Product reference: **RC.674421-000**
Product name: **e-Room ECO Modbus 4E/4S**
Software version: **1.1.0**
Date: **06/07/2020**

Device Configuration Register (EEPROM) 0x0000- 0x0034

Register	Data Address	Type	Group	Register Name	Description	Value Range	Default Value	Default Raw Value
1 - 40	0x0000 - 0x0027							
1R	0x0000	uint16		ProductVersion	Software version	READ ONLY	N/A	N/A
2 - 40	0x0001 - 0x0027	uint16						
2 R/W	0x0001	uint16	Modbus Configuration	cfgAddrMdbs	Device Modbus Address	1 .. 247	1	1
3 R/W	0x0002	uint16		cfgBaudRateMdbs	Modbus RS-485 speed: 1:1200; 2:2400; 3:4800; 4:9600; 5:19200; 6:38400; 7:57600; 8:115200	1 .. 8	6	6
4 R/W	0x0003	uint16		cfgConfPortMdbs	Modbus configuration: 1: 8E1; 2:8O1; 3:8N1; 4:8N2	1 .. 4	3	3
5 R/W	0x0004	uint16	Installation configuration	cfgInstalationType	Type of installation [Note 1]	1 .. 6	1	1
6 R/W	0x0005	uint16	Room configuration	cfgHVACStateUnoc	HVAC changes to OFF or ECO mode when room changes to unoccupied state. OFF: 0; ECO: 1	OFF / ECO	OFF	0
7 R/W	0x0006	uint16		cfgTimeToUnoc	Time to change the room to unoccupied state	0 Min .. 250 Min	1 Min	1
8 R/W	0x0007	uint16		cfgTimeCourtesy	Time of output AUX activated for lighting control [Note 2]	0 Sec .. 250 Sec	20 Sec	20
9 R/W	0x0008	uint16		cfgFCActiveCool	Fan-Coil low speed active when no demand in COOL mode. NO: 0; YES: 1	NO / YES	YES	1
10 R/W	0x0009	uint16		cfgFCActiveHeat	Fan-Coil low speed active when no demand in HEAT mode. NO: 0; YES: 1	NO / YES	YES	1
11 R/W	0x000A	uint16		cfgChangeHVACModeSet	COOL/HEAT mode changeover by setpoint/temperature difference. NO: 0; YES: 1	NO / YES	NO	0
12 R/W	0x000B	uint16		cfgChangeHVACModeWater	COOL/HEAT mode changeover using Water Temperature Input [Note 3]. NO: 0; YES: 1	NO / YES	NO	0
13 R/W	0x000C	uint16		cfgDeadBand	Dead band temperature between COOL and HEAT mode	+0,5 ºC .. + 6,0 ºC	3,0 ºC	300
14 R/W	0x000D	uint16		cfgSetTempMaxReal	Maximum real setpoint temperature	+22,0 ºC .. +32,0 ºC	28,0 ºC	2800
15 R/W	0x000E	uint16		cfgSetTempMinReal	Minimum real setpoint temperature	+15,0 ºC .. +21,0 ºC	19,0 ºC	1900
16 R/W	0x000F	uint16		cfgSetTempMaxUser	Maximum user setpoint temperature	+22,0 ºC .. +32,0 ºC	32,0 ºC	3200
17 R/W	0x0010	uint16		cfgSetTempMinUser	Minimum user setpoint temperature	+15,0 ºC .. +21,0 ºC	15,0 ºC	1500
18 R/W	0x0011	uint16		cfgSetTempCoolOcc	Setpoint temperature in COOL mode in Occupied State	+15,0 ºC .. +32,0 ºC	23,0 ºC	2300
19 R/W	0x0012	uint16		cfgSetTempCoolEco	Setpoint temperature in COOL mode in ECO State	+15,0 ºC .. +32,0 ºC	26,0 ºC	2600
20 R/W	0x0013	uint16		cfgSetTempHeatOcc	Setpoint temperature in HEAT mode in Occupied State	+15,0 ºC .. +32,0 ºC	21,0 ºC	2100
21 R/W	0x0014	uint16		cfgSetTempHeatEco	Setpoint temperature in HEAT mode in ECO State	+15,0 ºC .. +32,0 ºC	16,0 ºC	1600
22 R/W	0x0015	uint16		cfgKeepUserSetPt	Keep user setpoint after a device reset	+15,0 ºC .. +32,0 ºC	-	-
23 R/W	0x0016	uint16		cfgAutoOnTempHeat	AutoOn in HEAT mode when ambient temperature is below the value set	+5,0 ºC .. +32,0 ºC	+5,0 ºC	500
24 R/W	0x0017	uint16		cfgAutoOnTempCool	AutoOn in COOL mode when ambient temperature is over the value set	+5,0 ºC .. +32,0 ºC	+28,0 ºC	2800
25 R/W	0x0018	uint16		cfgAutoOnHeatEnabled	AutoOn mode enabled in HEAT mode. NO: 0; YES: 1	NO / YES	NO	0

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Register	Address	Type	Section	Parameter	Description	Range	Default	Value
26 R/W	0x0019	uint16		cfgAutoOnCoolEnabled	AutoOn mode enabled in COOL mode. NO: 0; YES: 1	NO / YES	NO	0
27 R/W	0x001A	uint16		cfgHVACStateRst	HVAC status after reset (OFF / ON) [Nota 4] *OFF:0; ON:1*	OFF / ON	OFF	0
28 R/W	0x001B	uint16		cfgHVACModeRst	HVAC mode after reset. LAST STATE: 0; COOL:1; HEAT:2	LA / CO / HE	CO	1
29 R/W	0x001C	uint16	Device configuration	cfgDisplayTempMeasure	Celsius / Fahrenheit degrees to show on the display. C: 0; F: 1	C / F	C	0
30 R/W	0x001D	uint16		cfgDisplayValue	Value to show on the display (Temperature/Setpoint) tEP: 0; Set: 1	tEP/ Set	SEt	1
31 R/W	0x001E	uint16		cfgRefTempSensor	Temperature sensor used for HVAC control. Frontal: 0; External: 1	Frt/Etn	Frt	0
32 R/W	0x001F	int16		cfgBuiltInTempOffset	Built in temperature sensor offset	-3,0 ºC .. +3,0 ºC	0,0 ºC	0
33 R/W	0x0020	int16		cfgExtTempOffset	External temperature sensor offset	-3,0 ºC .. +3,0 ºC	0,0 ºC	0
34 R/W	0x0021	int16		cfgWindowContact	Window contact input when closed NO: 0; NC: 1	NO / NC	NC	1
35 R/W	0x0022	int16		cfgValveState	Valve actuator state outputs with no demand NO: 0; NC: 1	NO / NC	NO	0
36 R/W	0x0023	uint16		cfgBacklight	Backlight display intensity	0 (OFF) .. 10 (MAX)	10	10
37 R/W	0x0024	uint16		cfgLockPushbuttons	Lock device pushbuttons: 0: Unlocked; 1: All locked except ON/OFF; 2: All locked	0 .. 2	0	0
38 R/W	0x0025	uint16		cfgBacklightOffMode	Backlight display state in standby mode: NO: OFF YES: ON (Low level)	NO/YES	YES	1
39 R/W	0x0026	uint16		cfgProportionalGainCooling	Fan-Coil 0-10V output proportional gain in Cool mode [Note 5]	0..8 ºC	2 ºC	200
40 R/W	0x0027	uint16		cfgIntegralTimeCooling	Fan-Coil 0-10V output integral time in Cool mode [Note 6]	0..120 Min	15 Min	15
41 R/W	0x0028	uint16		cfgProportionalGainHeating	Fan-Coil 0-10V output proportional gain in Heat mode [Note 5]	0..8 ºC	2 ºC	200
42 R/W	0x0029	uint16		cfgIntegralTimeHeating	Fan-Coil 0-10V output Integral time in Heat mode [Note 6]	0..120 Min	15 Min	15
43 R/W	0x002A	uint16		cfgAnalogOutMinLevel	Minimum voltage for Fan-Coil 0-10V output	0 .. 10V	1,0 V	10
44 R/W	0x002B	uint16		cfgAnalogOutMaxLevel	Maximum voltage for Fan-Coil 0-10V output	0 .. 10V	10,0 V	100
45 R/W	0x002C	uint16		cfgAnalogOutVelLow	0-10V output voltage value for manual Fan-Coil speed I	0 .. 10V	3,3V	33
46 R/W	0x002D	uint16		cfgAnalogOutVelMed	0-10V output voltage value for manual Fan-Coil speed II	0 .. 10V	6,6V	66
47 R/W	0x002E	uint16		cfgAnalogOutVelHigh	0-10V output voltage value for manual Fan-Coil speed III	0 .. 10V	10,0V	100
48 R/W	0x002F	uint16		cfgEnergyOffMode	Lighting output state after reset with room occupied. 0: Keep last state, 1: Switch ON, 2: Switch OFF	0..2	0	0
49 R/W	0x0030	uint16			Reserved			
50 R/W	0x0031	uint16			Reserved			
51 R/W	0x0032	uint16	General Parameters	ResetParams	Set all parameters to factory values [Note 7]	NO / YES	N/A	N/A
52 R/W	0x0033	uint16		ResetDevice	Reset device	NO / YES	N/A	N/A

NOTES:

1) Configure the "Type of installation" parameter depending on the input/output required for the installation of the device.

2) If this parameter is 0 seconds, the AUX output is ON when the room is occupied and changes to OFF when the room turns to unoccupied state.

3) This parameter has priority over parameter P10. (Only for configurations of "Type of Installation" with water temperature input)

4) When this parameter is configured as ON, if parameter P5 is configured in ECO mode and the room is unoccupied, the device starts in ECO mode.

5) The proportional gain defines the difference between the setpoint temperature and the ambient temperature mean value, which gives as a result a value of 100% (10V).

6) The integral time defines the time required for the contribution of the integral gain to have the same effect as that of the proportional gain.

7) In order to do a Reset of the parameters, a value of 0x5A69 (decimal 23145) must be written into the register to perform the operation.

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Input Register (0x0080 - 0x008E)   **Device Remote Control (data input)**

Register	Data Address	Type	Object	Name	Description	Range Values	Default Value	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Notes
										Register available				
129 - 142 R/W	**0x0080 - 0x008D**													
129 R/W	0x0080	uint16	Occupancy Sensor	inDetector	Force No Detection or Card not inserted: 0 Force Detection or Card inserted: 1	0 .. 1		x	x	x	x	x	x	Value changes temporarily
130 R/W	0x0081	uint16	Occupancy Sensor	inDoor	Force door status: Closed: 0; Opened: 1	0 .. 1					x	x	x	Value changes temporarily
131 R/W	0x0082	uint16		inOccup	Force room status: Unoccupied: 0; Occupied: 1	0 .. 1		x	x	x	x	x	x	Value changes temporarily
132 R/W	0x0083	uint16	Auxiliar Light	inAuxLight	Force lighting output status: OFF: 0; ON: 1	0 .. 1		x	x		x	x		Value changes temporarily
133 R/W	0x0084	uint16	Fan Coil Unit	inFanSpeedCmd	Force fan-coil speed: FCI: 1; FCII: 2; FCIII: 3; AUTO: 4	1 .. 4		x	x	x	x	x	x	Value changes temporarily. Operates when device is ON
134 R/W	0x0085	uint16		inEnergyHoldOff	Force window status: Closed: 0; Opened: 1	0 .. 1		x	x	x	x	x	x	Value changes temporarily
135 R/W	0x0086	uint16		inSetPoint	Force setpoint temperature	+15,0 ºC .. +32,0 ºC		x	x	x	x	x	x	Value changes temporarily
136 R/W	0x0087	uint16		inSpaceTemp	Force built in temperature sensor (front device sensor)	+5,0 ºC .. +45,0 ºC	0xFFFF	x	x	x	x	x	x	Value changes while value will be different than invalid (0xFFFF)
137 R/W	0x0088	uint16		inTempExt	Force external temperature input	+5,0 ºC .. +45,0 ºC	0xFFFF	x		x		x	x	Value changes while value will be different than invalid (0xFFFF)
138 R/W	0x0089	uint16		inTempWater	Force water temperature input	+5,0 ºC .. +45,0 ºC	0xFFFF		x	x				Value changes while value will be different than invalid (0xFFFF)
139 R/W	0x008A	uint16		inHVACMode	Force operating mode status: COOL: 1; HEAT: 2	1 .. 2		x	x	x	x	x	x	Changes the non volatile register value
140 R/W	0x008B	uint16		inValves	Force valves status: Deactivated: 0; Activate corresponding to actual mode: 1	0 .. 1	0xFFFF	x	x	*	x	x	*	Operates when device is ON. Value changes while value will be different than invalid (0xFFFF)
141 R/W	0x008C	uint16		inOnOff	Force device status: OFF: 0; ON: 1	0 .. 1		x	x	x	x	x	x	Value changes temporarily
142 R/W	0x008D	uint16		inLockConf	Lock access to the Configuration Menu: Unlocked: 0; Locked: 1	0 .. 1	0x0000	x	x	x	x	x	x	Value changes temporarily
143 R/W	0x008E	uint16		inInfo	Encoded info from several registers Note 3	0 .. 65535		x	x	x	x	x	x	Changes the non volatile register value

NOTES:

1) Register values are expressed in decimal notation
2) Register value is used when the value is different from 0xFFFF, or the hardware value when set to 0xFFFF
3) Encoded bits register table:

inInfo	
Bit0	-
Bit1	-
Bit2	-
Bit3	-
Bit4	-
Bit5	inFanSpeedCmd
Bit6	
Bit7	
Bit8	
Bit9	-
Bit10	inHVACMode
Bit11	-
Bit12	-
Bit13	inOnOff
Bit14	inLockConf

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Ouput Registers (0x0100 - 0x010E)   **Device Monitoring value (data output)**

							Register available					
Register	**Data Address**	**Type**	**Object**	**Name**	**Description**	**Range Values**	**Option 1**	**Option 2**	**Option 3**	**Option 4**	**Option 5**	**Option 6**
257 - 270 R	**0x0100 - 0x010D**											
257 R	0x0100	uint16	Occupancy Sensor	outDetection	No Detection or Card not inserted: 0 Detection or Card Inserted: 1	0 .. 1	x	x	x	x	x	x
258 R	0x0101	uint16		outDoor	Door status: Closed: 0; Opened: 1	0 .. 1				x	x	x
259 R	0x0102	uint16		outOccup	Room status: Unocupied: 0; Occupied: 1	0 .. 1	x	x	x	x	x	x
260 R	0x0103	uint16	Auxiliar Lighting	outAuxLight	Lighting output status: OFF: 0; ON: 1	0 .. 1	x	x		x	x	
261 R	0x0104	uint16	Switch Lighting	outLtSwitch	Lighting pushbutton input status; Not Pushed:0; Pushed: 1	0 .. 1	x			x		x
262 R	0x0105	uint16	Fan Coil Unit	outFanSpeed	Velocidad Fan-Coil: 0 a 200 OFF: 0; 100% : 200 Modo AUTO sumamos 1000	0 .. 200	x	x	x	x	x	x
263 R	0x0106	uint16		outEnergyHoldOff	Window status: Closed: 0; Opened: 1	0 .. 1	x	x	x	x	x	x
264 R	0x0107	uint16		outEffectSetPt	Setpoint temperature	+15,0 ºC .. +32,0 ºC	x	x	x	x	x	x
265 R	0x0108	uint16		outSpaceTemp	Built in temperature sensor (front device sensor)	+5,00 ºC .. +45,00 ºC	x	x	x	x	x	x
266 R	0x0109	uint16		outTempExt	External temperature input	+5,00 ºC .. +45,00 ºC	x	x	x		x	x
267 R	0x010A	uint16		outTempWater	Water temperature input	+5,00 ºC .. +45,00 ºC		x	x			
268 R	0x010B	uint16		outHVACMode	Operating mode status: COOL: 1; HEAT: 2	1 .. 2	x	x	x	x	x	x
269 R	0x010C	uint16		outSwitchValve	Valves status: Deactivated: 0; COOL activated: 1; HEAT activated: 2	0 .. 2	x	x	*	x	x	*
270 R	0x010D	uint16		outOnOff	Device status: OFF: 0; ON: 1; ECO: 2; EMERGENCY: 3	0 .. 1	x	x	x	x	x	x
271 R	0x010E	uint16		outInfo	Encoded info from several registers Nota 2	0 .. 65535	x	x	x	x	x	x

NOTES:

1) Register values are expressed in decimal notation

2) Encoded bits register table:

outInfo	
Bit0	outDetection
Bit1	-
Bit2	outOccup
Bit3	-
Bit4	-
Bit5	outFanSpeed
Bit6	
Bit7	
Bit8	
Bit9	outEnergyHoldOff
Bit10	outHVACMode
Bit11	outSwitchValve
Bit12	
Bit13	outOnOff

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