![e-controls® electronic intelligent controls, s.l.]

Configuration Manual

e-Bus Display Modbus

BD.470002-011

Bus coupler for e-Touch Display

Firmware version 2.2.0

Contents

1. Introduction

This document describes the functions of the e-Touch Display Modbus, composed of the "e-Touch Display" and "e-Bus Display Modbus" bus coupler.

The "e-Touch Display" device is a display of which there are 14 models, in white or black, with different buttons to cover all climate control + lighting needs.

The "e-Bus Display Modbus" device is a bus coupler (or rack) for the e-Touch Display range of touch switches, which provides an RS-485 communication interface and Modbus RTU protocol to connect the unit to a Modbus control network.

The product has a set of functionalities that provide various display functions for the environmental and control parameters of a fan coil. Depending on the touch switch that is connected, the device is automatically configured to work in one of the following operating modes:

1) Display for viewing environmental parameters: This allows you to view the temperature, RH, pressure, CO_2 and VOC parameters, with the possibility of using a display without any buttons or with temperature and humidity setpoint buttons. This mode has the option to remotely control all icons on the device's screen via the bus.
2) Display for monitoring and controlling a remote controller: This allows you to check the state of a fan coil controller or a combined fan coil and radiant floor heating controller. This mode has the option to remotely control a set of icons on the device's screen via the bus. The climate control icons are controlled directly by the device.

The device has a set of configuration parameters to adjust its operation according to the needs of each installation. They are configured via the display's NFC interface using a mobile telephone and the EConfigurator app. The device can also be configured using configuration registers via the Modbus.

The unit is a slave device within a Modbus network.

2. Scope of the document

This document provides information relating to devices with software version 2.2.0 or later, provided that there is no other more recent document.

3. New in this document

This section outlines the new additions to the different firmware versions.

3.1 Version 2.2.0

This version includes new configuration parameters to limit the temperature setpoints for both cool mode and heat mode, as well as the option to limit the setpoint for the user and limit the actual working setpoint.

4. Modbus communication bus

The device is factory-configured with the following communication parameters:

- Communication protocol: Modbus RTU
- Modbus address of the device: 0x01
- Communication speed: 38600 baud
- Parity: 8N1

When the device does not receive any communication messages via the Modbus communication port for 2 minutes, it turns on the red LED on the ON/OFF button, indicating a communication failure. If it starts receiving messages that are sent to it again, the LED indicator will be turned off.

5. Device reset

When the device's power is turned on, the display checks the operation of all the display segments by turning them all on at the same time. When the device's power is turned on, various internal parameters of the device are calibrated during the first 30 seconds and the ON/OFF button's red LED is turned on. During this time, the display shows the software version and the user is unable to access the system.

6. Device setup

6.1 Configuration via the app

The device can be configured using the EConfigurator app for mobile telephones with the Android operating system. The information is transferred to the device via the wireless NFC interface, which allows the telephone to communicate with the device.

The EConfigurator app (1.0.9 version or later) must be installed on the mobile phone to configure the device.

The image below shows the location of the NFC antenna and the approximate position of the mobile telephone in relation to the device to transfer the configuration project.
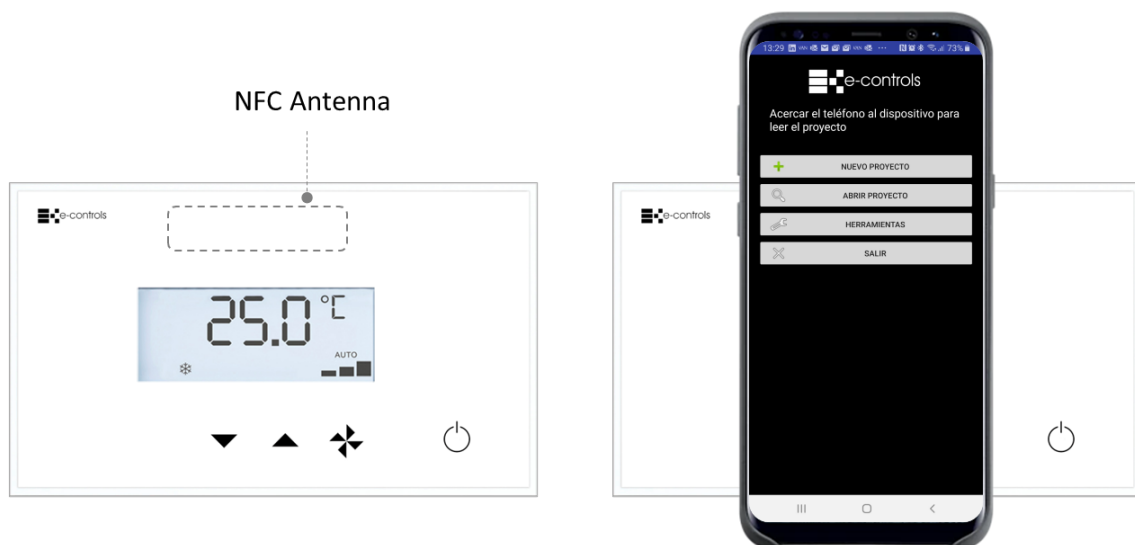
NFC Antenna

Approximate location of the phone to transfer the project to the device

NOTE: The NFC antenna is in a specific place in each mobile telephone. Check with the telephone manufacturer for the location of the NFC antenna to ensure that the telephone is positioned correctly on the device.

6.2 Configuration via the Modbus

Another option is to configure the device via the Modbus communication bus, accessing the configuration registers using the Modbus address map outlined in Annex 1 of this document.

The device's configuration parameters are stored in a non-volatile area of memory that has a life of 300,000 write cycles. Avoid continuously overwriting this area of configuration parameters via Modbus.

NOTE: If configuring the device via Modbus, the device must be reset when all of the changes have been made, so that they are applied to the device, although some configuration parameters do not require a reset.

6.3 Configuration Errors

Should there be any configuration errors in the operation parameters, the device will show an error code on the display screen and it will remain in this status until the configuration error has been resolved. During this time, the device will not function, and the error code detected will be sent via the Modbus **outErrorCfg** register, according to the list of errors below.

Error Code	Description
E043	cfgSetTempCoolMaxReal < cfgSetTempCoolMinReal
E121	cfgSetHRMaxUser < cfgSetHRMinUser
E161	cfgSetTempCoolMaxUser < cfgSetTempCoolMinUser
E179	cfgSetTempHeatMinUser > cfgSetTempHeatMaxUser
E177	cfgSetTempHeatMinReal > cfgSetTempHeatMaxReal

7. The device's operating modes

The device has two operating modes that are automatically configured when connecting to any display model and they provide the following functions:

- Display mode: In this mode, the device allows you to view the environmental parameters of its temperature and humidity (optional) sensors on the display, in addition to the various meteorological and environmental parameters provided by external sensors. It is also possible to activate and deactivate the display's various icons, to select the desired function. In this mode, you can also use the display to show text via the 4-digit segments, using the displayable letters indicated below. This operating mode includes parameters that the user can enter to limit temperature setpoints.

- Fan coil display mode: This operating mode allows you to use the display to manage a fan coil controller or a combined fan coil and radiant floor or radiators heating controller. Additionally, the device allows you to view the environmental parameters of its temperature and humidity (optional) sensors, in addition to the various meteorological and environmental parameters provided by external sensors. It is also possible to activate and deactivate the display's various icons, to select the desired function.

This operating mode includes parameters that the user can enter to limit temperature setpoints, in addition to actual working temperature setpoints, both for cool mode and heat mode.
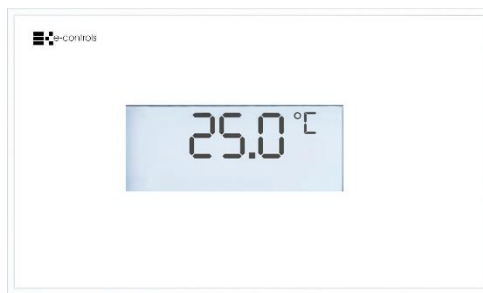
7.1 Display mode

Display mode is selected automatically in the device when it is connected to one of the following display models:

Reference	Description
TD.00000X-010	Front panel with no buttons
TD.00410X-010	Front panel with 4 buttons for temperature and humidity setpoints

NOTE: The letter X should be a 0 if you want a white front panel or a 2 if you want a black one.

The following images show the two device models:

TD.000000-010 (white)   TD.004100-010 (white)

This mode is used to display meteorological and environmental parameters sequentially on the screen. Depending on which "e-Touch Display" touch switch is connected to the rack, there is a temperature sensor and, optionally, a humidity sensor, according to the chosen model. Both values can be viewed on the display and the values are also sent via Modbus output registers. Additionally, the device has input registers to view other environmental parameters from external sensors on the display:

- Temperature sensor (if you want to display the reading from an external sensor)
- Humidity sensor (if you want to display the reading from an external sensor)
- Pressure sensor
- CO_2 sensor
- Air quality sensor (VOC)

The display shows the temperature parameter values in **°C or °F**, humidity in **% RH**, pressure in **Pa**, CO_2 in **CO_2 ppm** and air quality in **% VOC,** according to the ranges defined in the Modbus registers.

When the device has valid values in the input registers of each environmental parameter, it shows the values sequentially on the device's display. The temperature and humidity (optional) parameters can also be obtained through the sensors on the e-Touch Display's front panel. To enable this, the following configuration parameters must be activated:

- Show temperature sensor value on the display
- Show humidity sensor value on the display

The parameters that are received are shown sequentially on the display, and it is possible to change the display time between parameters via the *cfgDisplayTime* configuration register.

The device also includes the **inText** input register, which allows the display to be used as a screen to show text using 4 alphanumeric digits. There are also other Modbus registers to display the numerous icons that are available, which can be turned on/off as desired to signal any requirement via the screen. When the inText register has a valid text to display, the environmental parameters are no longer displayed. To override the inText register, you must enter the text "**!!!!**" (4 ! digits, without the inverted commas).

If the device is fitted with the D.004100-010 touch switch panel, which includes buttons to change the temperature and RH setpoints, the temperature and RH setpoint values will be sent via the respective Modbus output registers. Each press of a button will change the output register's corresponding value and the setpoint selected with the touch switch will flash for 5 seconds.

In this operating mode, the display does not control the Climate Mode icons or fan coil speeds, although they can be controlled via the Modbus input registers.

The device has display icons that can be accessed through its corresponding input registers.

The following image shows the display with all of its icons:
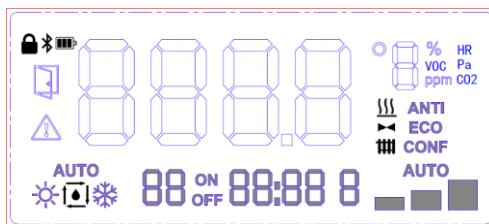
7.2 Fan coil display mode

Fan coil display mode is used to manage the external fan coil controller or the combined climate control system composed of a fan coil controller and a solenoid valve for radiant floor heating or a radiator.

Fan coil display mode is automatically configured when connecting to the following e-Touch Display touch switch models:

Reference	Description
TD.00100X-010	Front panel with ON/OFF button
TD.00200X-010	Front panel with 2 temperature setpoint buttons
TD.003000-010	Front panel with ON/OFF button and 2 temperature setpoint buttons
TD.00400X-010	Front panel with ON/OFF button, 2 temperature setpoint buttons and a fan coil speed button
TD.00500X-010	Front panel with ON/OFF button, 2 temperature setpoint buttons, a fan coil speed button and a Cool/Heat mode button
TD.00510X-010	Front panel with ON/OFF button, 2 temperature setpoint buttons, a fan coil speed button and a button to enable radiant floor heating
TD.00600X-010	Front panel with ON/OFF button, 2 temperature setpoint buttons, a fan coil speed button and 2 lighting control buttons
TD.00610X-010	Front panel with ON/OFF button, 2 temperature setpoint buttons, a fan coil speed button and 2 blind control buttons

TD.00700X-010	Front panel with ON/OFF button, 2 temperature setpoint buttons, a fan coil speed button, a Cool/Heat mode button and 2 lighting buttons
TD.00710X-010	Front panel with ON/OFF button, 2 temperature setpoint buttons, a fan coil speed button, a Cool/Heat mode button and 2 blind buttons
TD.00800X-010	Front panel with ON/OFF button, 2 temperature setpoint buttons, a fan coil speed button, 2 lighting buttons and 2 blind buttons
TD.00900X-010	Front panel with ON/OFF button, 2 temperature setpoint buttons, a fan coil speed button, a Cool/Heat mode button, 2 lighting buttons and 2 blind buttons

NOTE: The letter X should be a 0 if you want a white front panel or a 2 if you want a black one.

The following image shows the version of the device with all of the buttons. The other models feature a combination of buttons from this model:
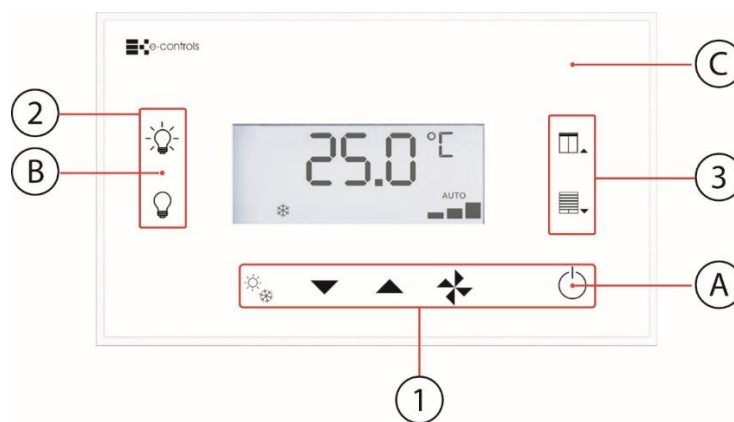
Table of buttons and LED indicators

ID	Description	Colour
1	Climate control buttons	-
2	Lighting control buttons	-
3	Motorised blind control buttons (*)	-
A	LED On/Off indicator	Blue / Red
B	LED indicator lights	White
C	ECO LED indicator	Green

(*) On the TD.00510X-010 touch switch model, these buttons are replaced by a single button with a radiator icon, to activate and deactivate the radiant floor heating or radiators.

In this operating mode, the fan coil should include a controller to manage its speed and control its valve according to the ambient temperature and temperature setpoint, as the display does not control the outputs.

The display has all functions required to change the fan coil state, managing the remote controller via output registers whose values change depending on the buttons pressed, through the following functions provided by the touch switch:

- ON/OFF button: start/stop
- Speed button: changes fan coil speeds
- Setpoint adjustment buttons: increases/decreases the temperature setpoint

– Mode button: Change mode depending on cfgHVACModeOptions.

The device displays the fan coil's state on the display, based on the data received from the device's input registers. If the speed button is pressed to set a speed (I, II or III), the display will show the speed value and it will send the information via the bus to set the speed in the fan coil controller. If another speed value is received via the bus, e.g. from the BMS, the device will show the value on the display and it will update its output register. If AUTO speed is activated, the device will send this value to the fan coil controller so that it calculates the speed and operates the fan coil at the speed obtained. When the speed has been calculated, the fan coil controller will update the speed on the display, which will update the value on the screen when it is received. The same thing happens with all other climate control values (cool/heat mode, setpoint, start/stop).

8. Operating in fan coil display mode for climate control

8.1 Start/stop climate control

The device has two possible states:

- o Climate control on
- o Climate control off

When climate control is on, the device has the "Value to show on the display when climate control is on" (cfgDisplayValue) configuration parameter to show the value of the activated sensors (temperature, humidity) or the temperature setpoint on the screen. When climate control is turned on, the climate control mode icon (COOL, HEAT, etc.) will be shown on the display.

When climate control is off, the device has the "Value to show on the display when the device is off" (cfgDisplayOffValue) parameter that allows the device to be configured to show that it is off on the screen, along with the ambient temperature or temperature setpoint, with all other icons disappearing from the display, except for the time when the **inHour** register has a valid time value.

Press the ON/OFF button to activate climate control. The device will be activated in the same state as it was before, unless it had a loss of power, in which case it will start up as defined by the "cfgHVACStateRst", "cfgHVACModeRst" and "cfgFanCoilRadiantRst" configuration parameters.

The fan coil speed icon indicates whether or not the fan coil is activated. If neither the speed nor the word AUTO is being displayed, it means that the fan coil is not enabled (off).

If the radiator or radiant floor heating icon is shown, it means that this function is activated.

8.2 COOL/HEAT operating mode

The device may be operated using a display with or without a COOL/HEAT button. It will be operated differently in each case, as without the COOL/HEAT button it will be an external machine (fan-coil controller or VRV machine) that will determine the climate control system operating mode, whereas with a COOL/HEAT button, it will be the user that turns on the COOL or HEAT mode manually, or they can select the AUTO mode if they want the external system to determine the operating mode.

When using a display with the COOL/HEAT button, the device will include the **cfgHVACModeOptions** parameter, which will enable the user to configure what happens each time the button is pressed, so they can choose between COOL and HEAT, or extend it to other functions, including AUTO mode.

The device also features the **cfgHVACModeRst** parameter, which enables the user to choose which climate control mode will be automatically activated when power is supplied to the device. When power is supplied to the device, if it has been configured to start up automatically, the output register **outHVACMode** will be updated with the value determined by **cfgHVACModeRst**.

8.3 Setpoint adjustment buttons

The device includes setpoint buttons for changing the desired temperature value in the area subject to climate control. The maximum and minimum values can be set using the different configuration parameters.

There are four configuration parameters that enable the user to set the maximum and minimum temperature setpoint values, both for COOL mode and HEAT mode. There are also four

other additional parameters that limit the parameters entered by the user and that enable the maximum and minimum actual working temperature setpoint limits to be configured, both for COOL mode and HEAT mode. As such, the device will use the final setpoint value limited by the maximum and minimum actual configuration values. The final temperature setpoint value will be provided via the **outEffectTempSetPt** output register.

IMPORTANT: If the parameters are configured incorrectly (e.g., maximum HEAT limit 18ºC < minimum HEAT limit 23ºC), when power is supplied to the device, the display will show an error code corresponding to the decimal address of the incorrectly configured Modbus register (e.g., E180 corresponds to cfgSetTempHeatMaxUser), and the device will be locked until the configuration problem has been resolved. The **outErrorCfg** register will show the error message.

The tables below show how the User and Actual Maximum and Minimum temperature limits work. The blue and red colours show the range of possible values for COOL and for HEAT, and the temperature setpoint results after these limits have been applied. The number under "Valor Usuario" (User Value) is the value that will be shown on the device display once the customer has selected the minimum cool setpoint or the maximum heat setpoint, and the number under "outEffectTempSetPt" is the value that will be in the output register as a result of the limit set via the Actual parameter.

Configured setpoint limit values				User value	outEffectTempSetPt
User Cool	Real Cool	User Heat	Real Heat		
32	32	32	32		
31	31	31	31		
30	30	30	30		
29	29	29	29		
28	28	28	28		
27	27	27	27		27
26	26	26	26		
25	25	25	25	25	
24	24	24	24		
23	23	23	23		
22	22	22	22		
21	21	21	21		
20	20	20	20		
19	19	19	19		
18	18	18	18		
17	17	17	17		
16	16	16	16		

Configured setpoint limit values				User value	outEffectTempSetPt
User Cool	Real Cool	User Heat	Real Heat		
32	32	32	32		
31	31	31	31		
30	30	30	30		
29	29	29	29		
28	28	28	28		
27	27	27	27		
26	26	26	26	26	
25	25	25	25		
24	24	24	24		
23	23	23	23		23
22	22	22	22		
21	21	21	21		
20	20	20	20		
19	19	19	19		
18	18	18	18		
17	17	17	17		
16	16	16	16		

In the Ventilation and Dehumidification mode, it is not possible to modify the device's temperature setpoint.

Changing COOL/HEAT mode

If the operating mode is configured by default as AUTO (or if the device is already running in AUTO mode), the device will temporarily use the user and actual temperature setpoint limits of the COOL operating mode, until the machine or climate controller provides the "e-Touch Display" with the corresponding operating mode according to the room temperature and the temperature setpoint. As soon as the display receives the COOL, HEAT, AUTO COOL or AUTO HEAT operating mode via the inShowHVACMode register, the device will apply the user and actual setpoint value that corresponds to the operating mode, automatically changing the corresponding value on the display in the output register.

When changing from COOL to HEAT mode, if the user temperature setpoint is not within the range defined by the cfgSetTempHeatMinUser and cfgSetTempHeatMaxUser configuration parameters, the device will set the value defined in cfgSetTempHeatMaxReal as the temperature setpoint, and will show the temperature setpoint value defined in cfgSetTempHeatMaxUser on the display.

When changing from HEAT to COOL mode, if the user temperature setpoint is not within the range defined by the cfgSetTempCoolMinUser and cfgSetTempCoolMaxUser configuration parameters, the device will set the value defined in cfgSetTempCoolMinReal as the temperature setpoint, and will show the temperature setpoint value defined in cfgSetTempCoolMinUser on the display.

8.4 Fan-coil Speed

When climate control has been activated, to activate the fan coil press the fan coil button to set the desired speed or select AUTO mode. Depending on how the "cfgFanCoilSpeedsCfg" register has been configured, the speed button will follow a sequence, according to one of the following three options:

- 0-speed: Select this option when the fan coil is controlled from an external device so has no direct control over its speed. For example, when integrated with systems with a motorised vent, when another controller controls the fan coil's speeds. In this case, the touch switch's function cycle is as follows:

AUTO – OFF

- 1-speed: Select this option for one-speed fan coils. In this case, the touch switch's function cycle is as follows:

AUTO – I – OFF

- 3-speed: Select this option for 3-speed fan coils. For this case, the touch switch's function cycle is as follows:

AUTO – I – II – III – OFF

The following table shows the different states of the device when the Speed button is pressed, in a 3-speed configuration. The inShowFanSpeed register always overwrites the device's internal speed and updates the outFanSpeed register and the Speed icon on the display. The outFanCoilState register shows the fan coil's ON/OFF state. The ON/OFF button to turn off climate control sets outFanSpeed to 0 and outFanCoilState to 0.

Fan coil speed press cycle	InShowFanSpeed	Display (FAN COIL)	outFanSpeed	outFanCoilState
OFF	OFF	OFF	OFF	0
V1	X	V1	V1	1
V2	X	V2	V2	1
V3	X	V3	V3	1
AUTO	X	AUTO	AUTO	1
X	AUTO	AUTO	AUTO	1
X	AUTO-V1	AUTO-I	AUTO-V1	1
X	AUTO-V2	AUTO-II	AUTO-V2	1
X	AUTO-V3	AUTO-III	AUTO-V3	1
X	V1	V1	V1	1
X	V2	V2	V2	1
X	V3	V3	V3	1

Operating modes

9. Combined fan coil and radiant floor heating control

To use this function you have to connect a TD.00510X-010 touch switch with buttons for fan coil and radiant floor heating control.
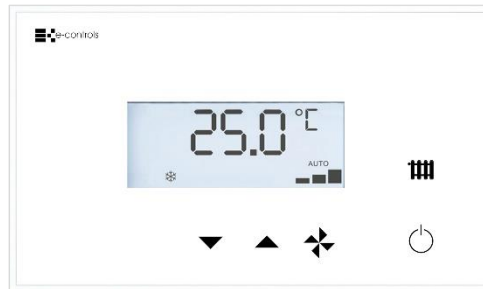
In this operating mode, the fan coil must have a controller to manage its speed and control its valve according to the temperature, as the display does not control those elements. This is also the case for the radiant floor heating's valve outlet.

This mode allows you to turn either the fan coil or the radiant floor heating on and off and it is able to combine the following functions:

- Fan coil
- Radiant floor heating (radiator)
- Fan coil and radiant floor heating (radiator)

Press the button with the Radiator icon to activate and deactivate the radiator (radiant floor heating) control function. Press the fan coil speed button to change speeds, put it in automatic mode or turn the fan coil off.

The device's display includes an icon to show the state of the activated "radiator" or "radiant floor heating" function. The device has the "Show radiator/radiant floor heating icon" parameter to make the display show a radiator icon or radiant floor heating icon, depending on which system is installed.

The following table shows the possible operating states of the climate control and the device's Modbus register values (the table is divided into two parts to allow them to be inserted into the document):

cfgFanCoilRadiantRst	inOnOff	inFanCoilOnOff	inRadiantOnOff	inShowFanSpeed	Fan Speed Pb	Fan Coil Enable	Radiant Enable	Linea
0 (No habilitados)	0	0xFFFF	0xFFFF	X	X	0	0	1
0 (No habilitados)	1	0xFFFF	0xFFFF	0xFFFF	-	0	0	2
0 (No habilitados)	1	0xFFFF	0xFFFF	0xFFFF	I - II - III - AUTO	1	0	3
0 (No habilitados)	1	0xFFFF	0xFFFF	<> 0	-	1	0	4
0 (No habilitados)	1	0xFFFF	0xFFFF	<>0	OFF	0	0	5
1 (Fan-Coil)	0	0xFFFF	0xFFFF	X	X	1	0	6
1 (Fan-Coil)	1	0xFFFF	0xFFFF	0xFFFF	-	1	0	7
1 (Fan-Coil)	1	0	0xFFFF	0xFFFF	-	0	0	8
1 (Fan-Coil)	1	0	0xFFFF	0xFFFF	I - II - III - AUTO	1	0	9
1 (Fan-Coil)	1	0	0xFFFF	0xFFFF	OFF	0	0	10
1 (Fan-Coil)	1	1	0xFFFF	0xFFFF	-	1	0	11
1 (Fan-Coil)	1	1	0xFFFF	0xFFFF	I - II - III - AUTO	1	0	12
1 (Fan-Coil)	1	0	0xFFFF	0xFFFF	-	0	0	13
1 (Fan-Coil)	1	1	0xFFFF	0xFFFF	-	1	0	14
2 (Suelo Radiante)	0	0xFFFF	0xFFFF	X	-	0	1	15
2 (Suelo Radiante)	1	0xFFFF	0xFFFF	X	-	0	1	16
2 (Suelo Radiante)	1	0xFFFF	0	X	-	0	0	17
2 (Suelo Radiante)	1	0xFFFF	1	X	-	0	1	18
3 (Fan-Coil+Suelo)	0	0xFFFF	0xFFFF	0xFFFF	-	1	1	19
3 (Fan-Coil+Suelo)	1	0xFFFF	0xFFFF	0xFFFF	-	1	1	20
3 (Fan-Coil+Suelo)	1	0 / 1	0 / 1	0xFFFF	-	0 / 1	0 / 1	21

Linea	Fan Speed	outOnOff	outFanCoilState	outRadiantState	outFanSpeed	Estado
1	AUTO	0	0	0	0	Clima apagado
2	AUTO	1	0	0	0	Clima encendido
3	I - II - III - AUTO	1	1	0	Fan Speed	Fan-Coil ON
4	inShowFanSpeed	1	1	0	inShowFanSpeed	Fan-Coil ON
5	0	1	0	0	0	Clima encendido
6	AUTO	0	0	0	0	Clima apagado
7	AUTO	1	1	0	Fan Speed	Fan-Coil ON
8	AUTO	1	0	0	0	Clima encendido
9	I - II - III - AUTO	1	1	0	Fan Speed	Fan-Coil ON
10	0	1	0	0	0	Clima encendido
11	AUTO	1	1	0	Fan Speed	Fan-Coil ON
12	I - II - III - AUTO	1	1	0	Fan Speed	Fan-Coil ON
13	I - II - III - AUTO	1	0	0	0	Clima encendido
14	I - II - III - AUTO	1	1	0	Fan Speed	Fan-Coil ON
15	AUTO	0	0	0	0	Clima apagado
16	AUTO	1	0	1	0	Suelo Radiante ON
17	AUTO	1	0	0	0	Clima encendido
18	AUTO	1	0	1	0	Suelo Radiante ON
19	AUTO	0	0	0	0	Clima apagado
20	AUTO	1	1	1	Fan Speed	Suelo+Fan-Coil ON
21	AUTO	1	0 / 1	0 / 1	Fan Speed	Según corresponda

NOTE:

- Green cells indicate an action performed between the previous and current rows.
- Yellow cells indicate the device's responses.

10.   Other button operations

There are touch switches that have buttons to control lighting and buttons to control motorised shades/blinds.

All buttons have output registers that report a change in the pressing of the button, indicating when the button is pressed and when it is released. Each button has an event log to save the latest states. Each press/release event is recorded in the event log and the output register is updated with the oldest event in the log until a Master device checks the register. When it has been checked, the device fills the register again with another event from the log, until all events have been recorded. When there are no more events left, the device fills the output register with the value 0xFFFF.

The buttons also have objects for direct output control, so it is possible to act directly on another device's object through the outLightCommand output register for lighting or outBlindCommand for motorised blinds.

10.1   Lighting control buttons

Lighting control buttons allow you to perform on/off/control functions on the lighting control output of a remote device, e.g. e-Lighting or the 0-10 V output of a Modular e-Room. The LightON and LightOFF buttons send the following commands:

inFeedbackLight	LightON button	LightOFF button	outLightCommand
0xFFFF	SHORT PRESS	-	1 – SET_ON
0xFFFF	-	SHORT PRESS	0 – SET_OFF
0xFFFF	PRESS AND HOLD	-	1 – SET_ON
0xFFFF	-	PRESS AND HOLD	0 – SET_OFF
0xFFFF	BUTTON RELEASE		N/A
0xFFFF		BUTTON RELEASE	N/A
<> 0xFFFF	SHORT PRESS	-	1 – SET_ON
<> 0xFFFF	-	SHORT PRESS	0 – SET_OFF
<> 0xFFFF	PRESS AND HOLD	-	3 – SET_UP
<> 0xFFFF	-	PRESS AND HOLD	2 – SET_DOWN
<> 0xFFFF	BUTTON RELEASE	-	4 – SET_STOP
<> 0xFFFF	-	BUTTON RELEASE	4 – SET_STOP

NOTE: If you want to control an output that adjusts brightness, the **inFeedbackLight** register has to be updated with the state value of the output being controlled. Otherwise, pressing and holding will not send the SET_UP or SET_DOWN value for the adjustment.

10.2   Blind control buttons

The blind control buttons allow you to perform blind raising/lowering/stopping functions on blind control output objects in a remote device such as e-Lighting.

The buttons include a blind control object that allows raise, lower and stop commands to be sent. Optionally, the inFeedbackBlind input register can be used to achieve greater control of the blind according to its real-time state.

Each button has short press, press and hold and button release functions. The following table shows the functions of the button on its output register:

inFeedbackBlind	BlindRise button	BlindLower button	outBlindCommand
0xFFFF	SHORT PRESS	-	1 - Timed raising
0xFFFF	-	SHORT PRESS	2 - Timed lowering
0xFFFF	PRESS AND HOLD	-	3 - Forced raising
0xFFFF	-	PRESS AND HOLD	4 - Forced lowering
0xFFFF	PRESS AND HOLD RELEASE		0 - Stop
0xFFFF		PRESS AND HOLD RELEASE	0 - Stop
0	SHORT PRESS	-	1 - Timed raising
0	-	SHORT PRESS	2 - Timed lowering
0	PRESS AND HOLD	-	3 - Forced raising
0	-	PRESS AND HOLD	4 - Forced lowering
0	BUTTON RELEASE	-	0 - Stop
0	-	PRESS AND HOLD RELEASE	0 - Stop
<> 0	SHORT PRESS	-	0 - Stop
<> 0	-	SHORT PRESS	0 - Stop
<> 0	PRESS AND HOLD	-	3 - Forced raising
<> 0	-	PRESS AND HOLD	4 - Forced lowering
<> 0	PRESS AND HOLD RELEASE	-	0 - Stop
<> 0	-	PRESS AND HOLD RELEASE	0 - Stop

11.   Description of the device's screen icons

The following image shows the display's icons, which are available through the device's Modbus input registers.
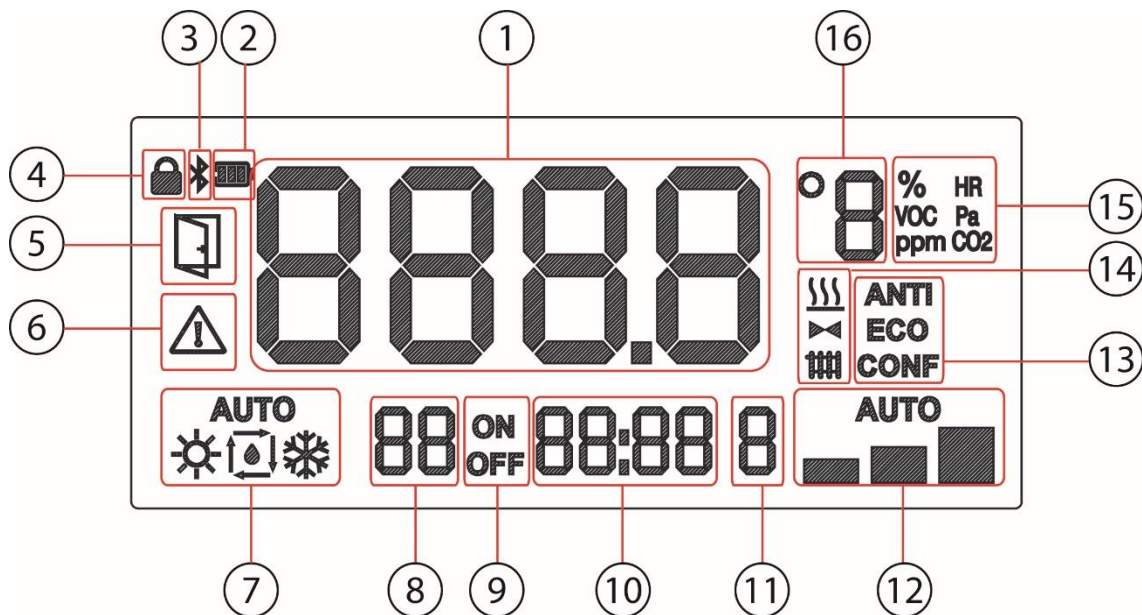
ID	Modbus register	Description
1	inSpaceTemp inSpaceHumidity inSpacePressure inSpaceCO2 inSpaceVoc	Displays environmental parameters
1	inText	Displays free-form text
2	inBatteryIcon	Battery status icon, with 3 status levels
3	inBluetoothIcon	Bluetooth icon
4	inPadlockIcon	Padlock icon to signal locking (buttons, etc.)
5	inShowOpenWindow	Open window icon
6	inShowAlarm	Alarm icon
7	inShowHVACMode	Climate control mode icon: AUTO, Cool, Heat, Recirculation, Dehumidification
8	inNumProgram	Two digits to show numbers 00 to 99
9	inOnOffIcon	ON/OFF icons
10	inHour	Digits to show the time
11	inNumWeekDay	Digits to show the day of the week, from Monday to Sunday
12	inShowFanSpeed	Icon to show fan coil speed: AUTO, I-II-III
13	inShowConfMode	Icons to show COMFORT, ECONOMY, ANTIFREEZE modes
14	InRadiantOnOff	Icon to show the radiator/radiant floor heating state
14	inValveIcon	Icon to show the valve status
15	% HR, VOC, Pa, CO2 ppm	Units of measurement for each environmental parameter
16	°C, °F	Units of measurement for °C or °F

12. Device configuration parameters

The device has a list of configuration parameters that are configured using the EConfigurator app, which is available in Google Play Store for mobile telephones with the Android operating system. The information is downloaded via the NFC (Near-Field Communication) interface that most mobile telephones have. The mobile device must have this interface to transfer the configuration parameters.

The list of configuration parameters in the app is equivalent to the list of configuration registers in Modbus that are accessed via the communication bus, so the device can be configured via the EConfigurator app or via Modbus. All of the device's configuration parameters are explained in section 7 of this document. The following table details the configuration parameters and the equivalent Modbus configuration register, as well as showing which parameter applies to each touch switch model.

Parámetro	Registro Modbus equivalente	Descripción	Valores posibles	Valor por defecto	Grupo	e-Touch Display TD.00000x-010	e-Touch Display Consignas TD.00410x-010	Display Fan-Coil
1	cfgcfgBuildingNumber	Número de Edificio (texto documental)	0..990	0	Room Configuration	✓	✓	✓
2	cfgFloorNumber	Número de Planta (texto documental)	0..990	0		✓	✓	✓
3	cfgDeviceNumber	Número de dispositivo (texto documental)	0..990	0		✓	✓	✓
4	cfgAddrMdbs	Direccion Modbus del dispositivo	1 .. 247	1	Configuración Modbus Bus de campo	✓	✓	✓
5	AutoIncAddrMbs	Autoinc Direccion Modbus	0..1	0		✓	✓	✓
6	cfgBaudRateMdbs	Velocidad Modbus RS-485: 1:1200; 2:2400; 3:4800; 4:9600; 5:19200; 6:38400; 7:57600; 8:115200	1 .. 8	6		✓	✓	✓
7	cfgConfPortMdbs	Configuración Modbus: 1: 8E1; 2:8O1; 3:8N1; 4:8N2	1 .. 4	3		✓	✓	✓
8	cfgSetPointDef	Temperatura de consigna por defecto	-99,0ºC.. +99,0 ºC	23,0 ºC	Limites Consigna	✓	✓	✓
9	cfgSetTempCoolMaxUser	Límite de consigna de temperatura máxima a introducir por teclado en modo Frio	-99,0ºC.. +99,0 ºC	32,0 ºC			✓	✓
10	cfgSetTempCoolMinUser	Límite de consigna de temperatura mínima a introducir por teclado en modo Frio	-99,0ºC.. +99,0 ºC	24,0 ºC			✓	✓
11	cfgSetTempCoolMaxReal	Límite de consigna de temperatura máxima real en modo Frio	-99,0ºC.. +99,0 ºC	28,0 ºC			✓	✓
12	cfgSetTempCoolMinReal	Límite de consigna de temperatura mínima real en modo Frio	-99,0ºC.. +99,0 ºC	19,0 ºC			✓	✓
13	cfgSetHRMaxUser	Limite de consigna de humedad máxima a introducir por teclado	0 .. 100%	100			✓	
14	cfgSetHRMinUser	Limite de consigna de humedad mínima a introducir por teclado	0 .. 100%	0			✓	
15	cfgKeepUserSetPt	Guardar consigna de temperatura de usuario ante una caída de tensión	NO / YES	NO	Parametros StartUp	✓	✓	✓
16	cfgHVACStateRst	Estado del equipo después de un reset	OFF / ON	OFF		✓	✓	✓
17	cfgHVACModeRst	Modo interno de arranque de la climatización ULTIMO ESTADO / FRÍO / CALOR / VENTILACION / DESHUMIDIFICACION / AUTO	LA / CO / HE / VE /DR / AU	CO				✓
18	cfgFanCoilRadiantRst	Estado Fan-Coil y Suelo radiante después de un reset: No habilitados: 0; Fan-Coil: 1; Suelo Radiante: 2; Fan-Coil+Suelo radiante: 3	FC / rF / FCrF	FC				✓
19	cfgSetPointHRDef	Consigna de humedad después de un reset	0 .. 100%	50		✓	✓	✓
20	cfgBacklight	Nivel de intensidad del backlight del display	0 (OFF) .. 10 (MAX)	10	Parametros Touch	✓	✓	✓
21	cfgBackLightOffMode	Mantener backlight encendido a nivel mínimo	NO/YES	YES		✓	✓	✓
22	cfgLockPushbuttons	Bloquear las teclas del equipo No bloqueo: 0; Todas excepto ON/OFF: 1; Todas: 2)	0 .. 2	0			✓	✓
23	cfgLedONOFF	Estado led frontal ON/OFF Siempre apagado: 0; Siempre encendido: 1; Apagado con clima ON: 2; Encendido con clima ON: 3	0..3	2				✓
24	cfgSwitchOffMode	Configuracion apagado automático del backlight No apaga nunca: NO; Apagado por nivel de luz: YES	NO/YES	YES		✓	✓	✓
25	cfgDarknessLevel	Umbral de luz necesario para apagar backlight automáticamente Mínimo: 0; Maximo: 100	0..100	5		✓	✓	✓
26	cfgProximityEnable	Encendido backlight por detección de proximidad	NO/YES	YES		✓	✓	✓
27	cfgBackLightOnTime	Tiempo backlight encendido por detección de proximidad	0 .. 250 seg.	10		✓	✓	✓
28	cfgProximityLevel	Sensibilidad detector de proximidad Maxima: 1; Mínima: 100	1 .. 100	5		✓	✓	✓
29	cfgCleanEnable	Habilitar Modo Limpieza por deteccion continuada de presencia durante 5 segundos	NO/YES	YES		✓		✓
30	cfgFanCoilSpeedsCfg	Velocidades Fan-Coil: 0 Velocidades: 0; 1 Velocidad: 1; 3 Velocidades: 3	1..3	3	Parametros Fancoil			✓
31	cfgBuiltInTempOffset	Offset sonda de temperatura equipo	-3,0 ºC a +3,0 ºC	0,0ºC	Sonda Interna Tª	✓	✓	✓
32	cfgDisplayTempMeasure	Visualización grados Centígrados / Fahrenheit	C / F	C	Parametros Visualizacion			✓
33	cfgDisplayValue	Valor a mostrar en el display con la climatización activada Sensores habilitados (Tª, HR) / Consigna temperatura: SEt	SEN/ SEt	SEt				✓
34	cfgDisplayOffValue	Valor a mostrar en display con la climatización apagada Apagado: 0; Temperatura: 1; Consigna Tª: 2	0..2	0		✓	✓	✓
35	cfgDisplayTime	Tiempo de visualización de cada parámetro ambiental en el display	1 Seg .. 60 Seg	5		✓	✓	✓
36	cfgSensorTempDisplay	Mostrar valor del sensor de temperatura en el display	NO / YES	NO		✓	✓	✓
37	cfgSensorRHDisplay	Mostrar valor del sensor de humedad en el display	NO / YES	NO		✓	✓	✓
38	cfgRadiantIcon	Icono Radiador / Suelo radiante a mostrar en el display Radiador: 0 ; Suelo radiante: 1	0..1	0				✓
39	cfgHVACModeOptions	Funciones disponibles en la tecla modo de funcionamiento: FRIO/CALOR: 0; FRIO/CALOR/VENTILACION: 1; FRIO/CALOR/DESHUMIDIFCACION: 2; FRIO/CALOR/VENTILACION/DESHUMIDIFICACION: 3 FRIO/CALOR/AUTO:4 FRIO/CALOR/VENTILACION/AUTO: 5; FRIO/CALOR/DESHUMIDIFCACION/AUTO: 6; FRIO/CALOR/VENTILACION/DESHUMIDIFICACION/AUTO: 7	0..7	0	Parámetros Climatización			✓
40	cfgSetTempHeatMaxReal	Límite de consigna de temperatura máxima real en modo Calor	-99,0ºC.. +99,0 ºC	15,0 ºC	Limites Consigna Calor			✓
41	cfgSetTempHeatMinReal	Límite de consigna de temperatura mínima real en modo Calor	-99,0ºC.. +99,0 ºC	21,0 ºC				✓
42	cfgSetTempHeatMaxUser	Límite de consigna de temperatura máxima a introducir por teclado en modo Calor	-99,0ºC.. +99,0 ºC	15,0 ºC				✓
43	cfgSetTempHeatMinUser	Límite de consigna de temperatura mínima a introducir por teclado en modo Calor	-99,0ºC.. +99,0 ºC	21,0 ºC				✓

13.   Device configuration registers

The configuration registers allow the device to be configured according to the needs of each installation. These registers are stored in non-volatile memory, so the value remains the same, even if the device loses power.

IMPORTANT: After changing a configuration register, the device has to be reset so that the new parameters are applied to it.

The device's configuration registers are defined below:

cfgVersion
This register shows the device's software version. The register is read-only.

cfgModel
This register provides the product model. The register is read-only.

cfgAddrMdbs
This register is used to configure the device's Modbus address.

cfgBaudRateMdbs
This register is used to configure the communication speed of the communication bus.

cfgConfPortMdbs
This register is used to set the parity of the communication bus.

cfgBuildingNumber
This register is used to record the device's location in a building.

cfgFloorNumber
This register is used to record the floor on which the device is located in a building.

cfgDeviceNumber
This register is used to record the device number in a building, e.g. the room number in a hotel.

cfgSetTempCoolMaxReal
This register limits the maximum temperature setpoint value in COOL mode that will be sent via the *outEffectTempSetPt* register. This register takes priority over the *cfgSetTempCoolMaxUser* register.

cfgSetTempCoolMinReal
This register limits the minimum temperature setpoint value in COOL mode that will be sent via the *outEffectTempSetPt* register. This register takes priority over the *cfgSetTempCoolMinUser* register.

cfgKeepUserSetPt

This register allows you to configure whether a temperature setpoint changed by the user should be kept in the event of a voltage drop.

cfgHVACStateRst

This register defines whether the device should be activated automatically when it is connected to a power supply.

cfgHVACModeRst

This register defines the mode in which the device should start when it is connected to a power supply. "Last State" mode retrieves the device's most recent state.

This register is available when the device is configured in Fan coil display mode.

cfgFanCoilRadiantRst

This register determines how the fan coil and radiant floor heating should be turned on when power is supplied to the device. For these values to be applied, the *cfgHVACStateRst* register must be configured for the device to be switched on automatically.

This register is available when the device is configured in Fan coil display mode.

cfgFanCoilSpeeds

This register sets the speeds of the fan coil being used. If using a system with a motorised vent, set the device to 0-speed.

This register is available when the device is configured in Fan coil display mode.

cfgSetPointHRDef

This register configures the default humidity setpoint.

This register is available when the device is configured in Display mode.

cfgSetHRMaxUser

This register sets the maximum relative humidity value that can be entered with the touch switch.

This register is available when the device is configured in Display mode.

cfgSetHRMinUser

This register sets the minimum relative humidity value that can be entered with the touch switch.

This register is available when the device is configured in Display mode.

cfgRadiantIcon

This register configures the radiator or radiant floor heating icon to be shown on the display (see icon 14 in section 10). This icon appears when the radiator/radiant floor heating function is enabled.

This register is available when the device is configured in Fan coil display mode.

cfgDisplayOffValue

This register sets the value that you want to be shown on the display when the device is switched off. The possible values are: Display off, show ambient temperature, show temperature setpoint.

This register is available when the device is configured in Fan coil display mode.

cfgDisplayTime

This register defines the display time sequence for each environmental parameter on the display.

This register is available when the device is configured in Display mode.

cfgSensorTempDisplay

Activate this register when you want to show the device's temperature sensor value on the display.

This register is available for both operating modes.

cfgSensorRHDisplay

Activate this register when you want to show the device's humidity sensor value on the display. This parameter is valid if the display has a humidity sensor.

This register is available for both operating modes.

cfgSetPointDef

This register allows you to configure the temperature setpoint that the display will use when power is supplied to the device.

This register is available for both operating modes.

cfgSetTempCoolMaxUser

This register sets the maximum temperature limit entered with the touch switch when the device is in COOL mode (only for Fan-Coil Display operating mode).

This register is available for both operating modes.

cfgSetTempCoolMinUser

This register sets the minimum temperature value entered with the touch switch when the device is in COOL mode (only for Fan-Coil Display operating mode).

This register is available for both operating modes.

cfgDisplayTempMeasure

This register allows you to configure the temperature measurement units to be shown on the display, °C or °F.

This register is available for both operating modes.

cfgDisplayValue

This register configures whether you want the read temperature value or the temperature setpoint value to be shown on the display.

This register is available when the device is configured in Fan coil display mode.

cfgBuiltInTempOffset

This register configures a temperature offset for the device's sensor. Use this parameter when the device is installed somewhere that requires the measured temperature to be adjusted.

This register is available for both operating modes.

cfgBacklight

This register configures the intensity level of the display's backlight.

This register is available for both operating modes.

cfgBackLightOffMode

This register allows you to configure whether you want the display's backlight to remain on at its lowest level when it is in standby mode.

cfgSwitchOffMode

This register configures the backlight to be turned off automatically according to the light intensity in the room. This function is especially useful if the cfgBackLightOffMode function is activated and the room becomes dark, with the display being turned off automatically, avoiding

discomfort. The intensity threshold for turning off the backlight is configured through the *cfgDarknessLevel* register.

cfgDarknessLevel
This register configures the intensity threshold for turning off the backlight.

cfgProximityEnable
This register allows you to configure the backlight to be turned on through proximity detection. When you put a hand near to the proximity sensor, the device automatically turns the backlight on.

cfgBackLightOnTime
This register sets the amount of time that you want the display's backlight to remain on after something is detected by the proximity sensor.

cfgProximityLevel
This register configures the sensitivity of the proximity sensor.

cfgCleanEnable
The device has a cleaning function that locks the device's push switch for 1 minute so that the front panel can be cleaned without changing the operation of the device. This register allows this function to be enabled/disabled.

To place the device in cleaning mode, hold a finger on the proximity sensor for 5 seconds until the word CLEAN appears on the display.

cfgLockPushbuttons
This register allows the device's buttons to be locked. There are three options: no button is locked; all buttons are locked apart from the On/Off button; all of the device's buttons are locked.

This register is available for devices with buttons.

cfgLedONOFF
This register allows you to configure the operation of the LED indicator on the device's On/Off button. There are four possible modes: always off; always on; off with climate control ON; on with climate control ON.

This register is available when the device is configured in Fan coil display mode.

cfgHAVCModeOptions
This register allows you to configure the functions that are available with the Mode button, with different combinations of
COOL/HEAT/VENTILATION/DEHUMIDIFICATION/AUTO.
This register is available when the device is configured in Fan coil display mode.

cfgSetTempHeatMaxReal
This register limits the maximum temperature setpoint value in HEAT mode that will be sent via the *outEffectTempSetPt* register. This register takes priority over the *cfgSetTempHeatMaxUser* register.

cfgSetTempHeatMinReal
This register limits the minimum temperature setpoint value in HEAT mode that will be sent via the *outEffectTempSetPt* register. This register takes priority over the *cfgSetTempHeatMinUser* register.

cfgSetTempHeatMaxUser

This register sets the maximum temperature value entered with the touch switch when the device is in HEAT mode (only for Fan-Coil Display operating mode).

cfgSetTempCoolMinUser

This register sets the minimum temperature value entered with the touch switch when the device is in HEAT mode (only for Fan-Coil Display operating mode).

cfgResetParams

Update this register with the value 23145 to start all of the device's configuration registers with the default factory values.

cfgResetDevice

When this register is updated to 1, a software reset is performed in the device.

14.   Modbus input registers

The input registers for environmental parameters are used to display their value directly on the device's screen. When the register has a value other than the "default value", this value will be displayed on the screen. If there is more than one parameter to display on the screen, this will be done sequentially. To override the displaying of an environmental parameter, you must enter the "default value" in the respective register.

The functions of input registers are defined below:

inSetPointTemp
This register is used to change the device's temperature setpoint value.

inSpaceTemp
This register provides the device with an ambient temperature value from another sensor. If the value of this register is different to the default value, the device uses this value as the ambient temperature and disregards the value of the internal temperature sensor.
The temperature value will be displayed on the device's screen if it is configured to do so through the *cfgDisplayValue* register.

inSetPointHR
This register is used to change the device's humidity setpoint value.

inSpaceHumidity
This register provides the device's ambient humidity value. If the value of this register is different to the default value, the device uses this value as the ambient humidity and disregards the value of the internal humidity sensor (if any).
The humidity value will be displayed on the device's screen.

inSpacePressure
 This register provides the pressure value that will be displayed on the device's screen.

inSpaceCO2
 This register provides the CO2 value that will be displayed on the device's screen.

inSpaceVOC
This register provides the VOC (Volatile Organic Components) value that will be displayed on the device's screen.

inNumProgram
This register allows numbers between 00 and 99 to be shown in field no. 8 on the screen (see section 3).

inLockKeys
This register temporarily locks the device's buttons; you can either lock all buttons except for the On/Off button or all buttons without exception.

inHour
This register is used to show the time on the screen. The value provided is in minutes, starting from minute 0 in the day. When this register is updated with a valid value, the device will calculate the time itself. The device does not have a real-time clock, so the master Modbus device will regularly synchronise this register to avoid time skews.

inNumWeekDay

This register is used to show the day of the week numerically on the screen. The device does not have a real-time clock, so the Master device in the bus has to update this register daily with the new day (1 to 7 from Monday to Sunday).

inText

This register is used to show any text in a 4-digit space in position 1 of the display (see section 10). When a value is entered into this register, sequential displaying of the environmental parameters is disabled and this text remains on the screen. To override this text, you have to enter the following sequence of characters: "!!!!".

This register is available when the device is configured in Display mode.

The following table shows the displayable characters on the screen:

0	1	2	3	4	5	6	7	8	9
A	b	C	d	E	e	F	g	H	I
i	L	O	O	P	S	r	N	n	Y
t	U	u	-	_					

inShowHVACMode

This register is used to show the different modes of climate control that exist: Cool, Heat, Auto Cool, Auto Heat, Recirculation, Dehumidification.

In Auto Cool and Auto Heat modes, the word AUTO appears and the symbol for the respective climate control mode.

This register is available when the device is configured in Fan coil display mode.

inOnOff

This register is used to turn the display on and off (displaying icons and text on the display).

inShowFanSpeed

This register is used to switch between the fan coil's three speed icons (I-II-III). There is also an OFF state in which the speed icons disappear, in addition to AUTO mode.

This register is available in both operating modes.

inFanCoilOnOff

This register is used to turn the fan coil on and off from the Modbus network.

This register is available when the device is configured in Fan coil display mode.

inRadiantOnOff

This register is used to turn the radiant floor heating on and off from the Modbus network.

This register is available when the device is configured in Fan coil display mode.

inValveIcon

This register is used to activate and deactivate the Valve icon.

This register is available in both operating modes.

inShowOpenWindow

This register is used to activate and deactivate the Window icon.

This register is available in either of the two operating modes.

inShowConfMode

This register is used to activate the COMF, ECO and ANTI icons, depending on the value entered into the register.

This register is available in either of the two operating modes.

inShowAlarm

This register is used to activate and deactivate the Alarm icon.

This register is available in either of the two operating modes.

inPadlockIcon

This register is used to activate and deactivate the Padlock icon.

This register is available in either of the two operating modes.

inBluetoothIcon

This register is used to activate and deactivate the Bluetooth icon.

This register is available in either of the two operating modes.

inBatteryIcon

This register is used to activate and deactivate the Battery status icon.

This register is available in either of the two operating modes.

inOnOffIcon

This register is used to activate the ON and OFF icons.

This register is available in either of the two operating modes.

inLedOnOff

This register is used to activate the LED on the device's On/Off button. The LED can be red or blue.

This register is available when the device is configured in Display mode.

inLedLights

This register is used to activate the LED on the device's On/Off button. The LED can be red or blue.

This register is available in either of the two operating modes.

inLedECO

This register is used to activate the green ECO LED on the device.

This register is available in either of the two operating modes.

inFeedbackLight

This register allows you to send commands to adjust the lighting (SET_UP, SET_DOWN, SET_STOP) according to the lighting state.

This register is available when the device is configured in Fan coil display mode.

inFeedbackBlind

This register is used to inform the device of the blind's state in real time, so that the device can send a command via the outBlindCommand register according to the button pressed.

This register is available when the device is configured in Fan coil display mode.

inShowIcons

This register is used to activate any of the display's icons via a single register. This register does not take priority over each icon's specific input register and it is only applied when there is a value in the inText register and inShowIcons is set to something other than 0xFFFFFFFF.

This register is available when the device is configured in Display mode.

15. Modbus output registers

Output registers make it possible to monitor the status of the device through the communication bus.

The functions of the device's output registers are defined below:

outEffectTempSetPt
This register shows the device's temperature setpoint.

outSpaceTemp
This register shows the ambient temperature value. If it has been configured to use the device's temperature sensor (cfgSensorTempDisplay = YES), it will display the value read by the sensor. Otherwise, it will show the inSpaceTemp value.

outRelativeHumiditySetPt
This register shows the device's humidity setpoint.

outRelativeHumidity
This register shows the relative humidity value. If it has been configured to use the device's humidity sensor (cfgSensorRHDisplay = YES), it will display the value read by the sensor. Otherwise, it will show the inSpaceHumidity value.

outSpacePressure
This register shows the pressure value sent to the device via the *inSpacePressure* input register.

outSpaceCO2
This register shows the CO2 value sent to the device via the *inSpaceCO2* input register.

outSpaceVOC
This register shows the VOC (Volatile Organic Compounds) value sent to the device via the *inSpaceVOC* input register.

outNumProgram
This register shows the programme number value sent to the device via the *inNumProgram* input register.

outLckKeys
This register shows whether the device is locked, based on the value that has been sent to the device via the *inLckKeys* input register.

outInfo
This register shows the status of multiple registers, coded in multiple status bytes. See the output bits table in the annex attached to this document.

outHour
This register shows the time value sent to the device via the *inHour* input register.

outNumWeekDay
This register shows the day of the week value sent to the device via the *inNumWeekDay* input register.

outHVACMode

This register shows the climate control operating mode selected in the device. The value can be changed using the Mode button (COOL/HEAT) and through the *inShowHVACMode* input register.

outOnOff

This register shows whether the device is ON or OFF. The value can be changed using the On/Off button and through the *inOnOff* input register.

outFanCoilState

This register shows the fan coil's state. The value can be changed using the device's speed button and through the *inFanCoilOnOff* input register.

outFanSpeed

This register sets the fan coil's speed (I, II, III) or sends the AUTO command for the fan coil to calculate the appropriate speed. The value can be changed using the device's speed button and through the *inShowFanSpeed* input register.

outRadiantState

This register shows the state of the radiant floor heating or radiators. The value can be changed using the radiator button (in the version of the touch switch that has that button) and through the inRadiantOnOff input register.

outValveState

This register shows the Valve icon state sent to the device via the *inValveState* input register.

outShowOpenWindow

This register shows the Window icon state sent to the device via the *inShowOpenWindow* input register.

outShowConfMode

This register shows the state of the COMF (Comfort), ECO (Economy) and ANTI (Antifreeze) icons sent to the device via the *inShowConfMode* register.

outShowAlarm

This register shows the Alarm icon state sent to the device via the *inShowAlarm* register.

outPadlockState

This register shows the Padlock icon state sent to the device via the *inPadlockIcon* register.

outBluetoothState

This register shows the Bluetooth icon state sent to the device via the *inBluetoothIcon* register.

outBatteryStatus

This register shows the Battery icon state sent to the device via the *inBatteryIcon* register, which can be one of four possible values (OFF, LOW, MID, HIGH).

outOnOffIcon

This register shows the ON/OFF icon state sent to the device via the *inOnOffIcon* register.

outLedOnOff

This register shows the state of LED A (see section 2.2) on the device's On/Off button, which is sent to the device via the *inLedOnOff* register.

outLedLights

This register shows the state of LED B (see section 2.2) on the device's lighting control buttons, which is sent to the device via the *inLedLights* register.

outLedECO

This register shows the state of LED C (see section 2.2), which is sent to the device via the *inLedECO* register.

outChangeRegLightON

This register shows whether there has been a change in Light Up button no. 2 (see section 10), according to the possible values, 0: button released; 1: button pressed; 0xFFFF: no change.

outChangeRegLightOFF

This register shows whether there has been a change in Light Down button no. 2 (see section 10), according to the possible values, 0: button released; 1: button pressed; 0xFFFF: no change.

outLightCommand

This register shows the logic state for the pressing of the LightOn and LightOFF lighting control buttons, to control the switching on/off of the light through a lighting control module.

outChangeRegBlindRise

This register shows whether there has been a change in "Blind Rise" button no. 3 (see section 10), according to the possible values, 0: button released; 1: button pressed; 0xFFFF: no change.

outChangeRegBlindLower

This register shows whether there has been a change in the "Blind Lower" button no. 3 (see section 10), according to the possible values, 0: button released; 1: button pressed; 0xFFFF: no change.

outBlindCommand

This register shows the logic state for the pressing of the BlindRise and BlindLower buttons, to control the state of the blind through a blind control module.

outErrorCfg

This register notifies the user if there is a configuration error in the device parameters. If there are no configuration errors, the register will be 0. If there is an error, the register will show one of the error codes listed in the following table:

Error Code	Description
E043	cfgSetTempCoolMaxReal < cfgSetTempCoolMinReal
E161	cfgSetTempCoolMaxUser < cfgSetTempCoolMinUser
E179	cfgSetTempHeatMinUser > cfgSetTempHeatMaxUser
E177	cfgSetTempHeatMinReal > cfgSetTempHeatMaxReal

16.   Version history

Doc. Rev.	FW version	Date	Description
0	2.1.0	30/06/2022	Document created
1	2.1.0	28/02/2023	**outHVACMode** register correction values
0	2.2.0	01/03/2023	Temperature setpoint limit configuration parameters in COOL and HEAT mode added.

Annex: Device register map

A.1 Device configuration registers

Registro	Dirección registro	Tipo	Grupo	Nombre Registro	Descripción	Rango valores	Valor por defecto	Valor RAW por defecto	e-Touch Display TD.00000x-010	e-Touch Display Consignas TD.00410x-010	e-Touch Display Fan Coil
0 -7 R	**0x0000 - 0x0008**										
0 R	0x0000	uint16		cfgVersion	Version Software	SOLO LECTURA	No aplica	No aplica			
1 R	0x0001	uint16		cfgModel	Version del modelo de dispositivo	SOLO LECTURA	No aplica	No aplica			
16- 199 R/W	**0x0010 - 0x00C7**										
16 R/W	0x0010	uint16	Modbus Configuration	cfgAddrMdbs	Direccion Modbus del dispositivo	1 .. 247	1	1	X	X	X
17 R/W	0x0011	uint16		cfgBaudRateMdbs	Velocidad bus RS-485: 1:1200; 2:2400; 3:4800; 4:9600; 5:19200; 6:38400; 7:57600; 8:115200	1 .. 8	6	6	X	X	X
18 R/W	0x0012	uint16		cfgConfPortMdbs	Configuración con RS-485: 1: 8E1; 2:8O1; 3:8N1; 4:8N2	1 .. 4	3	3	X	X	X
19 R/W	0x0013	uint16	Room cfg	cfgcfgBuildingNumber	Número de Edificio (texto documental)	0 .. 999	0	0	X	X	X
20 R/W	0x0014	uint16		cfgFloorNumber	Número de Planta (texto documental)	0 .. 999	0	0	X	X	X
21 R/W	0x0015	uint16		cfgDeviceNumber	Número de dispositivo (texto documental)	0 .. 999	0	0	X	X	X
43 R/W	0x002B	int16	HVAC Parameters	cfgSetTempCoolMaxReal	Límite de consigna de temperatura máxima real en modo frío	-99,0ºC.. +99,0 ºC	32,0 ºC	3200			X
44 R/W	0x002C	int16		cfgSetTempCoolMinReal	Límite de consigna de temperatura mínima real en modo frío	-99,0ºC.. +99,0 ºC	24,0 ºC	2400			X
49 R/W	0x0031	uint16		CfgKeepUserSetPt	Guardar consigna de temperatura de usuario ante una caída de tensión. NO: 0; SI: 1	0 .. 1	0	0	X	X	X
54 R/W	0x0036	uint16		cfgHVACStateRst	Estado del equipo después de un reset OFF:0; ON:1	0..1	0	0	X	X	X
55 R/W	0x0037	uint16		cfgHVACModeRst	Modo interno de arranque de la climatización ULTIMO ESTADO: 0; FRÍO:1; CALOR: 2; VENTILACION: 3; DESHUMIDIFICACION: 4; AUTO:10	0..10	1	1			X
56 R/W	0x0038	uint16		cfgFanCoilRadiantRst	Estado Fan-Coil y Suelo radiante después de un reset: No habilitados: 0; Fan-Coil: 1; Suelo Radiante: 2; Fan-Coil+Suelo radiante: 3	0..3	0	0			X
72 R/W	0x0048	uint16	FanCoil Parameters	cfgFanCoilSpeeds	Velocidades Fan-Coil: 0 Velocidades: 0; 1 Velocidad: 1; 3 Velocidades: 3	0 .. 3	3	3			X
120 R/W	0x0078	uint16	HR Parameters	cfgSetPointHRDef	Consigna de humedad después de un reset	0..100	50	5000	X	X	X
121 R/W	0x0079	uint16		cfgSetHRMaxUser	Límite de consigna de humedad máxima a introducir por teclado	0..100	100	10000		X	
122 R/W	0x007A	uint16		cfgSetHRMinUser	Límite de consigna de humedad mínima a introducir por teclado	0..100	0	0		X	
123 R/W	0x007B	uint16		cfgRadiantIcon	Icono Radiador / Suelo radiante a mostrar en el display Radiador : 0 ; Suelo radiante: 1	0..1	0	0			X
124 R/W	0x007C	uint16		cfgDisplayOffValue	Valor a mostrar en el display con la climatización apagada Apagado: 0; Temperatura: 1; Consigna Tª: 2	0..2	0	0	X	X	X
125 R/W	0x007D	uint16		cfgDisplayTime	Tiempo de visualización de cada parámetro ambiental en el display	1 Seg .. 60 Seg	5	5	X	X	X
126 R/W	0x007E	uint16		cfgSensorTempDisplay	Mostrar valor del sensor de temperatura en el display	NO / YES	YES	0	X	X	X
127 R/W	0x007F	uint16		cfgSensorRHDisplay	Mostrar valor del sensor de humedad en el display	NO / YES	NO	0	X	X	X
160 R/W	0x00A0	int16	Display Parameters	cfgSetPointDef	Temperatura de consigna por defecto	-99,0ºC.. +99,0 ºC	23,0 ºC	2300	X	X	X
161 R/W	0x00A1	int16		cfgSetTempCoolMaxUser	Límite de consigna de temperatura máxima a introducir por teclado en modo frío	-99,0ºC.. +99,0 ºC	32,0 ºC	3200		X	X
162 R/W	0x00A2	int16		cfgSetTempCoolMinUser	Límite de consigna de temperatura mínima a introducir por teclado en modo frío	-99,0ºC.. +99,0 ºC	24,0 ºC	2400		X	X
163 R/W	0x00A3	uint16		cfgDisplayTempMeasure	Visualización grados Centigrados / Fahrenheit Centigrados: 0; Fahrenheit: 1	C / F	C	0	X	X	X
164 R/W	0x00A4	uint16		cfgDisplayValue	Valor a mostrar en el display con la climatización activada Sensores habilitados (Tª, HR): 0; Consigna temperatura: 1	0 .. 1	1	1			X
165 R/W	0x00A5	int16		cfgBuiltInTempOffset	Offset de temperatura del sensor del equipo	-3,0 ºC .. +3,0 ºC	0,0 ºC	0	X	X	X
166 R/W	0x00A6	uint16		cfgBacklight	Nivel de intensidad del backlight del display	0 (OFF) ... 10 (MAX)	10	10	X	X	X
167 R/W	0x00A7	uint16		cfgBackLightOffMode	Mantener backlight encendido a nivel mínimo	NO/YES	YES	1	X	X	X
168 R/W	0x00A8	uint16		cfgSwitchOffMode	Configuracion apagado automático del backlight No apaga nunca: NO; Apagado por nivel de luz: YES	NO/YES	YES	1	X	X	X
169 R/W	0x00A9	uint16		cfgDarknessLevel	Umbral de luz necesario para apagar backlight automáticamente Minimo: 0; Maximo: 100	0-100	5	5	X	X	X
170 R/W	0x00AA	uint16		cfgProximityEnable	Encendido backlight por detección de proximidad	NO/YES	YES	1	X	X	X
171 R/W	0x00AB	uint16		cfgBackLightOnTime	Tiempo backlight encendido por detección de proximidad	0 .. 250 seg.	10	10	X	X	X
172 R/W	0x00AC	uint16		cfgProximityLevel	Sensibilidad detector de proximidad Maxima: 1; Minima: 100	1 .. 100	5	5	X	X	X
173 R/W	0x00AD	uint16		cfgCleanEnable	Habilitar Modo Limpieza por deteccion continuada de presencia durante 5 segundos	NO/YES	YES	1	X	X	X
174 R/W	0x00AE	uint16		cfgLockPushbuttons	Bloquear las teclas del equipo: 0: No se bloquea ninguna tecla; 1: Se bloquean todas las teclas excepto la tecla ON/OFF; 2: Se bloquean todas las teclas	0 .. 2	0	0	X	X	X
175 R/W	0x00AF	uint16		cfgLedONOFF	Estado led frontal ON/OFF Siempre apagado: 0; Siempre encendido: 1; Apagado con clima ON: 2; Encendido con clima ON: 3	0..3	2	2			X
176 R/W	0x00B0	uint16	HVAC Parameters	cfgHVACModeOptions	Funciones disponibles en la tecla modo de funcionamiento: FRIO/CALOR: 0; FRIO/CALOR/VENTILACION: 1; FRIO/CALOR/DESHUMIDIFCACION: 2; FRIO/CALOR/VENTILACION/DESHUMIDIFICACION: 3 FRIO/CALOR/AUTO:4 FRIO/CALOR/VENTILACION/AUTO: 5; FRIO/CALOR/DESHUMIDIFCACION/AUTO: 6; FRIO/CALOR/VENTILACION/DESHUMIDIFICACION/AUTO: 7	0..7	0	0			X
178 R/W	0x00B2	int16	HVAC Parameters	cfgSetTempHeatMaxReal	Límite de consigna de temperatura máxima real en modo calor	-99,0ºC.. +99,0 ºC	15,0 ºC	3200			X
179 R/W	0x00B3	int16		cfgSetTempHeatMinReal	Límite de consigna de temperatura mínima real en modo calor	-99,0ºC.. +99,0 ºC	21,0 ºC	1500			X
180 R/W	0x00B4	int16		cfgSetTempHeatMaxUser	Límite de consigna de temperatura máxima a introducir por teclado en modo calor	-99,0ºC.. +99,0 ºC	15,0 ºC	3200			X
181 R/W	0x00B5	int16		cfgSetTempHeatMinUser	Límite de consigna de temperatura mínima a introducir por teclado en modo calor	-99,0ºC.. +99,0 ºC	21,0 ºC	1500			X
6000-6001 R/W	**0x1770 - 0x1771**										
6000 W	0x1770	uint16	General Parameters	ResetParams	Poner todos los parámetros a valores por defecto fábrica. El equipo se resetea cuando se escribe el valor 23145 (0x5A69 Hex)	0..65537	No aplica	No aplica	X	X	X
6001 W	0x1771	uint16		ResetDevice	Resetear Equipo	NO / YES	No aplica	No aplica	X	X	X

A.2 Device input registers

Registro	Dirección registro	Tipo	Nombre Registro	Descripción	Rango valores	Valor por defecto	Notas	Icono	Display	Display Fan Coil
5000-5049 R/W	**0x1388-0x13B9**			**Forzar visualizacion valores numericos**						
5000 R/W	0x1388	int16	inSetPointTemp	Forzar temperatura de consigna	-99,0 ºC .. +99,0 ºC	0x7FFF	Cambia el valor temporalmente si diferente de 0x7FFF	dig 888.8 + dig ºC/F	X	X
5001 R/W	0x1389	int16	inSpaceTemp	Forzar temperatura ambiente equipo	-99,0 ºC .. +199,0 ºC	0x7FFF	Con 0x7FFF muestra temperatura del sensor si el parámetro P126 está habilitado	dig888.8 + dig ºC/F	X	X
5002 R/W	0x138A	uint16	inSetPointHR	Forzar consigna de humedad	0..100%	0x7FFF	Cambia el valor temporalmente si diferente de 0x7FFF	dig888.8 + dig HR	X	X
5003 R/W	0x138B	uint16	inSpaceHumidity	Valor de Humedad	0..100%	0x7FFF	Con 0x7FFF muestra humedad del sensor si el parámetro P127 está habilitado	dig888.8 + dig HR	X	X
5004 R/W	0x138C	int16	inSpacePressure	Valor de Presión	-999..+4999 Pa	0x7FFF	Cambia el valor temporalmente si diferente de 0x7FFF	dig888.8 + dig Pa	X	X
5005 R/W	0x138D	uint16	inSpaceCO2	Valor de CO2	0..5000	0x7FFF	Cambia el valor temporalmente si diferente de 0x7FFF	dig888.8 + dig CO2	X	X
5006 R/W	0x138E	uint16	inSpaceVOC	Valor de Calidad de aire	0..100%	0x7FFF	Cambia el valor temporalmente si diferente de 0x7FFF	dig888.8 + dig VOC	X	X
5007 R/W	0x138F	uint16	inNumProgram	Numero de programa	00..99	0x7FFF	Cambia el valor temporalmente si diferente de 0x7FFF	dig 88	X	X
5008-5011 R/W	0x1390-0x1393			Reserved						
5012 R/W	0x1394	uint16	inLckKeys	Bloqueo teclas: 0: No se bloquea ninguna tecla; 1: Se bloquean todas las teclas excepto la tecla ON/OFF; 2: Se bloquean todas las teclas	0 .. 2	0			X	X
5013-5017 R/W	0x1395-0x1399			Reserved						
5018 R/W	0x139A	uint16	inHour	Hora: Minutos	0..1440	0xFFFF	Actualiza horario si diferente de 0xFFFF	dig 88:88 8	X	X
5019 R/W	0x139B	uint16	inNumWeekDay	Día de la semana	1..7	0xFFFF	Actualiza horario si diferente de 0xFFFF	dig 88:88 8	X	X
5020 R/W	0x139C	string4	inText	Visualiza un Texto de 4 Digitos en Panel Display [Nota 2]	NOTA 2	!!!!	Visualiza los 4 caracteres indicados en valor ASCII (!!!! = Deshabilita la visualización del registro de texto)	dig 8888	X	
5024-5049 R/W	0x13A0-0x13B9			Reserved						
5050-5099 R/W	**0x13BA-0x13EB**			**Forzar visualizacion iconos**						
5050 R/W	0x13BA	uint16	inShowHVACMode	Forzar Icono modo Funcionamiento: OFF: 0; FRIO: 1; CALOR: 2; VENTILACION: 3; DESHUMECTACION: 4; AUTO : 10; AUTO FRIO: 11; AUTO CALOR: 12	0 .. 12	0xFFFF	Cambia el valor temporalmente si diferente de 0xFFFF	MODO	X	X
5051 R/W	0x13BB	uint16	inOnOff	Forzar estado display: OFF: 0; ON: 1	0 .. 1	0xFFFF	Cambia el valor temporalmente si diferente de 0xFFFF	-	X	X
5052 R/W	0x13BC	uint16	inShowFanSpeed	Forzar modo y velocidad Fan-Coil: OFF: 0; FCI: 1; FCII: 2; FCIII:3; AUTO sin FC : 10; AUTO FCI: 11; AUTO FCII: 12; AUTO FCIII: 13	0..13	0xFFFF	Cambia el valor temporalmente. Actúa cuando el equipo está encendido	FAN SPEED	X	X
5053 R/W	0x13BD	uint16	inFanCoilOnOff	Habilitar Fan-Coil //OLD inRadiantIcon OFF: 0; 1: ON	0 .. 1	0xFFFF	Cambia el valor temporalmente si diferente de 0xFFFF	-	X	X
5054 R/W	0x13BE	uint16	inRadiantOnOff	Habilitar Radiador/Suelo Radiante OFF:0; ON: 1	0..1	0	Cambia el valor temporalmente. Actúa cuando el equipo está encendido	RADIADOR/SUELO	X	X
5055 R/W	0x13BF	uint16	inValveIcon	Activa icono Valvula OFF: 0; ON: 1	0..1	0	Cambia el valor temporalmente si diferente de 0xFFFF	VALVULA	X	X
5056 - 5059 R/W	0x13C0-0x13C3			Reserved						
5060 R/W	0x13C4	uint16	inShowOpenWindow	Forzar icono Ventana abierta Cerrada: 0; Abierta: 1	0..1	0xFFFF	Cambia el valor temporalmente si diferente de 0xFFFF	VENTANA	X	X
5061 R/W	0x13C5	uint16	inShowConfMode	Forzar icono CONF/ECO/ANTI: OFF: 0; CONF: 1; ECO: 2; ANTI: 3	0..3	0xFFFF	Cambia el valor temporalmente si diferente de 0xFFFF	CONF ECO ANTI	X	X
5062 R/W	0x13C6	uint16	inShowAlarm	Forzar icono Alarma: Apagado: 0; Encendido: 1	0..1	0xFFFF	Cambia el valor temporalmente si diferente de 0xFFFF	Alarma	X	X
5063 R/W	0x13C7	uint16	inPadlockIcon	Activa icono Candado OFF: 0; ON: 1	0..1	0	Cambia el valor temporalmente si diferente de 0xFFFF	PADLOCK	X	X
5064 R/W	0x13C8	uint16	inBluetoothIcon	Activa icono Bluetooth OFF: 0; ON: 1	0..1	0	Cambia el valor temporalmente si diferente de 0xFFFF	BLUETOOTH	X	X
5065 R/W	0x13C9	uint16	inBatteryIcon	Activa icono Batería OFF: 0; LOW: 1; MID: 2; HIGH: 3	0..3	0	Cambia el valor temporalmente si diferente de 0xFFFF	BATTLOW BATTMID BATTHIGH	X	X
5066 R/W	0x13CA	uint16	inOnOffIcon	Icono ON/OFF. OFF: 0; ON: 1; Apagado: 0xFFFF	0 .. 1	0xFFFF	Cambia el valor temporalmente si diferente de 0xFFFF	ON OFF	X	X
5067 R/W	0x13CB	uint16	inLedOnOff	Forzar estado led On/Off OFF: 0; ON Azul: 1; ON Rojo: 2	0 .. 2	0xFFFF	Cambia el valor temporalmente si diferente de 0xFFFF		X	
5068 R/W	0x13CC	uint16	inLedLights	Forzar estado led blanco teclas Lights OFF: 0; ON: 1	0 .. 1	0xFFFF	Cambia el valor temporalmente si diferente de 0xFFFF		X	X
5069 R/W	0x13CD	uint16	inLedECO	Forzar estado led verde ECO	0 .. 1	0xFFFF	Cambia el valor temporalmente si diferente de 0xFFFF		X	X
5070 R/W	0x13CE	uint16	inFeedbackLight	Estado luz en tiempo real para actuar sobre outLightCommand		0xFFFF	Cambia el valor temporalmente si diferente de 0xFFFF			X
5071 R/W	0x13CF	uint16	inFeedbackBlind	Estado persiana en tiempo real para actuar sobre outBlindCommand		0xFFFF	Cambia el valor temporalmente si diferente de 0xFFFF			X
5072 - 5079 R/W	0x13D0-0x13D7			Reserved						
5080 R/W	0x13D8	uint32	inShowIcons	Registro de bits con iconos a mostrar [Nota 3]	0 .. 65535	0xFFFF	Cambia el valor temporalmente si diferente de 0xFFFF		X	
5082 - 5099 R/W	0x13DA-0x13EB			Reserved						

NOTES:

1) The registers' values are expressed in decimal notation.
2) ASCII text will be displayed on the LCD screen. It will only be possible to show characters that can be displayed on a seven-segment display. This means that they will be represented by a combination or uppercase and lowercase letters, with the following characters never being displayed (K, M, Ñ, Q, T, V, W, X, Z). The string will be converted to uppercase. Example: "PAR1" which would have been displayed as "PAr1" or "ERR7" which would have been displayed as "Err7". Showing the value of this register on the display has priority over registers with addresses between 5000 and 5006.
3) inShowIcons input register values. This register does not have priority over the specific input registers for each function. It only works when inText and inShowIcons have values other than 4294967295 (0xFFFFFFFF):

Byte 1 (High)	
ICON_HEAT	0x80
ICON_COOL	0x40
ICON_AUTO_HVAC	0x20
ICON_VENTILATE	0x10
ICON_DRY	0x08
ICON_CONF	0x04
ICON_ECO	0x02
ICON_ANTI	0x01

Byte 2	
RESERVED	0x80
RESERVED	0x40
ICON_WINDOW	0x20
ICON_ALARM	0x10
ICON_FC_AUTO	0x08
ICON_FC_HIGH	0x04
ICON_FC_MED	0x02
ICON_FC_LOW	0x01

Byte 3	
ICON_PADLOCK	0x80
ICON_BLUETOOTH	0x40
ICON_BATTERY_LOW	0x20
ICON_BATTERY_MID	0x10
ICON_BATTERY_HIGH	0x08
ICON_RADIATOR	0x04
ICON_RADIANT	0x02
ICON_VALVE	0x01

Byte 4 (Low)	
ICON_FAHRENHEIT_F	0x80
ICON_CELSIUS_C	0x40
ICON_HUMIDITY_HR	0x20
ICON_PRESSURE_PA	0x10
ICON_CO2_PPM	0x08
ICON_VOC	0x04
RESERVED	0x02
RESERVED	0x01

4) Coding table of the register's grouped bits:

inInfo.LSB	
Bit0	-
Bit1	-
Bit2	-
Bit3	-
Bit4	-
Bit5	inFanSpeedCmd.FCI
Bit6	inFanSpeedCmd.FCII
Bit7	inFanSpeedCmd.FCIII
Bit8	inFanSpeedCmd.AUTO
Bit9	-
Bit10	inHVACMode
Bit11	-
Bit12	-
Bit13	inOnOff
Bit14	inLockConf
Bit15	inLockKeys

inInfo.MSB	
Bit16	-
Bit17	-
Bit18	-
Bit19	-
Bit20	-
Bit21	-
Bit22	-
Bit23	-
Bit24	-
Bit25	-
Bit26	-
Bit27	-
Bit28	-
Bit29	-
Bit30	-
Bit31	-

A.3 Device output registers

Registro	Dirección registro	Tipo	Objeto	Nombre Registro	Descripción	Rango valores
5100-5129 R	**0x13EC-0x1409**				**Visualizacion valores numericos**	
5100 R	0x13EC	int16		outEffectTempSetPt	Consigna de Temperatura	-99,0 ºC .. +99,0 ºC
5101 R	0x13ED	int16		outSpaceTemp	Temperatura ambiente	-99,00 ºC .. +99,00 ºC
5102 R	0x13EE	uint16		outRelativeHumiditySetPt	Consigna de Humedad	0..100%
5103 R	0x13EF	uint16		outRelativeHumidity	Valor Humedad relativa	0..100%
5104 R	0x13F0	int16		outSpacePressure	Presión (Pa) ambiente	-99..+99 Pa
5105 R	0x13F1	uint16		outSpaceCO2	Nivel de CO2 (ppm) ambiente	0..5000
5106 R	0x13F2	uint16		outSpaceVOC	Nivel de Calidad de aire (VOC) en ambiente	0..100%
5107 R	0x13F3	uint16		outNumProgram	Estado Numero de programa	00..99
5108-5109 R	0x13F4-0x13F5				Reserved	
5110 R	0x13F6	uint16		outLckKeys	Bloqueo teclas: 0: No se bloquea ninguna tecla; 1: Se bloquean todas las teclas excepto la tecla ON/OFF; 2: Se bloquean todas las teclas	0 .. 2
5111 R	0x13F7				Reserved	
5112 R	0x13F8	uint32		outInfo	Información codificada de varios registros [Nota 2]	0 .. 65535
5114-5115 R	0x13FA-0x13FB				Reserved	
5116 R	0x13FC	uint16		outHour	Estado Hora: Minutos	00:00
5117 R	0x13FD	uint16		outNumWeekDay	Estado Día de la semana	1..7
5118-5129 R	0x13FE-0x1409				Reserved	
5130-5139 R	**0x140A-0x1413**				**Visualizacion iconos estado clima**	
5130 R	0x140A	uint16		outHVACMode	Esatado modo Funcionamiento: OFF: 0; FRIO: 1; CALOR: 2; VENTILACION: 3; DESHUMECTACION: 4; AUTO : 10; AUTO FRIO: 11; AUTO CALOR: 12	0 .. 12
5131 R	0x140B	uint16		outOnOff	Estado display: OFF: 0; ON: 1	0 .. 1
5132 R	0x140C			outFanCoilState	Estado Control fan-Coil: OFF: 0; ON: 1	0 .. 1
5133 R	0x140D	uint16		outFanSpeed	Velocidad Fan-Coil: OFF: 0; FCI: 1; FCII:2; FCIII:3 AUTO sin FC: 10; AUTO FCI: 11; AUTO FCII: 12; AUTO FCIII: 13	0 .. 3 y 10..13
5134 R	0x140E	uint16		outRadiantState	Indica estado suelo Radiante: OFF:0, ON:1	0 .. 1
5135 R	0x140F	uint16		outValveState	Indica estado Valvula OFF: 0; ON: 1	0 .. 1
5136-5139 R	0x1410-0x1413				Reserved	
5140-5169 R	**0x1414-0x1431**				**Visualizacion Iconos**	
5140 R	0x1414	uint16		outShowOpenWindow	Estado icono Ventana abierta Cerrada: 0; Abierta: 1	0..1
5141 R	0x1415	uint16		outShowConfMode	Estado icono CONF/ECO/ANTI: OFF: 0; CONF: 1; ECO: 2; ANTI: 3	0..3
5142 R	0x1416	uint16		outShowAlarm	Estado icono Alarma: Apagado: 0; Encendido: 1	0..1
5143 R	0x1417	uint16		outPadlockState	Estado icono Candado OFF: 0; ON: 1	0..1
5144 R	0x1418	uint16		outBluetoothState	Estado icono Bluetooth OFF: 0; ON: 1	0..1
5145 R	0x1419	uint16		outBatteryStatus	Estado icono Batería OFF: 0; LOW: 1; MID: 2; HIGH: 3	0..3
5146 R	0x141A	uint16		outOnOffIcon	Estado Icono ON/OFF. OFF: 0; ON: 1; Apagado: 0xFFFF	0 .. 1
5147 R	0x141B	uint16		outErrorCfg	Muestra el mensaje de error de configuración del equipo	0: No error <>0: Error (ver tabla)
5148-5169 R	0x141C-0x1431				Reserved	
5170-5199 R	**0x1432-0x144F**				**Visualizacion estado Teclas y indicadores Led**	
5170 R	0x1432	uint16	Objeto interface Leds	outLedOnOff	Estado led ON/OFF OFF: 0; ON Azul: 1; ON Rojo: 2	0..2
5171 R	0x1433	uint16		outLedLights	Estado led blanco teclas Lights OFF: 0; ON: 1	0..1
5172 R	0x1434	uint16		outLedECO	Estado led verde ECO	0..1
5173 R	0x1435	uint16	Objeto control iluminación	outChangeRegLightON	Notifica si ha habido un cambio en la tecla Light Up: 0: Tecla soltada; 1: Tecla pulsada; 0xFFFF: Sin cambios	0..1, 0xFFFF
5174 R	0x1436	uint16		outChangeRegLightOFF	Notifica si ha habido un cambio en la tecla Light Down: 0: Tecla soltada; 1: Tecla pulsada; 0xFFFF: Sin cambios	0..1, 0xFFFF
5175 R	0x1437	uint16		outLightCommand	Estado lógico objeto control iluminación. Teclas LightON/LightOFF OFF: 0; ON: 1	0..1
5176 R	0x1438	uint16	Objeto control Persiana	outChangeRegBlindRise	Notifica si ha habido un cambio en la tecla Blind Rise: 0: Tecla soltada; 1: Tecla pulsada; 0xFFFF: Sin cambios	0..1, 0xFFFF
5177 R	0x1439	uint16		outChangeRegBlindLower	Notifica si ha habido un cambio en la tecla Blind Lower: 0: Tecla soltada; 1: Tecla pulsada; 0xFFFF: Sin cambios	0..1, 0xFFFF
5178 R	0x143A	uint16		outBlindCommand	Estado lógico objeto control persianas. Teclas BlindRise/BlindLower	0 = parada 1 = subiendo temporizado 2 = bajado temporizado 3 = subiendo forzado 4 = bajando forzado
5179-5199 R	0x143B-0x144F				Reserved	

NOTES:

1) The registers' values are expressed in decimal notation.
2) Coding table of the register's grouped bits:

outInfo.LSB	
Bit0	B00_outLockConf
Bit1	B01_unused
Bit2	B02_outLockKeys0
Bit3	B03_outLockKeys1
Bit4	B04_outFanSpeed_FCI
Bit5	B05_outFanSpeed_FCII
Bit6	B06_outFanSpeed_FCIII
Bit7	B07_outFanSpeed_AUTO
Bit8	B08_outHVACMode0
Bit9	B09_outHVACMode1
Bit10	B10_outHVACMode2
Bit11	B11_unused
Bit12	B12_outOnOff
Bit13	B13_outFanCoilState
Bit14	B14_unused
Bit15	B15_outRadiantState

outInfo.MSB	
Bit16	B16_outShowConfMode0
Bit17	B17_outShowConfMode1
Bit18	B18_unused
Bit19	B19_unused
Bit20	B20_outValveState
Bit21	B21_outShowOpenWindow
Bit22	B22_outShowAlarm
Bit23	B23_outPadlockState
Bit24	B24_outBluetoothState
Bit25	B25_outOnOffIcon
Bit26	B26_unused
Bit27	B27_unused
Bit28	B28_outBatteryStatus0
Bit29	B29_outBatteryStatus1
Bit30	B30_unused
Bit31	B31_unused

Device configuration error table:

Código Error	Descripción
E043	cfgSetTempCoolMaxReal < cfgSetTempCoolMinReal
E121	cfgSetHRMaxUser < cfgSetHRMinUser
E161	cfgSetTempCoolMaxUser < cfgSetTempCoolMinUser
E179	cfgSetTempHeatMinUser > cfgSetTempHeatMaxUser
E177	cfgSetTempHeatMinReal > cfgSetTempHeatMaxReal