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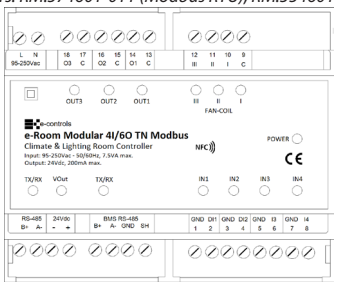
Instruction sheet

EN

e-Room Modular TN Modbus

Fan-coil 3 Speed controller with Modbus communication and ON/OFF valve control, for DIN rail installation

Ordering numbers: RM.574601-011 (Modbus RTU), RM.554601-011 (Modbus TCP)



Valve Outputs: ON/OFF

Fan-Coil Output: 3 Speed

INS11185271610O

e-Room Modular TN is a DIN rail controller designed for 3 fan-coil speed and ON/OFF valve outputs 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)
FC I, FCII, FC3, OUT1, OUT2, OUT3: Relay Outputs.

		Inputs Terminals			
Installation Type	Number of pipes	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

		Output Terminals					
Tipo Instalación	Number of pipes	OUT 3 (18-17)	OUT 2 (16-15)	OUT 1 (14-13)	FC III (12-9)	FC II (11-9)	FC I (10-9)
Option 1	2	Aux Lighting	HEAT/COOL EV	Lighting	YES	YES	YES
Option 2	2	Aux Lighting	HEAT/COOL EV	Lighting	YES	YES	YES
Option 3	4	Aux Lighting	COOL EV	HEAT EV	YES	YES	YES
Option 4	2	Aux Lighting	HEAT/COOL EV	Lighting	YES	YES	YES
Option 5	2	Aux Lighting	HEAT/COOL EV	Lighting	YES	YES	YES
Option 6	4	Aux Lighting	COOL EV	HEAT EV	YES	YES	YES

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:

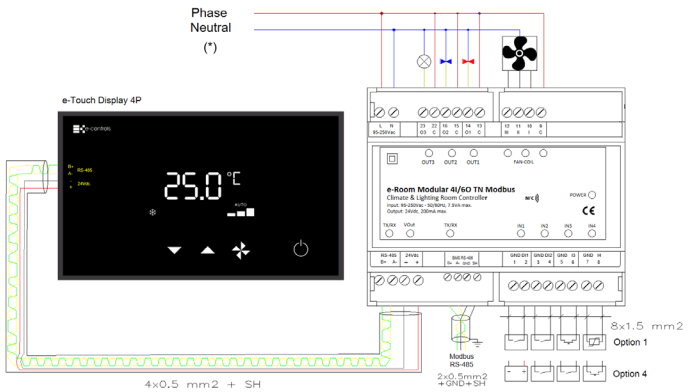
- Before installing, uninstalling, or cleaning the device, ensure that there is no voltage in the mains cables or near the device.
- Do not cut, splice, or coil the mains cables connected to the device.
- Do not handle connections with wet hands.
- Do not open, drill, or modify the product.
- Keep the 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.



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 . . . 8E1, 8O1, 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 . . . +24 Vdc ± 5%
- 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
- Sourt-circuit current . . . 0,9 mA
- Input impedance . . . >25 KΩ

Analog Inputs (IN3, IN4)
- Type . . . Resistive
- Characteristics . . . Interchangeable NTC, 1%, 10 KΩ to 25ºC (77ºF)
- Measurement range . . . +5ºC to +45ºC (+41ºF to 113ºF)
- Resolution . . . 0,01ºC
- Input impedance . . . >68 KΩ

Relay Outputs for Fan-Coil Speeds (FC I, FCII, FCIII), valve outputs (OUT1, OUT2) and Lighting Output (OUT3)
- Contact type . . . Potential-free relay
- Maximum operating voltage . . . 250 V AC / 30 V DC
- Maximum current . . . 5 A, resistive load
- Protected against overvoltage and overcurrent (short-circuit)

Front LED Indicator (POWER)
- Device unpowered . . . LED off
- Device powered . . . Green LED on
- Reset / Initialization . . . Red LED blink

Operating Conditions
- Temperature . . . .0ºC to +50ºC (32ºF to 104ºF)
- Storage temperature . . . -20ºC to +85ºC (-4ºF to +185ºF)

Humidity (non condensing)
- Operating . . . 10% to 90% RH at 50ºC
- Storage . . . 95% RH at 50ºC

Mechanical Characteristics
- Mounting type . . . DIN rail 43 880, 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

Complance 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 TN Modbus, ON/OFF valve, 3 Fan-coil speeds controller Modbus RTU (RS-485) . . RM.574601-011

e-Room Modular TN IP, ON/OFF valve, 3 Fan-coil speeds controller Modbus TCP (Ethernet/IP) RM.554601-011

The package of this product is considered as industrial packaging intended for professional use only.
The manufacturer is not responsible of the incorrect installation or use of the product.
Specifications are subject to change without notice.