via the Regin:GO app (in most cases).*

- ✓ Elegant and slim design, which provides the ability to seamlessly install in design-critical environments
- ✓ Display showing relevant information and which enables visibility on a distance. Easy to keep clean
- ✓ Built-in sensors, which measure all relevant data in the same casing. Such as, temperature, humidity, CO<sub>2</sub>, VOC, and PIR
- ✓ Flexible application, where you can configure almost every possible room application, without programming knowledge
- ✓ Easy configuration, with wireless communication using the Regin:GO app
- ✓ Removable terminal, which simplifies troubleshooting
- ✓ Back plate with terminals allows installation without electronics in an unclean environment

### Application

The Regio RCX controllers have a discrete design and are easy to use with an intuitive graphical LED matrix front

and stylized touch buttons. They are suitable in buildings where you want optimal comfort and low energy consumption, for example offices, schools, shopping centres, airports, hotels and hospitals.



## Ruimteregelaar RCX

### Function

The controller mode function enables the controller to support control of various room HVAC systems, that is, different combinations of heating, cooling, and variable air volume (VAV) devices that are part of a room.

In a room, the Regio RCX controller can measure and detect the following, depending on model:

- ✓ Temperature
- ✓ CO<sub>2</sub> level
- ✓ Relative humidity level
- ✓ Presence of condensation
- ✓ Motion of a user
- ✓ Air quality (VOC)
- ✓ If a window is open by the help of external sensors

In a room, with the help of an HVAC system, the Regio RCX controller can control, for example:

- ✓ Temperature by activating heating or cooling
- ✓ If a room should be fully automatically controlled, or set to a manual mode
- ✓ Fan speed
- ✓ The level of fresh airflow

### Models with a display

The user interface consists of three touch sensitive buttons, and a display made up of a matrix of LEDs, in a plastic casing where the display can be seen through the plastic material, and the buttons can be pressed by touching the icons printed on the casing.

If the room controller has not been interacted with for a while, the display can be configured to dim down in intensity, or completely shut off depending on what settings the administrator have made. By dimming or shutting off the display during inactive use, the room controller blends in with the room and does not disturb the user. The dimmed mode is preferable for e.g. hotels, where guests sleep in the room where the room controller is mounted, or in an office, where employees do not want to be distracted by a bright display. It is up to the administrator and the installer of the room controller to configure when the product should be dimmed or lit.

The Regio RCX controller user interface is shown in Fig. 1 Regio RCX controller model with a display.

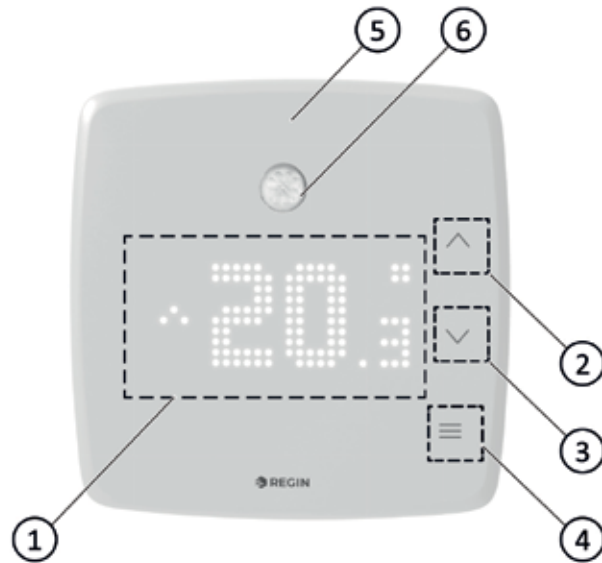


Fig. 1 Regio RCX controller model with a display

- |                     |                                   |
|---------------------|-----------------------------------|
| ① LED matrix        | ④ Menu button                     |
| ② Up arrow button   | ⑤ RGB LED light                   |
| ③ Down arrow button | ⑥ PIR sensor (on selected models) |

Table 1 describes the buttons and LEDs that are available on Regio RCX controllers with a display.

Table 1 Button and LED descriptions for Regio RCX controllers with a display.

| Controllers with a display |  |
|----------------------------|--|
| Nr                         | Description  |
| 1                          | LED matrix with the current mode or value displayed.   |
| 2                          | Down arrow button, used for toggling values downwards. |
| 3                          | Up arrow button, used for toggling values upwards.     |
| 4                          | Menu button, used for navigation in menu.              |

### Models without a display

For controllers without display, all configurations are made via the Regin:GO app or Application tool.

### Communication

The controllers can be connected to a central SCADA-system via RS485 (EXoline or Modbus, or BACnet) and configured for a particular application using the configuration tool Application tool.

Configuration is also supported by communication via Bluetooth®, and the Regin:GO app.

Arrigo supports Regio RCX with easy-to-use templates.

Application tool can be downloaded free of charge from Regin's homepage [www.regincontrols.com](http://www.regincontrols.com).



## Ruimteregelaar RCX

The Regin:GO app can be downloaded from *App store* (iPhone and iPad) or *Google play* (Android).

### Installation

The modular design with a separate bottom plate for wiring makes the whole Regio RCX series easy to install and commission. The controllers are mounted directly on the wall or in a wall box.

The Regio RCX controller consists of the main part (article number RCX-T[H,C,V,P]-[D]) and the wall mount RCX-B[L,M]. For complete function both a wall mount and a main part is needed. The wall mount is selected from the mounting. The RCX-BM is selected when mounted directly on the wall, and the RCX-BL is selected when mounted over an appliance box, meaning less space for cables needed.

The room controllers consist of two parts:

- ✓ Front and PCB assembly
- ✓ Wall mount assembly (including terminals)



**Note!** The wall mount assemblies are sold separately.


- ✓ Low (for mounting over appliance box), RCX-BL
- ✓ Mid (for on-wall mounting), RCX BM

For detailed installation instructions, see the RCX-... Instruction and the RCX series manual, to be found at [www.regincontrols.com](http://www.regincontrols.com).



## Ruimteregelaar RCX

### Technical data

|                                 |   |
|---------------------------------|---|
| Supply voltage                  | 24 V AC (50 - 60 Hz) or DC (tolerance: 18...28 VAC, 20..36VDC)  |
| Display                         | 25 x 11 pixels  |
| Power consumption               | 2.5 VA  |
| Ambient temperature             | 0...50 °C   |
| Ambient humidity                | Max. 90 % RH  |
| Storage temperature             | -20...+70 °C  |
| Terminal blocks                 | Pluggable screw terminal, for cable cross-section ≤ 2.1 mm <sup>2</sup>   |
| Protection class                | IP20  |
| Material casing                 | Polycarbonate (PC)  |
| Colour                          | Cover: RAL9003 (signal white)<br>Wall mount: RAL9003 (signal white)   |
| Modbus RTU                      | 8 bits, 1 or 2 stop bits. Odd, even or no parity.   |
| Communication speed             | 9600, 19200, 38400, or 76800 bps (all protocols)  |
| Measuring range, temperature    | 0...50 °C   |
| Temperature accuracy            | ±0.5 °C at 15...30 °C <sup>1</sup>  |
| Humidity sensor accuracy        | Typical: 2 % RH (10-90 %), 3 % RH (<10 or >90), Max: 3.5 % RH (10-90), 5 % RH (<10 or >90)  |
| CO <sub>2</sub> sensor          | 0...2000 ppm<br>Update frequency: 5 s   |
| CO <sub>2</sub> sensor accuracy | ±50 ppm + 5 % (measured value, MV) @400-2000 ppm  |
| PIR sensor, detection range     | Detection angle 110°, distance 5 m<br>at 8 °C temp. difference = up to 7 m<br>at 4 °C temp. difference = up to 5 m<br>(Target conditions: movement 1.9 m/s, object size approx. 700x250 mm)                           |
|                                 |  <p><b>Note!</b> Depending on the temperature difference between the target and the surroundings, detection range will change.</p> |
| VOC sensor                      | AQI; range 0-500 (Air Quality Index)  |
| Mounting                        | Room/Wall   |
| Weight                          | 115 g   |
| Dimensions                      | with Low wall mount assembly (RCX-BL): 94.6 x 94.6 x 21 mm<br>with Medium wall mount assembly (RCX-BM): 94.6 x 94.6 x 31 mm   |

<sup>1</sup> 0.5 K is valid if current on UO1 and UO2 is lower than 1.5 A, for currents between 1.5 A and 2 A the accuracy is 0.6 K.

### Communication



|                                     |   |
|-------------------------------------|---|
| RS485                               | For EXOline (with automatic detection), Modbus (with automatic detection), or BACnet. |
| Communication cable length, maximum | 1200 m, with repeater   |
| Bluetooth® Low Energy               | Bluetooth® communication.   |





## Ruimteregelaar RCX

### Inputs and Outputs

|   |   |
|---|---|
| <b>Universal Output 1</b>                           | AO: 0...10 V, 2 mA<br>DO: 24 V /max 2 A (switches to G0)  |
|   |  <b>Note!</b> The maximum current is 2 A in total for output 1 and output 2. |
| <b>Universal Output 2</b>                           | AO: 0...10 V, 2 mA<br>DO: 24 V /max 2 A (switches to G0)  |
|   |  <b>Note!</b> The maximum current is 2 A in total for output 1 and output 2. |
| <b>Analogue Output 1</b>                            | 0...10 V out, 2 mA  |
| <b>Analogue Output 2 /<br/>Condensation Input 1</b> | 0...10 V out, 2 mA<br>Condensation input (same pin as analogue output)  |
| <b>Universal Input 1</b>                            | PT1000 (0...50 °C), DI: Closing potential free contact<br>0...10 V  |
| <b>Universal Input 2</b>                            | 0...10 V, DI: Closing potential free contact  |

### Conformity

Hereby, Regin declares that the radio equipment type Regio RCX series is in compliance with Directive 2014/53/EU.

Regio RCX series complies with EN IEC 60730-1 as a class A control.

This radio equipment device is approved for use in all countries within the European union.



This product carries the CE-mark.

### Material

|  |                        |
|--|------------------------|
| <b>Cover</b>                               | Polycarbonate (PC)     |
| <b>PCB Cover</b>                           | Polycarbonate (PC)     |
| <b>Wall-mount assembly, incl. terminal</b> | Polycarbonate (PC)     |
| <b>Colour, cover</b>                       | RAL9003 (signal white) |
| <b>Colour, wall-mount assembly</b>         | RAL9003 (signal white) |



## Ruimteregelaar RCX

### Models

Table 2 Controller models

| Article     | Display | Buttons | Temperature sensor | Humidity sensor | CO <sub>2</sub> sensor | VOC sensor | PIR sensor |
|-------------|---------|---------|--------------------|-----------------|------------------------|------------|------------|
| RCX-T       | -       | -       | X                  | -               | -                      | -          | -          |
| RCX-TC      | -       | -       | X                  | -               | X                      | -          | -          |
| RCX-THCVP   | -       | -       | X                  | X               | X                      | X          | X          |
| RCX-T-D     | X       | X       | X                  | -               | -                      | -          | -          |
| RCX-TH-D    | X       | X       | X                  | X               | -                      | -          | -          |
| RCX-TC-D    | X       | X       | X                  | -               | X                      | -          | -          |
| RCX-THCVP-D | X       | X       | X                  | X               | X                      | X          | X          |

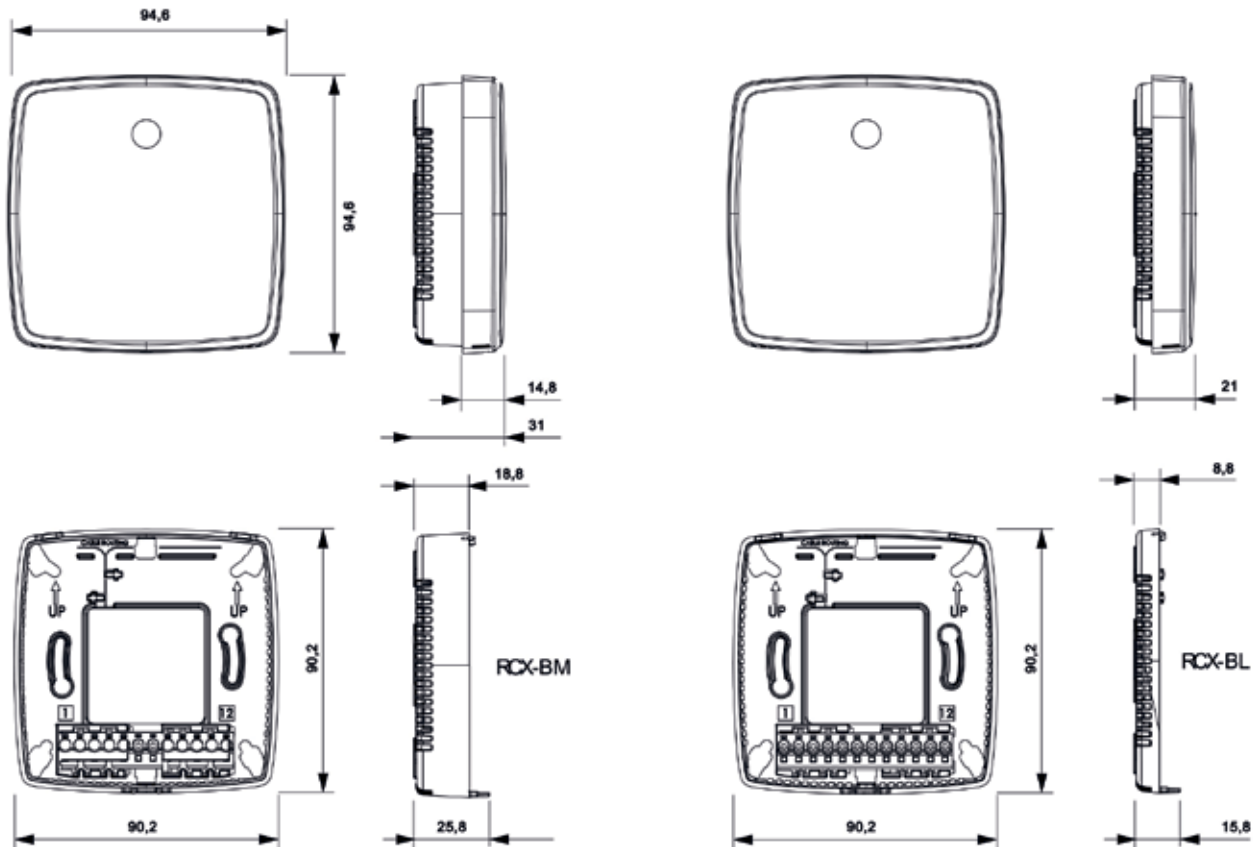
Table 3 Wall mount assembly models

| Article | Description                      |
|---------|----------------------------------|
| RCX-BL  | Wall mount Low (signal white)    |
| RCX-BM  | Wall mount Medium (signal white) |



**Note!** The wall mount assemblies are sold separately.

### Dimensions



[mm]



## Ruimteregelaar RCX

### Wiring

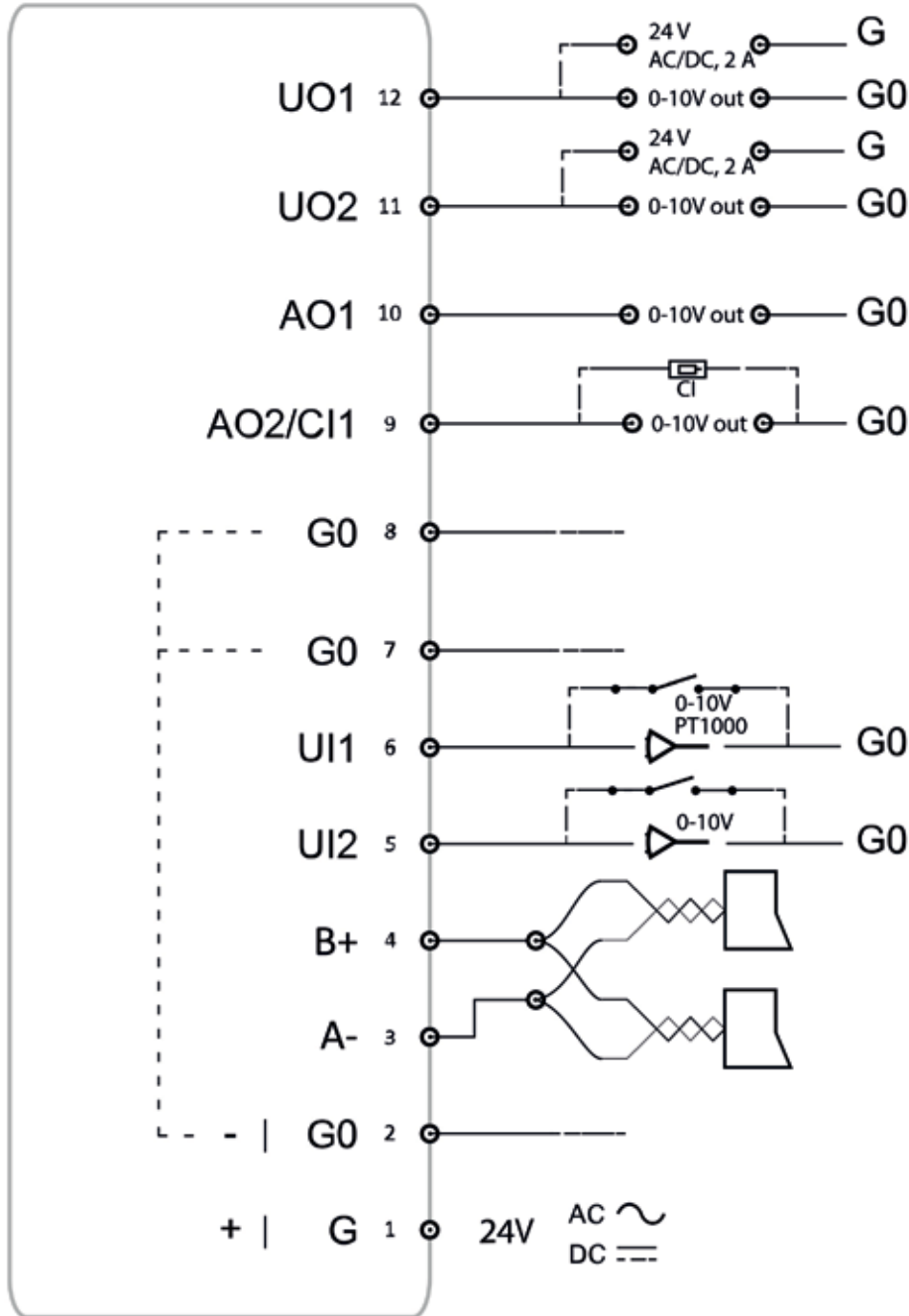


Fig. 2 General wiring example