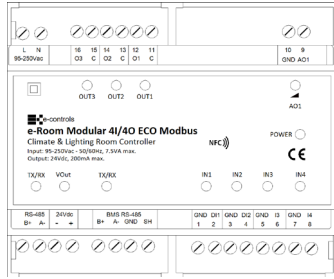


Instruction sheet

e-Room Modular ECO Modbus

Fan-coil EC controller with Modbus communication, for DIN rail installation

Ordering numbers: RM.574411-011 (Modbus RTU), RM.554411-011 (Modbus TCP)



Valve Outputs: ON/OFF

Fan-Coil Output: 0-10V

IN511185270030

e-Room Modular ECO is a DIN rail controller designed for EC fan-coils with speed regulation via a 0-10V analog output and ON/OFF valve control. The device includes a Modbus communication port, allowing integration and remote control from a BMS.

It features preprogrammed operating modes for 2-pipe or 4-pipe installations, as well as an additional output for lighting control linked to the selected programming logic. Its wide range of configurable parameters makes it easy to adapt the device to the requirements of each project.

- The 4 digital/analog inputs enable the implementation of energy efficiency functions in the conditioned area:
- Occupancy input via card reader contact.
- Window contact input, which stops the HVAC system when the window is opened.
- Combined motion detector and door contact inputs for automatic occupancy detection in hotel rooms.

The device can be configured using the E-Configurator app via the NFC interface, either with the unit powered or unpowered, or through Modbus registers. In installations with a display, configuration can be performed through the display's NFC interface, which automatically transfers the settings to the controller. In installations without a display, the NFC configuration is loaded directly onto the controller, and a temperature sensor must be connected to the IN4 input to perform temperature control or send the value via Modbus. In both cases, all parameters—both of the display and the controller itself—can be modified through the e-Room's Modbus port.

Configurations by Installation Type

This table summarizes the preprogrammed operating modes and the function of each of the device's inputs and outputs for each mode.

Refer to the device "Configuration Manual" for a description of the configurable parameters and the procedure to modify the defined parameter values.

IN1, IN2: Digital Inputs. IN3, IN4: Digital/Analog Inputs (NTC10K)

AO1: 0-10V Analog Output. OUT1, OUT2, OUT3: Relay Outputs

Installation Type	Number of pipes	Inputs Terminals			
		IN1 (1-2)	IN2 (3-4)	IN3 (5-6)	IN4 (7-8)
Option 1	2	Keycard contact	Window	Lighting Pushbutton	Analog in 1
Option 2	2	Keycard contact	Window	Analog in 1	Analog in 2
Option 3	4	Keycard contact	Window	Analog in 1	Analog in 2
Option 4	2	Sensor movimiento	Window	Door Contact	Lighting Pushbutton
Option 5	2	Sensor movimiento	Window	Door Contact	Analog in 1
Option 6	4	Sensor movimiento	Window	Door Contact	Analog in 1

Tipo Instalación	Number of pipes	Output Terminals			
		OUT 3 (16-15)	OUT 2 (14-13)	OUT 1 (12-11)	AO 1 (10-9)
Option 1	2	Aux Lighting	HEAT/COOL.EV	Lighting	Fan-Coil
Option 2	2	Aux Lighting	HEAT/COOL.EV	Lighting	Fan-Coil
Option 3	4	Aux Lighting	COOL.EV	HEAT.EV	Fan-Coil
Option 4	2	Aux Lighting	HEAT/COOL.EV	Lighting	Fan-Coil
Option 5	2	Aux Lighting	HEAT/COOL.EV	Lighting	Fan-Coil
Option 6	4	Aux Lighting	COOL.EV	HEAT.EV	Fan-Coil

Installation instructions

The device is designed for mounting in cabinets with a standard DIN EN 50 022. It should not be installed on shelves, behind curtains, near or above heat sources, or exposed to direct sunlight.

Important:

- Install the device in the electrical panel, keeping the very low voltage signal wiring (inputs) separate from the low voltage wiring (outputs).
- Use shielded cable for the communication channel with the BMS.
- Always follow the type of wiring indicated in the installation diagram.

Caution:

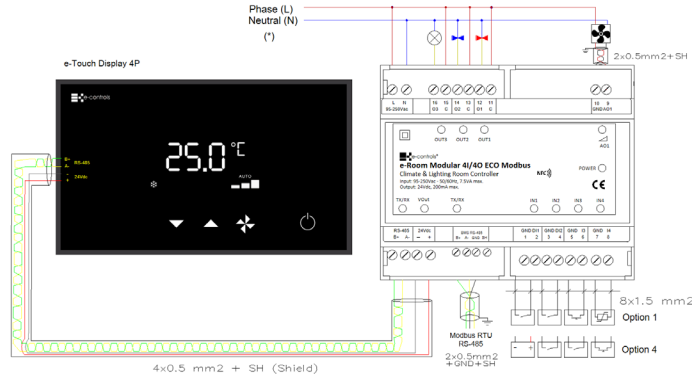
- Before installing, uninstalling, or cleaning the device, ensure that there is no voltage in the mains cables or near the device.
- Do not cut, splice, or coil the mains cables connected to the device.
- Do not handle connections with wet hands.
- Do not open, drill, or modify the product.
- Keep the device and cables away from moisture and dust.
- Clean only with a slightly damp cloth using water.

Installation steps:

- Disconnect the power supply to the electrical panel.
- Insert the device onto the DIN rail, placing the black latch at the bottom; pull the latch down, press the device until it snaps into place, and release the latch to secure it.
- Verify that the panel wiring follows the construction mounting diagram.
- Connect the cables to the terminals according to the diagram and attach them to the device.
- Restore the power and check the operation.
- Close the electrical panel.

Installation drawing

Install electrical protections and required cabling according to the standards of every country.



NOTE: Use shielded twisted pair cable on inputs I3 and I4 when configured as analog inputs.

(*) This diagram defines a functional installation layout of the product. It is the installer's responsibility to properly protect the installation and the equipment it comprises in accordance with the regulations of each country.

Device start-up

When power is applied to the controller, the device takes 5 seconds to initialize. During this time, the POWER LED indicator blinks red and then changes to steady green once initialization is complete.

BMS Communication

The device provides a Modbus register map with all the registers required to configure, monitor, and control the unit. The Modbus map is divided into three sections: device configuration registers, input registers, and output registers. Through these registers, both the display and the device can be configured.

Technical features

Power Supply

Operating Voltage 100-240 V AC ±10% 50 – 60 Hz
Maximum power consumption 7,5 VA

BMS Communication (BMS RS-485 connector) - MODBUS RTU model

Interface RS-485
Terminals A-, B+, GND
Protocol Modbus RTU
Configurable baud rate 1200...115200 Baud
Modbus configuration BE1, 801, 8N1, 8N2

BMS Communication (ETHERNET connector) - MODBUS TCP model

Interface Ethernet IEEE 802.3
Connector RJ45
Communication speed 10 / 100 Mbps
Protocol Modbus TCP
Default IP address 192.168.1.250
Default IP port 502

Display Interface (RS-485 e-Room Bus connector)

Interface RS-485
Terminal +24V output voltage +24V ±10%
Terminal +24V output current 200mA max
Protections Overcurrent protection

NFC Wireless Interface

Standard ISO/IEC 15693
Reading speed Up to 53 Kbit/s

Digital Inputs (IN1, IN2)

Open circuit voltage 16 V DC ±0.2 V
Short-circuit current 0.9 mA
Input impedance >25 KΩ

Analog Inputs (IN3, IN4)

Type Resistive
Characteristics Interchangeable NTC, 1%, 10 KΩ to 25°C (77°F)
Measurement range +5°C to +45°C (+41°F to 113°F)
Resolution 0.01°C
Input impedance >68 KΩ

Analog Output 0-10V for EC Fan-Coil (AO1)

Output voltage 0 to 10 V
Maximum current 20 mA
Accuracy 100 mV ±0.2%
Protected against overvoltage and overcurrent (short-circuit)

Relay Outputs for Valves/Lighting (OUT1, OUT2, OUT3)

Contact type Potential-free relay
Maximum operating voltage 250 V AC / 30 V DC
Maximum current 5 A, resistive load

Front LED Indicator

Device unpowered LED off
Device powered Green LED on
Reset / Initialization Red LED blink

Operating Conditions

Temperature 0°C to +50°C (32°F to 104°F)
Storage temperature -20°C to +85°C (-4°F to +185°F)

Humidity (non condensing)

Operating 10% to 90% RH at 50°C
Storage 95% RH at 50°C

Mechanical Characteristics

Mounting type DIN rail 34 880, 6 TE
Dimensions 106,3 x 90,5 x 62 mm
Weight 326 g
Color RAL 7035
Cable cross-section 0,5 mm2 to 2,5 mm2
Protection degree IP40 (enclosure), IP20 (terminals) (EN 60529:1991)
Electrical safety Class II

Product family standards

Automatic electrical control devices for household and similar use EN 60730-1:2013

Compliance Directives

CE Marking

Security

Standard EN 60730-1:2013

EMC

Emissions EN 61000-6-3
Immunity EN 61000-6-1

Ordering numbers

e-Room Modular ECO Modbus , Fan-coil EC controller with Modbus RTU (RS-485) RM.574411-011

e-Room Modular ECO IP, Fan-coil EC Controller with Modbus TCP (Ethernet/IP) RM.554411-011