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e-Room® Controller 4E/5S Modbus

EN

Fan-Coil controller for DIN rail with Modbus communication
Ref: RN.574501-000

Instruction sheet

e-Room® Controller 4I/5O Modbus **is a fan-coil controller with remote communication, to install in DIN rail cabinets, used for climate and lighting control, managing both systems depending on the occupation state of a room or zone.**

The device is specially designed to provide the maximum comfort as possible and an optimal energy saving level of the installation, adjusting the climate control to achieve the value desired by the user.

The device is including different selectable configurations depending on the installation arrangements, and provides a communication bus and output power to supply a user interface based on a visualization display to manage the climate control. A second de-facto standard Modbus communication bus is included on the device to manage remotely the device from the BMS of the building.

Main features

- Fan-coil controller designed for 2 and 4 pipes installations.
- Up to six possible configurations for similar installation arrangements.
- Four self-configurable dry contact inputs: Keycard/Motion sensor, window contact, door contact/lighting pushbutton.
- Three relays outputs for fan-coil speeds.
- Two relay outputs for valves (2/4 pipes) + room/courtesy lighting.
- Modbus RTU communication protocol with RS-485 interface for remote BMS management.
- Communication bus with RS-485 interface for display communication.
- Mains power supply.
- Eco mode on unoccupied zone (Off / ECO set-point).
- Configurable real setpoint and user setpoint for heat and cool
- Automatic switch-on for extreme temperatures (over temp. or frost risk).
- Fan-coil type configuration: 3 speed / 1 speed.
- Fan coil speed configurable as blocked on zero demand.
- Heat/Cool setpoint in ECO mode.
- Configurable heat/cool dead band.
- Time to change into stand-by mode when room changes into unoccupied state.

Device configuration for different types of installation

		Inputs terminals			
Type of Installation	**Number of Pipes**	**2-3**	**4 - 5**	**6 - 7**	**8 - 9**
Option 1	**2**	Keycard contact	Window contact	Lighting Pushbutton	Tª Ext.
Option 2	**2**	Keycard contact	Window contact	Tª Water	Tª Ext.
Option 3	**4**	Keycard contact	Window contact	Tª Water	Tª Ext.
Option 4	**2**	Motion Sensor	Window contact	Door Contact	Lighting Pushbutton
Option 5	**2**	Motion Sensor	Window contact	Door Contact	Tª Ext.
Option 6	**4**	Motion Sensor	Window contact	Door Contact	Tª Ext.

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

Product installation

The product is designed for DIN rail installation. It should not be installed on shelves, above or near heat or wet sources, or exposed to direct sunlight.

Important:

- For a correct operating of the system it is necessary to install the device separating the very low voltage wires (inputs) of the mains wires (device supply and outputs) in the cabinet.
- Use shielded wire for the communication bus of the BMS system and the inputs of the device.
- Use the correct wires as specified in the installation drawing of the device.

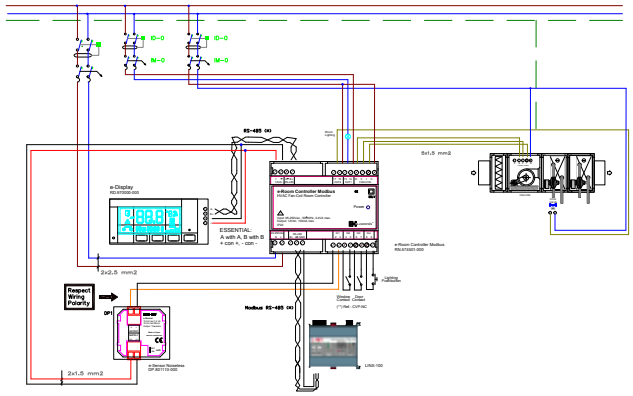
Caution:

- Prior to installing or removing the device, ensure that there is no mains voltage present in the wiring to be connected or near the unit.
- Do not cut or roll up the wires to be connected to the device.
- Do not work on the wiring with wet hands.
- Do not open or drill through the device.
- Keep the device and the supply wires away from moisture and dust.
- Use a damp cloth to clean the device.

Installation steps:

1. Disconnect the supply voltage of the cabinet.
2. Open the cabinet and install the device in the DIN rail placing the black clip at the bottom. Pull down the clip and press the device to insert it into the rail. Release the clip and check the device is correctly fitted.
3. Verify that all the wires are installed following the constructive mounting diagram provided.
4. Check all the wires meet all the specifications and connect them into the female terminals following the installation diagram. Connect the terminals into the device.
5. Connect the power supply and verify the correct operating of the device.
6. Close the cabinet.

Wiring diagram



Herein is defined a functional diagram. It shall be the responsibility of installer to protect properly the installation in accordance with applicable regulations of each country.

Technical features

Supply power
Operating voltage 95-250Vca, 50/60Hz
Maximum rated current. . . . . 12 mA

Output power supply
Output voltage . . . . . 12Vcc, ±5%
Maximum rated output current. . . . . .100 mA

Communications
Interface RS-485
Terminals . . . . . A-, B+, GND
Protocol. . . . . Modbus RTU
Transmission speed configurable. . . . . 1200...115200 Baud
Modbus configuration 8E1, 8O1, 8N1, 8N2

Room bus communication
Interface RS-485
Terminals . . . . . .A-, B+

Digital inputs (IN1, IN2, IN3, IN4)
Open circuit voltage . . . . . 12 Vdc ±5%
Short-circuit current . . . . . 8,0 mA
Input impedance switched on . . . . . <75 Ω
Input impedance switched off . . . . . .>355 Ω

Analog inputs (IN3, IN4)
Type . . . . . Resistive
Features. . . . . NTC interchangeable, 1%
10 KΩ a 25ºC (77ºF)
Measuring range . . . . . +5ºC a +45ºC (+41ºF a +113ºF)
Resolution 0,5ºC

Digital outputs (Fan-Coil, OUT1, OUT2)
Contact type . . . . . Potential free contact
Normally open
Maximum operating voltage . . . . . 250 Vac
Maximum current . . . . . 5 A, resistive load
3 A, inductive load

LED front panel indicator
Device powered . . . . . Green LED ON
Device with no power supply . . . . . LED OFF
Communication failure with e-Display . . . . . .Red LED ON

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

Humidity (no condensation)
Funcionamiento . . . . . 10% to 90% RH at 50ºC
Storage . . . . . 95% RH at 50ºC

Mechanical installation
Installation . . . . . Carril DIN
TE Units (18mm per unit) 6

Mechanical features
Dimmensiones . . . . . .106x90x58 mm
Weight . . . . . 150 g
Plug-in connectors. . . . . Si
Cross sectional area conductor . . . . . 0,5 mm2 to 2,5 mm2
Protection index . . . . . .IP20 (EN 60529:1991)
Electrical safety . . . . . Class II

CE Conformity
ow Voltage Directive (LVD) 2006/95/EC
Electromagnetic Compatibility Directive 2004/108/EC

Standards
Product standard . . . . . .EN 60730-1:2011
EN 50491-3:2009
Electrical safety . . . . . EN 60730-1:2011
EN 50491-3:2009
EN 50491-4-1:2012
Electromagnetic compatibility . . . . . .EN 60730-1:2011
EN 50491-5-1:2010
EN 50491-5-2:2010

Ordering numbers

e-Room Controller 4E/5S Modbus RN.574501-000

e-Display, Visualization display with built-in temperature sensor for e-Room Controller RD.970000-000
Plastic frame for e-Display, BTicino white. LNA4804BI
Plastic frame for e-Display, BTicino matt aluminum LNA4804TE

e-Sensor Noiseless white frame, Motion sensor flush wall mounting with transistor output, 12-24Vca/Vcc DP.801110-000
e-Sensor Noiseless aluminum frame, Motion sensor flush wall mounting with transistor output, 12-24Vca/Vcc. . . .DP.801110-001
e-Detector Noiseless, Motion sensor with transistor output for ceiling mounting, 12-24Vca/Vcc DP.801110-010

Window contact
Plastic window contact, flush mounting. REED type, 125Vac/0,5A, normally closed, diameter 15mm . . . . . CVP-NC

Related documentation

Configuration manual . . . . . DMCEN
User manual . . . . . DMUEN
Detailed instruction sheet . . . . . INSSEN
Operating modes . . . . . DMFEN
Installation drawings . . . . . DEC

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 products. Specifications are subject to change without notice