

Regio RCX series



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, CO₂, 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
- ✓ Backplate 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.

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
- ✓ CO₂ level
- ✓ Relative humidity level
- ✓ Presence of condensation (with external condensation sensor)
- ✓ 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*.

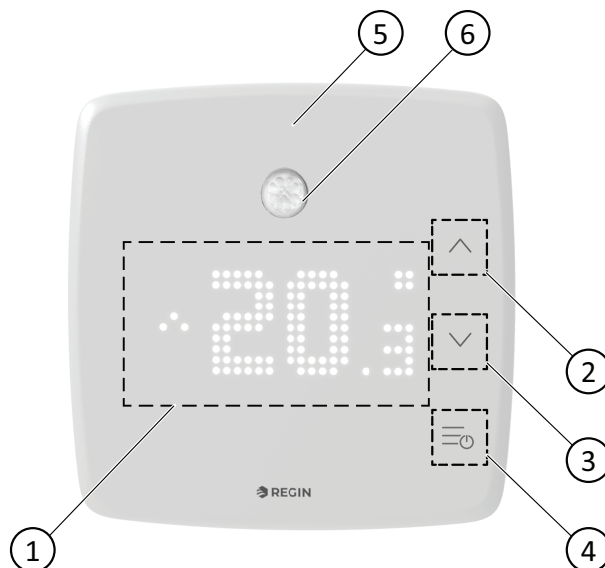


Fig. 1 Regio RCX controller model with a display

- | | |
|---------------------|-----------------------------------|
| 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	
No	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 Regio:GO app or Application tool.

Communication - Bluetooth

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 Regio:GO app.

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

Application tool can be downloaded free of charge from Regio's homepage www.regincontrols.com. For more information about the Application tool, contact Regio.

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 backplate RCX-B[L,M]. For complete function both a backplate and a main part is needed. The backplate 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
- ✓ Backplate assembly (including terminals)



Note! The backplate 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 Regio RCX series manual, to be found at www.regincontrols.com.

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 ²
Protection class	IP30
Material casing	Polycarbonate (PC)
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 ¹
Humidity sensor accuracy	Typical: 2 % RH (10-90 %), 3 % RH (<10 or >90), Max: 3.5 % RH (10-90), 5 % RH (<10 or >90)
CO₂ sensor	0...2000 ppm Update frequency: 5 s
CO₂ sensor accuracy	±50 ppm + 5 % (measured value, MV) @400-2000 ppm
PIR sensor, detection range	Detection angle 110°, distance 5 m at 8 °C temp. difference = up to 7 m at 4 °C temp. difference = up to 5 m (Target conditions: movement 1.9 m/s, object size approx. 700x250 mm)  Note! Depending on the temperature difference between the target and the surroundings, detection range will change.
VOC sensor	AQI; range 0-500 (Air Quality Index)
Mounting	Room/Wall
Weight	115 g
Dimensions	with Low backplate assembly (RCX-BL): 94.6 x 94.6 x 21 mm with Medium backplate assembly (RCX-BM): 94.6 x 94.6 x 31 mm

1. 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.

Inputs and Outputs

Universal Output 1	AO: 0...10 V, 2 mA DO: 24 V / max 2 A (switches to G0)  Note! The maximum current is 2 A in total for output 1 and output 2.
Universal Output 2	AO: 0...10 V, 2 mA DO: 24 V / max 2 A (switches to G0)  Note! The maximum current is 2 A in total for output 1 and output 2.
Analogue Output 1	0...10 V out, 2 mA
Analogue Output 2 / Condensation Input 1	0...10 V out, 2 mA Condensation input (same pin as analogue output)
Universal Input 1	0...10 V PT1000 (0...50 °C) DI: Closing potential free contact
Universal Input 2	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. More information is available at www.regincontrols.com.

Material

Cover	Polycarbonate (PC)
PCB Cover	Polycarbonate (PC)
Backplate assembly, incl. terminal	Polycarbonate (PC)
Colour, cover	RAL9003 (signal white), RAL9005 (jet black)
Colour, backplate assembly	RAL9003 (signal white), RAL9005 (jet black)

Models

Table 2 Controller models

Article	Display	Buttons	Temperature sensor	Humidity sensor	CO ₂ sensor	VOC sensor	PIR sensor
RCX-T			✓				
RCX-TC			✓		✓		
RCX-TP			✓				✓
RCX-THCVP			✓	✓	✓	✓	✓
RCX-T-D	✓	✓	✓				
RCX-TH-D	✓	✓	✓	✓			
RCX-TC-D	✓	✓	✓		✓		
RCX-TP-D	✓	✓	✓				✓
RCX-TCP-D	✓	✓	✓		✓		✓
RCX-THCVP-D	✓	✓	✓	✓	✓	✓	✓
RCX-T-D-BLACK	✓	✓	✓				
RCX-TC-D-BLACK	✓	✓	✓		✓		
RCX-THCVP-D-BLACK	✓	✓	✓	✓	✓	✓	✓

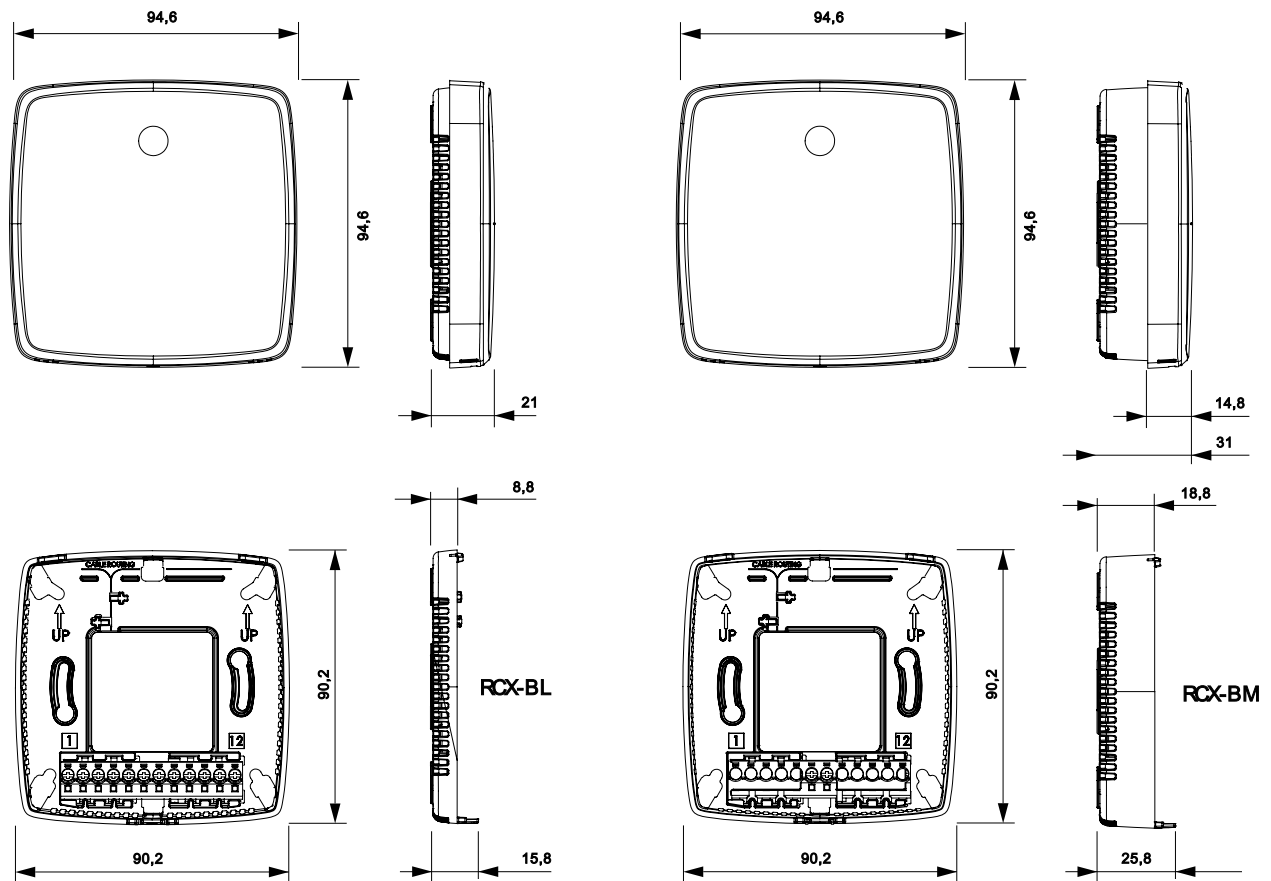
Table 3 Backplate assembly models

Article	Description
RCX-BL	Backplate Low (signal white)
RCX-BM	Backplate Medium (signal white)
RCX-BL-BLACK	Backplate Low (jet black)
RCX-BM-BLACK	Backplate Medium (jet black)



Note! The backplate assemblies are sold separately.

Dimensions



[mm]

Wiring

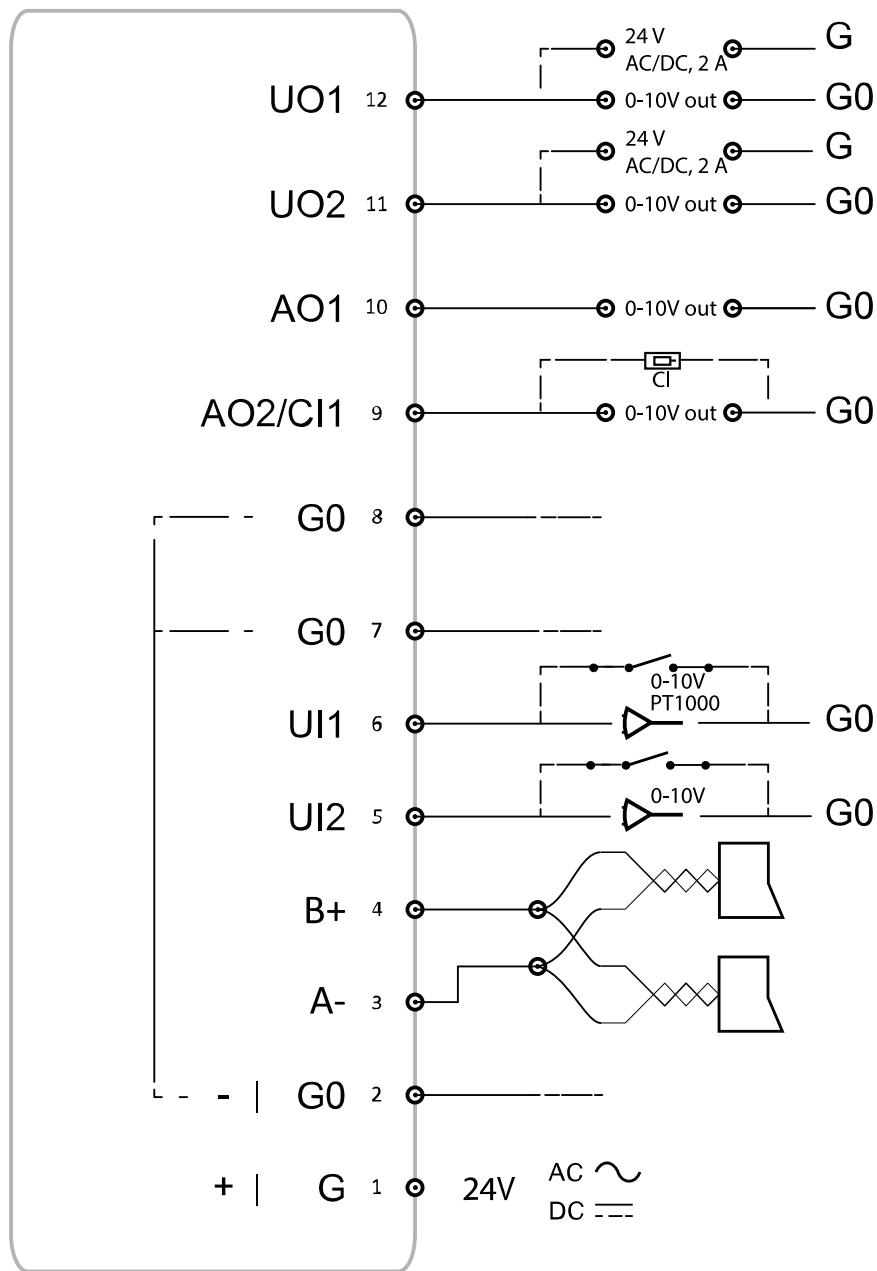


Fig. 2 General wiring example

Documentation

All documentation can be downloaded from www.regincontrols.com.