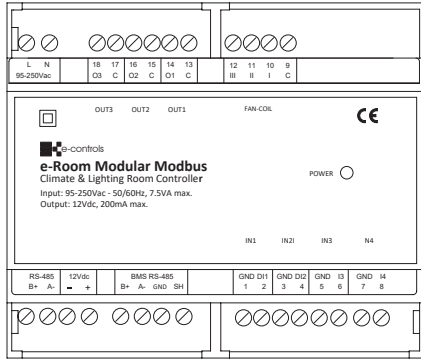


Instruction sheet

e-Room Modular 4I/6O Modbus

Fan-Coil Controller for DIN-Rail Mounting with Modbus Communication

RM.574601-000



INS121854401030

The e-Room Modular 4I/6O Modbus 12V is a fan-coil controller with remote communication, designed for DIN-rail mounting. It combines climate and lighting control functions, managing the switching on and off of both systems according to the occupancy status of a room or area, through 4 inputs and 6 outputs available on the device to perform different functions.

The device is specially designed to provide maximum comfort and optimal energy efficiency for the installation, regulating the climate to reach the level desired by the user.

The unit provides different selectable configurations depending on the type of installation and required functionality. It includes a communication bus and a power output to connect a display so that the user can manage climate control. It also includes a Modbus communication bus for remote communication with a BMS system for global building management.

Main features

- Fan-coil controller for 2-pipe and 4-pipe installations.
- Six possible configurations according to the type of installation.
- Two self-configurable dry-contact inputs: keycard/motion detector, window contact
- Two self-configurable analog inputs: water probe for mode change/door contact/ lighting pushbutton, external temperature/lighting pushbutton.
- Three relay outputs for fan-coil speed.
- Two relay outputs for valves (2/4 pipes) + courtesy lighting.
- One relay output for general lighting control in hotel rooms.
- Modbus RTU communication protocol with RS-485 interface for remote management through BMS.
- RS-485 interface communication bus for connection with the sensor-display.
- Power supply from the mains.
- Configurable economy mode when the room is unoccupied (off/setpoint change).
- Configurable actual and user setpoints for cooling and heating.
- Automatic start-up in case of temperature excess or frost risk.
- Fan-coil type configuration: 3-speed / 1-speed.
- Configurable fan-coil locked speed when there is no demand.
- Configurable cooling/heating setpoint in ECO mode.
- Configurable dead band between cooling and heating.
- Delay to switch to stand-by when the room becomes unoccupied.

Device configuration

Type of Installation	Number of Pipes	Inputs terminals			
		1-2	3-4	5-6	7-8
Option 1	2	Keycard contact	Window contact	Lighting Pushbutton	T# Ext.
Option 2	2	Keycard contact	Window contact	T# Water	T# Ext.
Option 3	4	Keycard contact	Window contact	T# Water	T# Ext.
Option 4	2	Motion Sensor	Window contact	Door Contact	Lighting Pushbutton
Option 5	2	Motion Sensor	Window contact	Door Contact	T# Ext.
Option 6	4	Motion Sensor	Window contact	Door Contact	T# Ext.

Type of Installation	Number of Pipes	Outputs terminals					
		C- I	C- II	C- III	OUT 1 (13-14)	OUT 2 (15-16)	OUT 3 (17-18)
Option 1	2	Fan-Coil Speed I	Fan-Coil Speed II	Fan-Coil Speed III	Lighting	EV HEAT/COOL	EV HEAT/COOL
Option 2	2	Fan-Coil Speed I	Fan-Coil Speed II	Fan-Coil Speed III	Lighting	EV HEAT/COOL	EV HEAT/COOL
Option 3	4	Fan-Coil Speed I	Fan-Coil Speed II	Fan-Coil Speed III	EV HEAT	EV COOL	EV COOL
Option 4	2	Fan-Coil Speed I	Fan-Coil Speed II	Fan-Coil Speed III	Lighting	EV HEAT/COOL	EV HEAT/COOL
Option 5	2	Fan-Coil Speed I	Fan-Coil Speed II	Fan-Coil Speed III	Lighting	EV HEAT/COOL	EV HEAT/COOL
Option 6	4	Fan-Coil Speed I	Fan-Coil Speed II	Fan-Coil Speed III	EV HEAT	EV COOL	EV COOL

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:

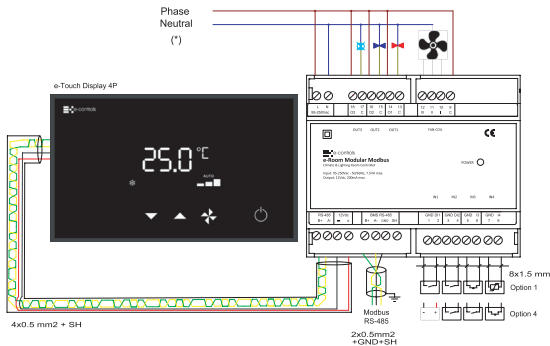
- Before installing, uninstalling, or cleaning the device, ensure that there is no voltage in the mains cables or near the device.
- Do not cut, splice, or coil the mains cables connected to the device.
- Do not handle connections with wet hands.
- Do not open, drill, or modify the product.
- Keep the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

Installation steps:

1. Disconnect the power supply to the electrical panel.
2. 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.
3. Verify that the panel wiring follows the construction mounting diagram.
4. Connect the cables to the terminals according to the diagram and attach them to the device.
5. Restore the power and check the operation.
6. Close the electrical panel.

Installation drawing

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



In 2 pipes configuration, OUT1 is used for lighting control (courtesy lighting) and OUT2 for valve control (Heat/Cool).

Device initialization

When power is applied to the controller, it takes 10 seconds to start up. During this time the biestable relays of outputs 1 and 2 stay in the same state as before the power failure. After this time the outputs will take the configured value.

Technical features

Power Supply

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

BMS Communication (BMS RS-485 connector)

Interface RS-485
Terminals A-, B+, GND
Protocol Modbus RTU
Configurable baud rate 1200...115200 Baud
Modbus configuration 8E1, 8O1, 8N1, 8N2

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

Interface RS-485
Terminal +24V output voltage +24 Vdc $\pm 5\%$
Terminal +24V output current 200mA max
Protections Overcurrent protection

Digital Inputs (IN1, IN2)

Open circuit voltage 16 V DC $\pm 0,2$ V
Short-circuit current 0,9 mA
Input impedance >25 K Ω

Analog/Digital Inputs (IN3, IN4)

Configuration in Digital mode
Open circuit voltage 16 V DC $\pm 0,2$ V
Short-circuit current 0,9 mA
Input impedance >25 K Ω
Configuration in Analog mode
Type Resistive
Characteristics Interchangeable NTC, 1%, 10 K Ω to 25°C (77°F)
Measurement range +5°C to +45°C (+41°F to 113°F)
Resolution 0,01°C
Input impedance >68 K Ω

Relay Outputs for Fan-Coil Speeds (FC I, FCII, FCIII), and outputs 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 (POWER)

Device unpowered LED off
Device powered Green LED on
Reset / Initialization Red LED blink
Communication failure with Display Red LED solid on

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 43 880, 6 TE
Dimensions 106,3 x 90,5, x 62 mm
Weight 150 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 4I/6O Modbus 12V RM.574601-000