Regio^{Eedo}

Room controller, 230 V AC, for fan coils

Regio^{Eedo} is a 230 V AC room controller with a pre-programmed software application for fan coils. The controller provides built-in communication via EXOline, Modbus, or BACnet for integration in EXOscada or other SCADA systems. The controller is fast and easy to configure and commission using Regin's free Application tool software, and it connects seamlessly to the room units in Regin's ED-RU-… series. The controller is installed in a ceiling void by using a baseplate with terminal protection covers, or on a DIN rail inside a cabinet.

- ✓ Three 230 V AC digital relay outputs for 3-speed fan control
- ✓ Two 230 V AC digital triac outputs for heating and cooling control
- ✓ One-step configuration and setup of multiple controllers
- ✓ New Application tool for easy configuration of the controller software application, and fast commissioning
- ✓ Large selection of different room unit models
- ✓ Unique communication address loaded in the controller out of the box
- ✓ Versatile change-over function

Applications

Use the Regio^{Eedo} room controller in large as well as small buildings, where optimum comfort and reduced energy consumption is required.

Offices, schools, shopping centres, airports, hotels, and hospitals are all examples where Regio^{Eedo} is the perfect fit for controlling room HVAC systems in an optimal way.

Communication via EXOline, Modbus, and BACnet

Integrate the controller into existing networks and monitor the room HVAC system via internet, or from a local computer. A network connection makes it possible to adjust setpoints, save controller settings, and supervise system functions from anywhere in the world.

The controller supports BACnet/IP, Modbus IP, and EXOline communication via the Ethernet port. Furthermore, the controller supports BACnet MS/TP, Modbus, and EXOline communication via the RS485 ports.

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Suitable for any room HVAC system

Support practically any combination of heating, cooling, and variable air volume (VAV) devices that are part of the room HVAC system through the use of 10 selectable controller modes:

- ✓ Heating
- ✓ Heating + Heating
- ✓ Heating + Cooling
- ✓ Cooling
- ✓ Heating/Cooling (change-over)
- ✓ Heating + Heating/Cooling (change-over)
- ✓ Heating + VAV
- ✓ Cooling + VAV
- ✓ VAV
- ✓ Heating + Cooling + VAV

VAV devices can be controlled based on fresh air demand (a too high CO_2 level) or cooling demand, or based on both simultaneously.

Operation with priority on comfort or energy saving

Set your room HVAC system to operate with priority on comfort or energy saving through the use of 5 different controller states:

- ✓ **Off** ► Energy saving and frost protection
- ✓ **Unoccupied** ► Energy saving
- ✓ **Standby** ► Energy saving
- ✓ **Occupied** ► Comfort
- ✓ **Bypass** ► Comfort and improved air quality through increased airflow

The controller provides several options for managing controller state changes. For example, by:

- ✓ Pressing the occupancy button on the room unit to increase the airflow.
- ✓ Detecting presence in the room via a CO_2 sensor or a motion detector.
- ✓ Setting weekly time schedules.
- ✓ Issuing central commands via communication, for example, from a SCADA system.

Application tool for easy configuration and fast commissioning

Load the same configuration into multiple controllers with one simple click.

Application tool is a user-friendly tool that allows for configuring and commissioning the controller in an efficient and time-saving way.

3-speed or EC fan control with additional features

Connect a 3-speed fan to the dedicated digital outputs that are equipped with built-in relays, or connect an EC fan to an analog output. A connected fan is controlled automatically or manually via a room unit, or via communication.

In addition, the controller provides the following fan control functions:

- ✓ **Fan boost**
  Assure the person in the room that the fan is started when the occupancy button on the room unit is pressed, or when the controller detects presence.
  Temporarily run the fan at an increased speed to provide a perceived cooling effect, until the cooling distribution from the cooling valve establishes.
- ✓ **Fan kick-start**
  Ensure that the EC fan starts even when the fan is fed with low voltage from the output.
- ✓ **Fan afterblow**
  As a safety precaution, use the fan to allow the electrical heating battery that is placed in the ductwork to cool off properly.

Room units for basic controller configuration or end-user control

Perform basic controller configuration, or let the person in the room control the room's HVAC behaviour via a connected ED-RU... room unit. Choose from a large selection of room unit models to suit your specific needs.

The ED-RU... room unit series includes models with or without display, with or without fan control buttons, as well as with or without the option to perform setpoint adjustments. All room units are equipped with a built-in temperature sensor, and some models include a built-in CO_2 sensor.

Room units with display can be used to modify basic configuration settings in the controller, as an alternative to using Application tool.

Versatile change-over function

Use the controller in a 2-pipe change-over system, where warm or cold media flow in the same pipes and one valve is used to regulate both heating and cooling distribution.

The controller automatically detects when change-over occurs in the room HVAC system. Change-over detection is performed either by using a PT1000 sensor that is

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connected to an analog input, or by using a potential-free contact that is connected to a digital input.

6-way valve support

Use a 6-way valve to regulate the heating and cooling distribution.

The 6-way valve can be controlled by a 0...10 V or a 3-point actuator.

Protection and maintenance

Protect your room HVAC system and perform automatic valve exercise.

✓ **Frost protection**
Set the controller in Off state to enable automatic frost protection for your room. This prevents frost damages by ensuring that the room temperature does not drop below 8 °C.

✓ **Condensation protection**
Avoid water dripping from the ceiling by ensuring that no condensation is created in your cooling beams.
By connecting Regin's condensation detector KG-A/1 to the controller, the cooling output signal from the controller is set to zero as soon as condensation is detected.

✓ **Valve exercise**
Set schedules for automatic valve exercise to ensure that your valves always are in good working order.
The controller can be set to perform valve exercise at any minute or hour of the day.

Installation

Mount the controller on a DIN rail inside a cabinet, or on a wall above a false ceiling by using the included baseplate and terminal protection covers.

The controller form factor is EURO norm, which makes it fit into a standard EURO norm cabinet.

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Technical data

General data

Supply voltage	230 V ~ (207…253 V ~ 50/60 Hz)
Power consumption	11 VA
Memory backup	Backup of memory and real-time clock function
Battery type	CR2032 replaceable lithium cell
Battery life	Min. 5 years
Protection class	IP20
Protection class, with terminal protection covers	IP30
Protection class, electrical	Class II
Ambient humidity	Max. 95 % RH (non-condensing)
Ambient temperature	0…55 °C
Storage temperature	-20…+70 °C
Mounting	Wall, DIN rail
Number of DIN modules	8.5
Dimensions, controller unit with terminal blocks (WxHxD)	149 x 121 x 58 mm
Dimensions, controller unit with base-plate and terminal protection covers (WxHxD)	153 x 202 x 68 mm
Cable connections	Pluggable terminal blocks, screw (AI, AO, DI) Pluggable terminal blocks, push-in (COM ports) Fixed terminal blocks, push-in (supply voltage, DO)
Operating system	EXOrealC

Communication ports	**RS485**	**Ethernet**	**Total**
Count	2	1	3

Inputs and outputs	**AIb**	**AIc**	**DIb**	**CIa**	**AOa**	**DOc**	**DOd**	**POa**	**Total**
Count	2	1	3	1	4	3	2	1	17

Inputs

Analogue input b (AIb)	0…10 V DC
Analogue input c (AIc)	PT1000
Digital input b (DIb)	Sourcing input type, GND is ref
Condensation input a (CIa)	Input dedicated for Regin's condensation detector KG-A/1

Outputs

Analogue output a (AOa)	0…10 V DC, max. 5 mA, short-circuit proof
Digital output c (DOc)	Relay output 230 V AC, max. 3 A
Digital output d (DOd)	Triac output 230 V AC, max. 300 mA
Digital outputs, total max. current (fuse)	6.3 A (6.3 AT 5x20 mm)
Power output a (POa)	24 V DC, max. 50 mA

RS485 communication port 1

Default protocol	EXOline
Supported protocols	EXOline, Modbus, BACnet MS/TP

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Port isolation	Galvanic common mode voltage, max. 150 V
Communication speed	9600 bps (1200…38400 bps)
Parity	Even, Odd, None
Stop bits	1 or 2

RS485 communication port 2

Default protocol	EXOline
Supported protocols	EXOline, Modbus, BACnet MS/TP
Port isolation	No
Communication speed	9600 bps (1200…38400 bps)
Parity	Even, Odd, None
Stop bits	1 or 2

Ethernet communication port

Default protocol	EXOline
Supported protocols	EXOline, Modbus IP, BACnet/IP
Communication speed	9600 bps (1200…38400 bps)

Models

Article	Description
RC-E163W-1-TP	Regio^{Eedo} with baseplate and terminal protection covers.

Accessories

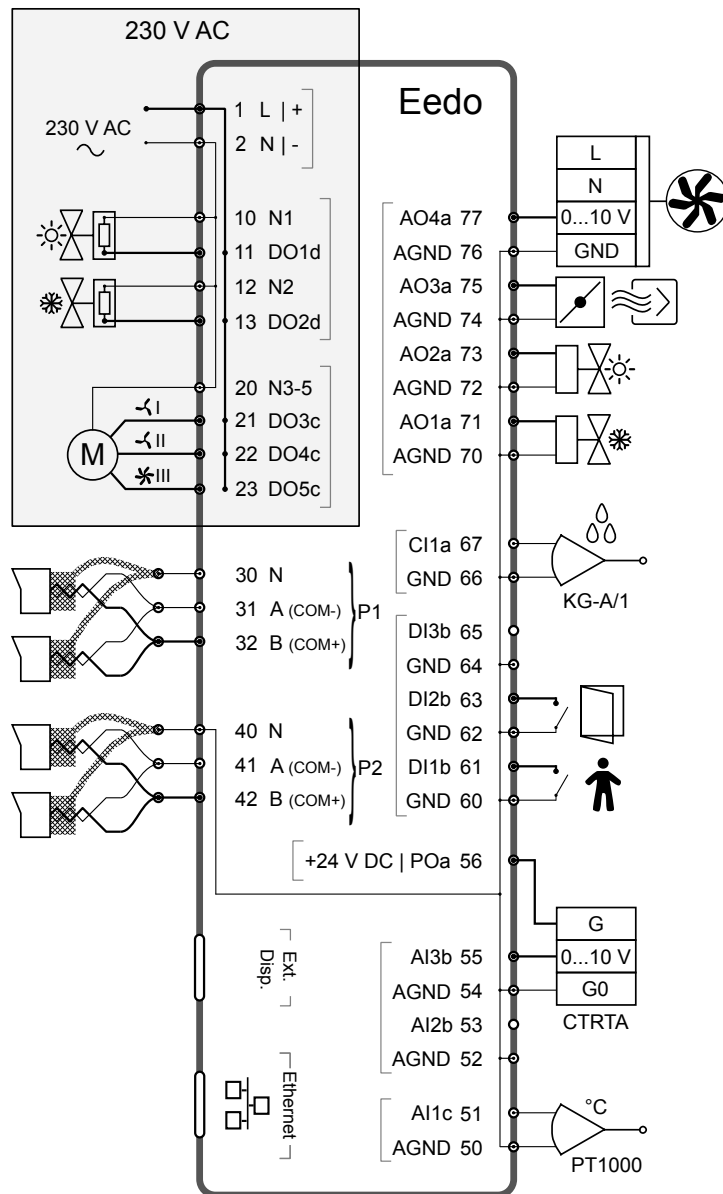| Article	Description
ED-RU-...	External room unit in the ED-RU-... series.
EDSP-K3	Cable for connecting the external room unit.
KG-A/1	Condensation detector for Regio controllers.
E-CABLE2-USB	USB cable for configuring Regio^{Eedo} in Application tool.

Dimensions

[mm]

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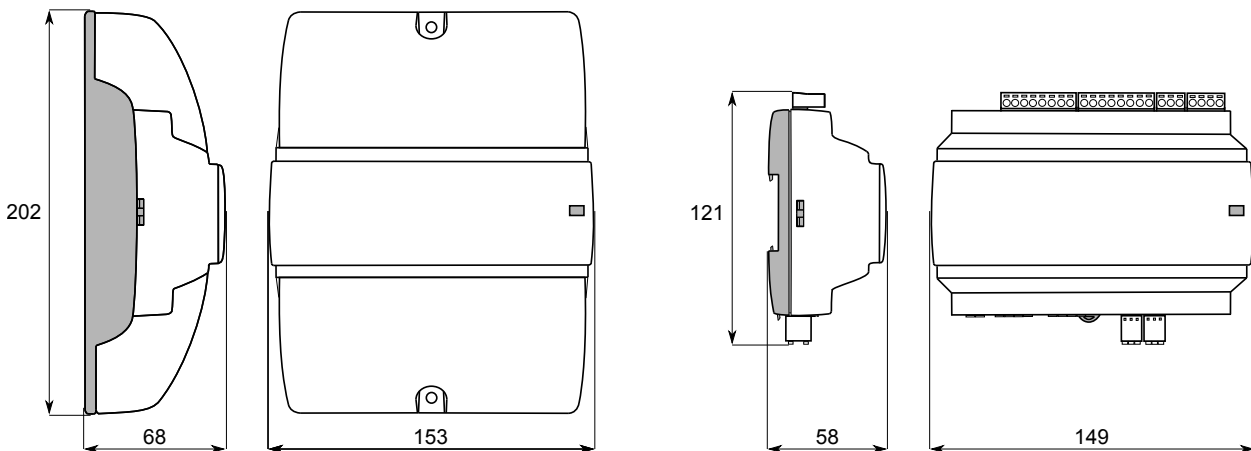
Wiring

Terminal № and designator	Type	Description
1 L	Supply voltage	230 V AC supply voltage.
2 N	Supply voltage (neutral)	230 V AC supply voltage (neutral).
10 N1 12 N2 20 N3-5	Neutral	Digital output neutral.
11 DO1d 13 DO2d	Digital output	Triac output used for valve, blinds, or lighting control, or for alarms or forced ventilation.
21 DO3c 22 DO4c 23 DO5c	Digital output	Relay output used for 3-speed fan control.
30 N 31 A 32 B	RS485 communication port	RS485 connector used for communication via BACnet, or for master/slave communication via Exoline or Modbus. This connection is galvanically isolated.

Terminal № and designator	Type	Description
40 N 41 A 42 B	RS485 communication port	RS485 connector used for communication via BACnet, or for master/slave communication via Exoline or Modbus. This connection is not galvanically isolated.
Ext. Disp.	External display communication port	4P4C modular connector used for communication with an ED-RU-... room unit.
▢▮▭ ▢	Ethernet communication port	8P8C modular connector used for Ethernet - TCP/IP communication.
50 AGND 52 AGND 54 AGND 70 AGND 72 AGND 74 AGND 76 AGND	Analog ground	Signal ground for analog inputs and outputs.
51 AI1c	Analog input	Input used for change-over detection or for temperature sensor.
53 AI2b 55 AI3b	Analog input	Input used for CO_2, condensation, or relative humidity sensor.
56 POa	Power output	24 V DC supply voltage output used for powering a CO_2 or condensation sensor.
60 GND 62 GND 64 GND 66 GND	Digital ground	Signal ground for digital inputs.
61 DI1b 63 DI2b 65 DI3b	Digital input	Input used for presence, open window, or change-over detection.
67 CI1a	Condensation input	Input dedicated for Regin's condensation detector KG-A/1.
71 AO1a 73 AO2a 75 AO3a 77 AO4a	Analog output	Output used for valve, damper, or EC fan control.

The ED-RU-… room unit is connected to the controller by using a Regin EDSP-K3 cable, as shown in the following wiring diagram.
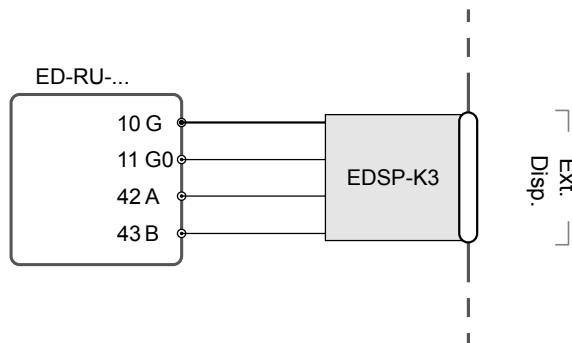
Terminal № and designator	EDSP-K3 wire color
10 G	Black
11 G0	White
42 A	Yellow
43 B	Brown

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Documentation

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

CE

This product carries the CE-mark. More information is available at www.regincontrols.com.

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