FERCO

CONTROLLERRF1.5

Underfloor heating and fan-coil control

2 stages hot/cold

Temperature measurement

Relative humidity measurement and anti-condensation function on the floor (optional)

SPECIFICATIONS
REGULATOR SRF1.5

SRF1.5

BUTTONS

4 BUTTONS: ON/OFF, MODE, UP y DOWN.

Note: If the backlight is off, the first press (on any button) turns the backlight on. With the backlight on, the functions of the push buttons are as described below.

Basic functions:

- ON/OFF:
  Short press: Selects the operating status on/off.
  When the time program is activated, the on/off depends on the time program.
  Long Press: Activates and deactivates the time scheduling.

- MODE:
  Short Press: Selects the heating/cooling mode of operation.
  Long Press (5s aprox): Access the configuration menu: (CF):
    - Date setting (H0r A).
    - Configuration of time schedules (Pr 00).
    - Parameter settings (PAr).
    - Underfloor heating/fan-coil installation configuration (nnodo).
    - Regulator reset (rESEt).

- UP: Short Press:
  Increases the temperature setpoint (15ºC→30ºC).
  Increases the fan speed (VA...V1...V2...V3).
  Long Press: Selects the fan speed display.

- DOWN:
  Short Press: Decrease the temperature setpoint (30ºC→15ºC).
  Decrements the fan speed (V3...V2...V1...VA).
  Long Press: Selects the fan speed display.

Note: If MODE+RISE is pressed continuously when supplying voltage to the regulator, or after a reset of the regulator, the regulator returns to the default values (shown on the display dEFEC).

Configuration Menu (CF):

Use UP and DOWN to select the mode to be accessed. To enter the selected mode, press MODE. To exit, press ON/OFF.

- Date setting (HOrA): Use MODE to select the data to be changed (day/time) and UP and DOWN to change the value. Press ON/OFF to exit the date setting and return to normal operating mode.
- Configuration of time schedules (PrOG): Use MODE to select the data to be modified (day/period/setpoint), and UP and DOWN to modify the corresponding value (time/setpoint). To deactivate the period, set the time to the value --:--. Press ON/OFF to exit the time setting mode and return to normal operation. See time programming of the controller SRF1.5.
- Parameter settings (PAr): MODE is used to select the parameter to be displayed, and UP and DOWN are used to change the parameter value. Press ON/OFF to exit parameter mode and return to normal operating mode. See SRF1.5 controller parameters.
- Installation configuration (modo): Press UP to set the operation of the underfloor heating. Press DOWN to set the fan coil operation. Press ON/OFF to exit this mode and return to normal operation. See installation configuration of the SRF1.5 controller.
- Regulator reset (rESEt): When the controller is reset, the display shows "-----", and operation restarts after a few seconds.

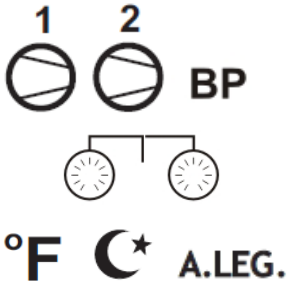
DISPLAY LCD

Note: When power is applied to the controller, or after a reset of the controller, the following is shown on the display:

- SRF1.5: SRF1.5 controller indication.
- v X.X: Indication of the firmware version of the controller.
- wAit: Indication that the controller is in the process of initialisation.

Icono	Indicación
AUTO	Operating status on/off: Off: Icon off. On: Icon on.
❄ ☼	Hot/cold operating mode: Cool: Icon ❄ on. Heat: Icon ☼ on.
⏦	State of underfloor heating valve: Off: Icon off. On: Icon on.
⋈	Fan-coil valve status: Off: Icon off. On: Icon on.
1 2 3	Fan-coil fan status: Fan off: Icons off. Fan on low speed: Fan icon on + 1. Fan on medium speed: Fan icon on + 2. Fan on high speed: Fan icon on + 3.
1 2	Demand for stages: 0 stage: Icons off. 1 stage: Icon 1 on. 2 stages: Icon 2 on.

Icon	Indication
	Ambient temperature measurement: Measuring range: 0ºC...50ºC. Sensor failure: - - - .  Measurement of ambient relative humidity: Measuring range: 0%...100%. Sensor failure: - - .  The relative humidity measurement is only displayed if the anti-condensation setpoint is not 0. In parameter mode it indicates the parameter number.
	Anti-condensation function: Not active: Icon off. Active: Icon on.
	Temperature sensor alarm: No alarm: Icon off. Alarm: Icon on.
	Relative humidity sensor alarm: No alarm: Icon off. Alarm: Icon on.
	Off. Current time (00:00…23:59). Temperature set point (15ºC...30ºC). Displayed next to ºC. Fan speed (VA...V1...V2...V3). In parameter mode, it indicates the value of the parameters. In time programming mode, it indicates the time that is programmed as start or stop time.
AP	Parameters mode.
	**Time programming deactivated.** Operation according to manual on/off selection. **Time programming activated.** Operation according to the time program.
	First marching programming period.

Icono [cf]	Indicación
	Second marching programming period.
	Shutdown scheduling periods.
LUN MAR MIE JUE VIE SAB DOM	Day of the week. In time programming, it indicates the day of the week that is being programmed.
	Unused.

CONFIGURABLE PARAMETERS OF THE SRF1.5 CONTROLLER

To access the parameter mode, in normal operating mode, press MODE continuously until the display shows the initials CF (configuration menu). Displaying CF, with the UP and DOWN keys select PAr (parameter mode) and press MODE to enter the parameter mode, displaying the parameter 1 and the icon AP.

In parameter mode, the functions of the push buttons are as follows:

- ON/OFF: Exits parameter mode.
- MODE: Accepts the displayed parameter value and moves to the next parameter.
- UP: Increases the parameter value.
- DOWN: Decreases the parameter value.

List of parameters

1. STAGE DIFFERENTIAL (range: 1.0ºC to 5.0ºC; default: 2.0ºC)
2. RADIANT GROUND STAGE HYSTERESIS (range: 0.5ºC to 1.0ºC; default: 0.5ºC)
3. FAN-COIL STAGE HYSTEResis (range: 0.5ºC to 1.0ºC; default: 0.5ºC)
4. AUTO/CONTINUOUS FAN-COIL FAN OPERATION (range: 0 to 1; default: 0)
   0: Auto.
   1: Continous.
5. FAN-COIL FAN SPEED DIFFERENTIAL (range: 1.0ºC to 2.0ºC; default: 1.0ºC)
6. FAN-COIL FAN SPEEDS (range: 0.5ºC to 1.0ºC; default: 0.5ºC)
7. TIEMPO ENTRE ADQUISICIÓN DE MEDIDAS (filtrado medida de temperatura) (range: 1 to 100; default: 20)
   To obtain the time between temperature measurements, given in ms, multiply this parameter by 50.
   1: 50ms ... 20: 1000ms(1s) ... 100: 5000ms(5s)
8. LIMITS CONSECUTIVE MEASUREMENT (filtrado medida de temperatura) (range: 1 [±1] to 16 [±16]; default: 1 [±1])
9. TEMPERATURE OFFSET (range: -5,0ºC to +5,0ºC; default: 0,0ºC)
10. EC FAN LOW SPEED (range: 0% to 100%; default: 30%)
11. AVERAGE FAN SPEED EC (range: 0% to 100%; default: 60%)
12. EC FAN HIGH SPEED (range: 0% to 100%; default: 100%)
13. ANTI-CONDENSATION CONSIGNA (range: 0, 1% to 95%; default: 0 [Function disabled])
    =0: Function disabled.
    >0: Function enabled.
14. RELATIVE HUMIDITY OFFSET (range: -10% to +10%; default: 0%)
15. COMMUNICATIONS ADDRESS (range: 1 to 240; default: 1)

TIME PROGRAMMING OF THE SRF1.5 CONTROLLER

To access the parameter mode, in normal operating mode, press MODE continuously until the display shows the initials CF (configuration menu). Viewing CF ,Use the UP and DOWN keys to select PROG (time programming mode) and press MODE to enter the time programming mode. time programming mode.

In time programming mode, the functions of the pushbuttons are as follows:

- ON/OFF:

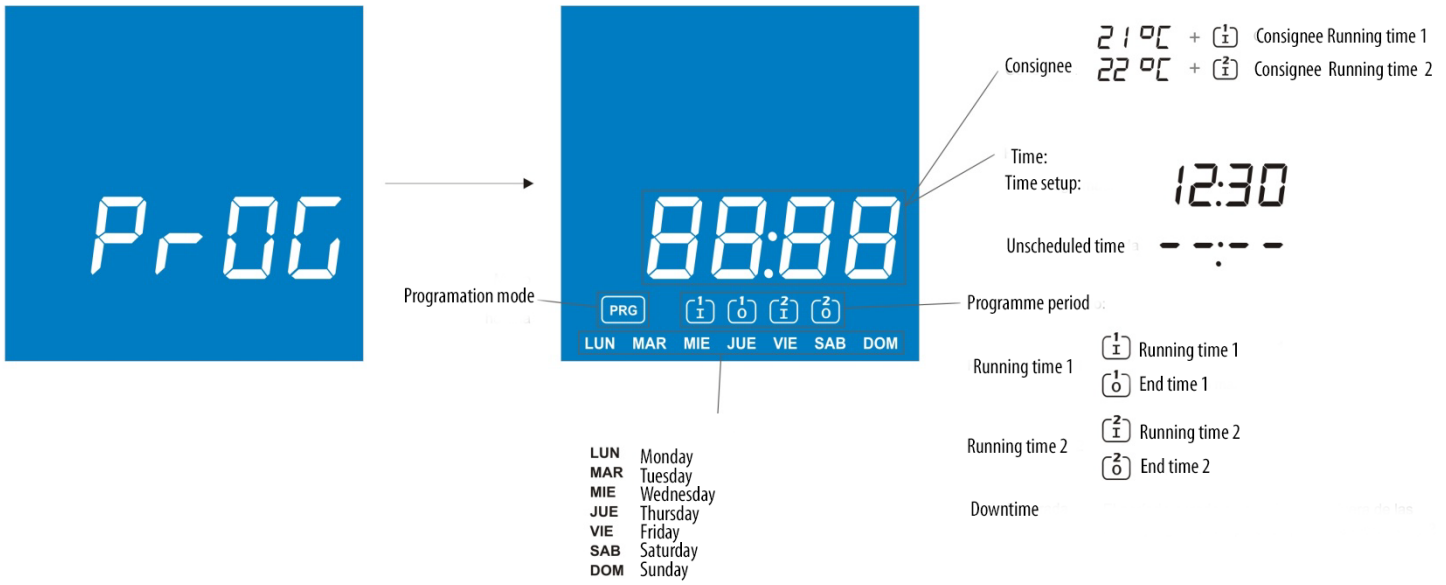
  Short press: Exits time programming mode.

  Long press (~1s): Copies the previous day's programming to the current day. as confirmation of the copy of the day.

  - MODE: Selects the period (day, run periods 1 and 2), and the setpoints for these periods.

  - UP/DOWN: Modifies the value of the corresponding time or setpoint.

Displays in time scheduling mode:



Example of a timetable:

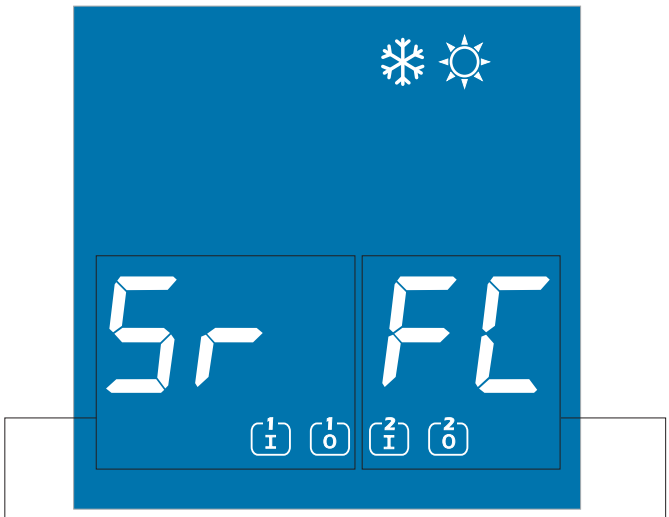
Timetable and slogans:

		MONDAY	TUESDAY	WENESDAY	THURDAY	FRIDAY	SATURDAY	SUNDAY
RUNNING TIME 1	*Inicio*							
	Fin							
RUNNING TIME 2	*Inicio*							
	Fin							

	RUNNING TIME 1	RUNNING TIME 2
TEMPERATURE		

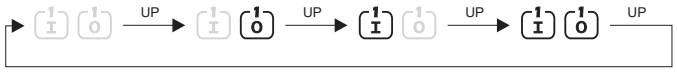
Installation configuration: Underfloor heating and/or fan-coil.

To access the installation configuration mode, in normal operating mode, press MODE continuously until the initials CF appear on the screen (configuration menu) . When CF, cuse the UP and DOWN keys to select modo (installation configuration mode) and press MODE to access this mode.



HEATING FLOOR

The underfloor heating is selected by pressing the UP key:



- Underfloor heating not cold enabled
- Underfloor heating yes cold enabled
- Underfloor heating not heat enabled
- Underfloor heating yes heat enabled

FAN-COIL

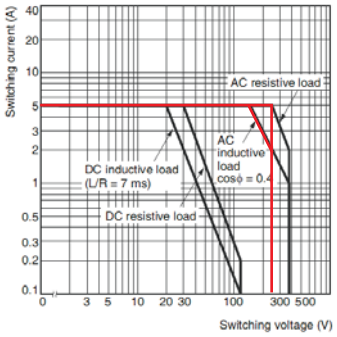
The fan coil is selected by pressing the DOWN button:

- Fan-coil not cold enabled
- Fan-coil yes cold enabled
- Fan-coil not heat enabled
- Fan-coil yes heat enabled

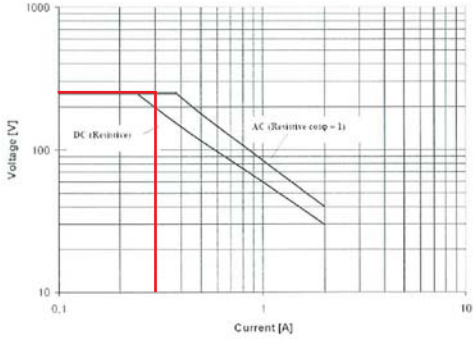
To exit the installation configuration mode, press ON/OFF.

Wiring diagram SRF1.5 REGULATOR

Rele fan
[Relés 1, 2 y 3]



Rele valve
[Relés 4 y 5]

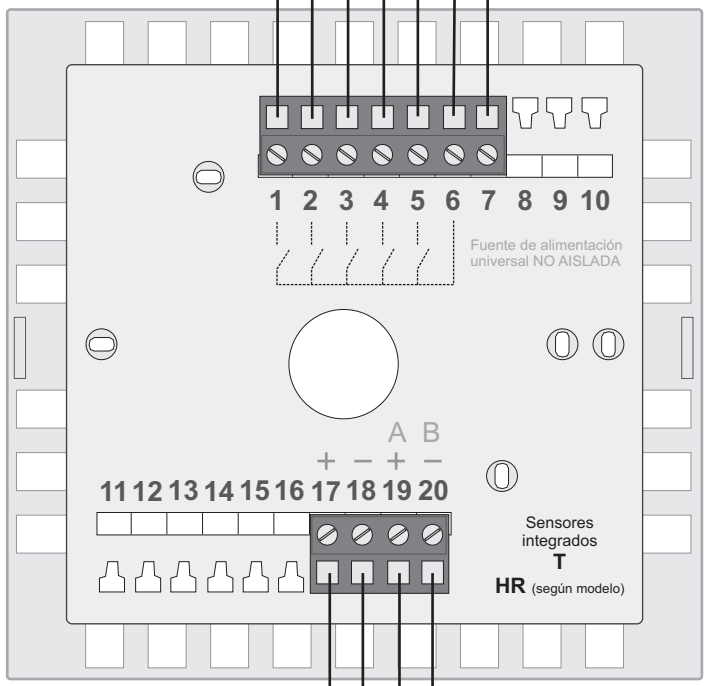


Salidas por contactos de relé polarizados con tensión (borna 6)

Rele 5: RADIANT FLOOR VALVE
Rele 4: FAN-COIL VALVE
Rele 3: LOW SPEED FAN-COIL FAN-COIL FAN Rele
2: MEDIUM SPEED FAN-COIL FAN
Rele 1: HIGH SPEED FAN-COIL FAN

Ventilador AC
3 velocidades

L **ELECTRICAL OPERATING VOLTAGE**
N **100...250V**



LCD display with
LED backlight

Ventilador EC
señal de control 0...10V

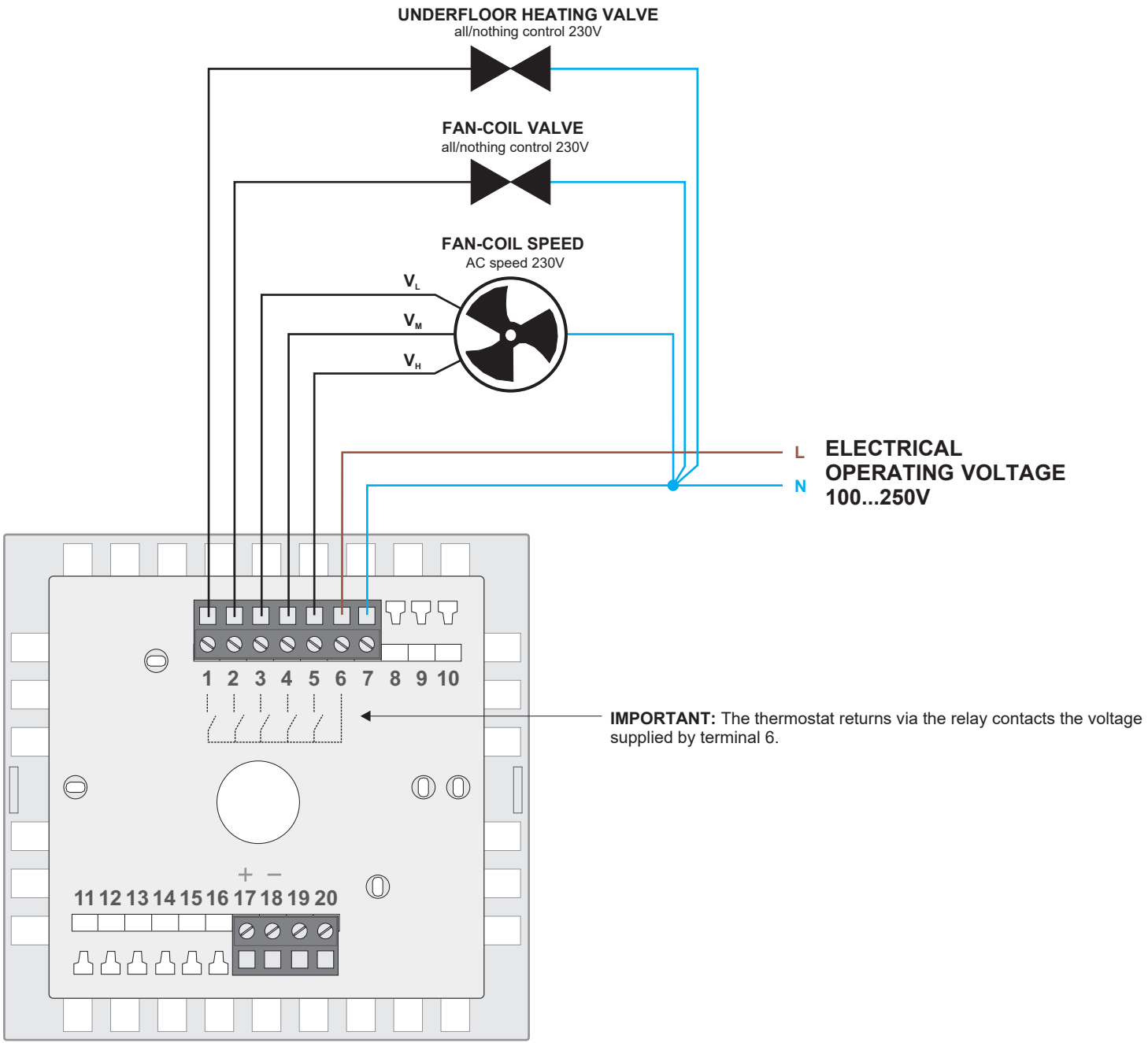
FAN SPEED 0%...100%. +
Fan speed reference −

Salida proporcional 0...10V

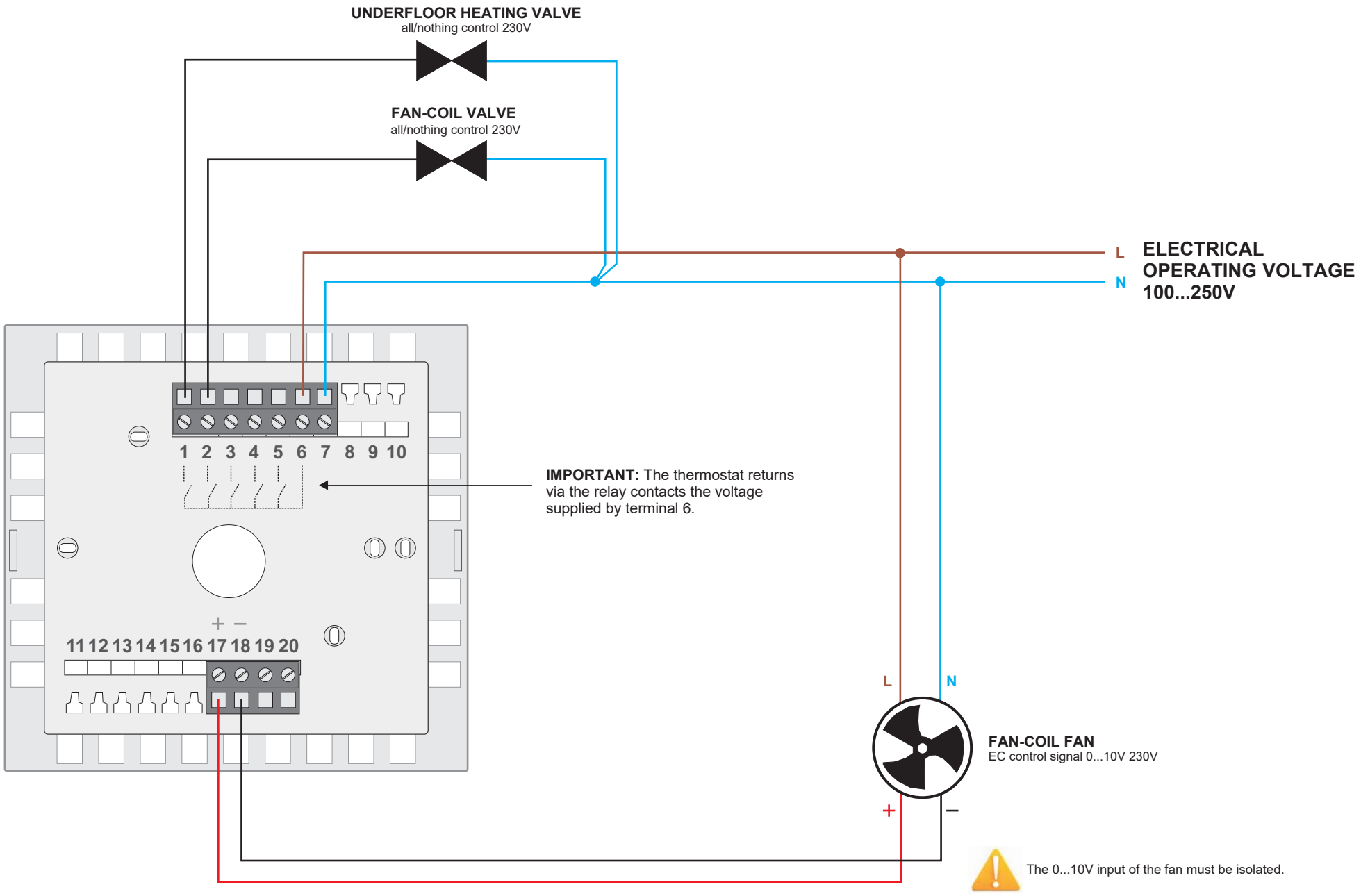
− **SERIAL COMMUNICATIONS CHANNEL**
+ RS-485 Modbus RTU
Isolated communications channel

La entrada 0...10V del ventilador debe estar aislada

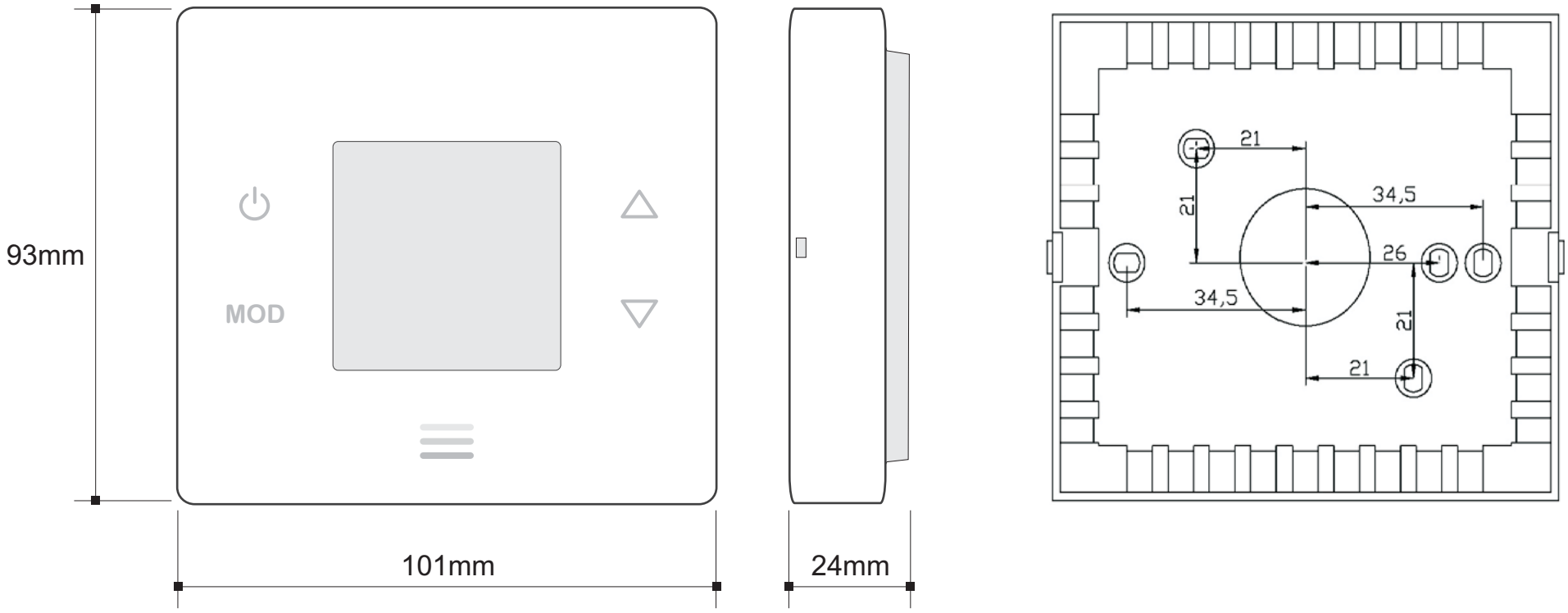
Detail of connection of AC fan and valves on REGULATOR SRF1.5



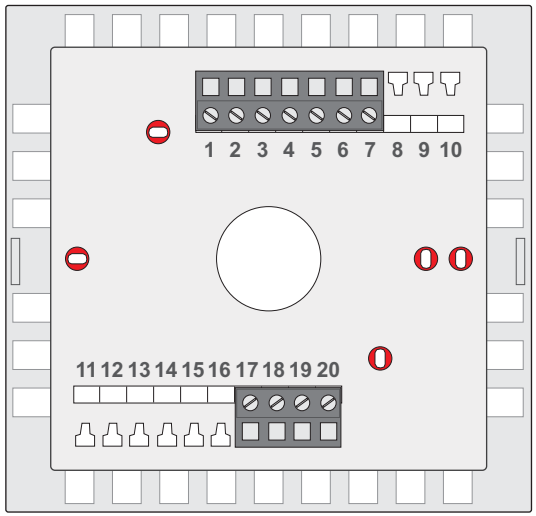
Detail of connection of EC fan and valves on REGULATOR SRF1.5



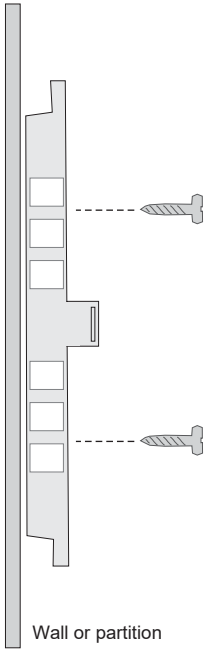
Dimensions REGULATOR SRF1.5



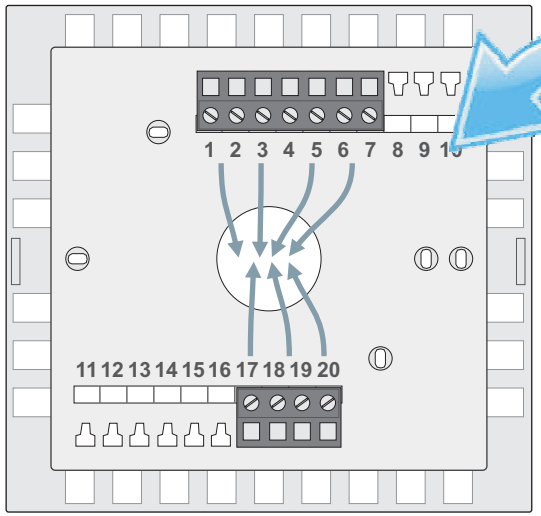
Assembly REGULATOR SRF1.5



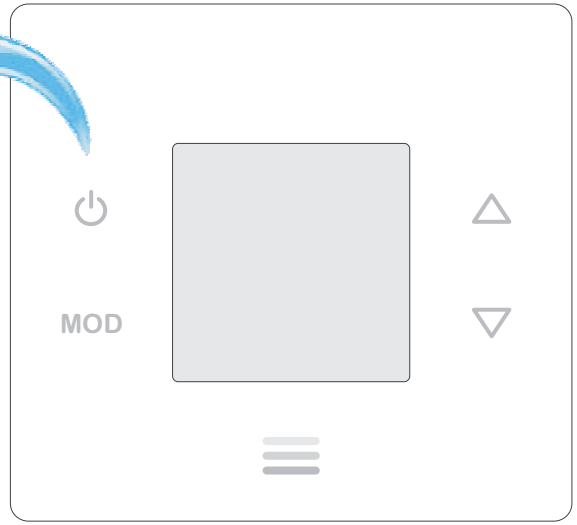
Holes for screwing the mounting base to the wall or partition wall



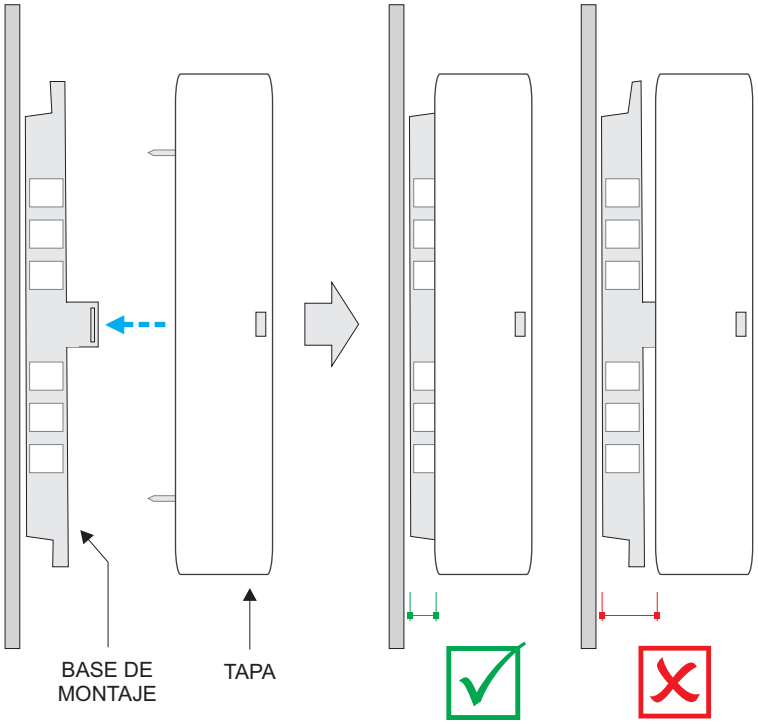
Wall or partition



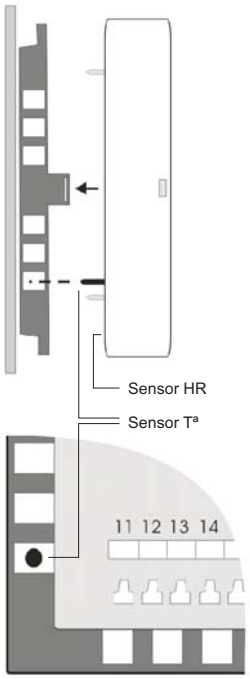
Connect the cables to the terminals of the mounting base

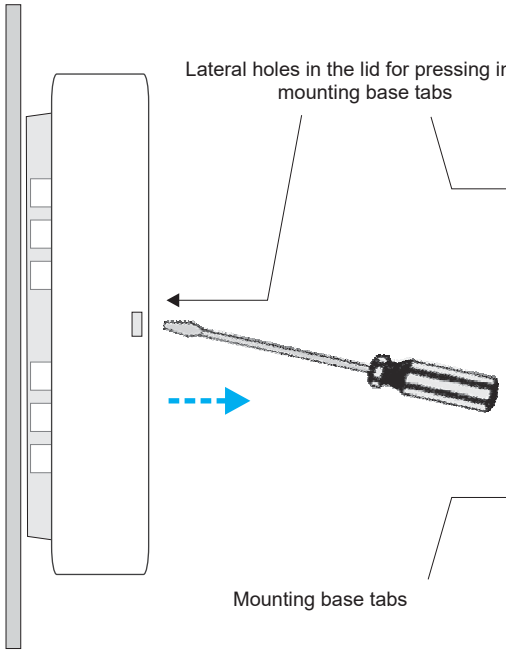


Fit the front cover onto the mounting base.
BE CAREFUL WITH THE MOUNTING POSITION.
DO NOT MOUNT UPSIDE DOWN, THE REGULATOR MAY BE DAMAGED.



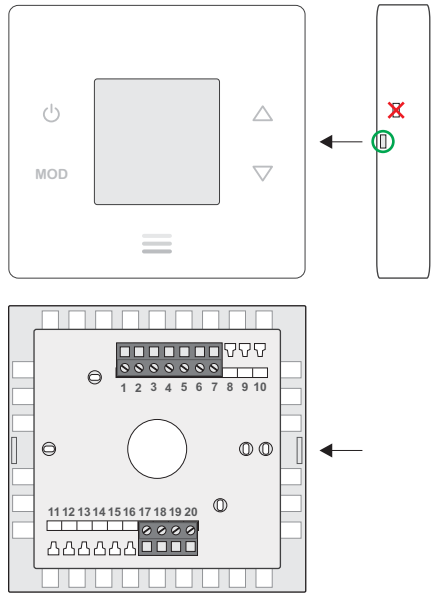
INTEGRATED SENSORS
Temperature
Relative humidity (depending on model)





Lateral holes in the lid for pressing in the mounting base tabs

Mounting base tabs



SRF1.5 CONTROLLER COMMUNICATIONS PROTOCOL

The protocol used is MODBUS RTU mode with the following characteristics: RS-485 (2 wire).
Maximum number of elements on the bus: 32 (1 master + 31 slaves).

- Communication speed: 9600 baud.
- Data format:
  - 8 bits.
  - No parity.
  - 1 stop bit.
- 16-bit (2-byte) registers.
  Variable format: High Word First [H/L].
- CRC according to polynomial $x^{16} + x^{15} + x^2 + 1$.

Note: Retrying communications is recommended. Timeout: 1sec.

Note: Recommended minimum Wait To Send time: 100ms.

LOG READING

For reading registers it is possible to use command codes 3 or 4 with the following message structure:

Nº esclavo (1 byte) – Código (03 ó 04) (1 byte) – Dirección del 1er registro a leer (00-XX) (2 bytes) – Nº de registros a leer (00-YY) (2 bytes) – CRC16 (2 bytes)

Nº máximo de registros a leer en el mismo mensaje = 62 (del registro 0 al registro 61)

The regulator's reply has the following message structure:

Nº esclavo (1 byte) – Código (03 ó 04) (1 byte) – Nº de bytes de datos (XX) (1 byte) – Datos (AA-BB-CC-DD…) (2 bytes para cada registro) – CRC16 (2 bytes)

*Nº de bytes de datos = 2 * Nº de registros a leer*

RECORD WRITING

Command code 6 with the following message structure is used for writing records:

Nº esclavo (1 byte) – Código (06) (1 byte) – Dirección del registro a escribir (00-XX) (2 bytes) – Dato a escribir en el registro (AA-BB) (2 bytes) – CRC16 (2 bytes)

The regulator's reply has the following message structure:

Nº esclavo (1 byte) – Código (06) (1 byte) – Dirección del registro escrito (00-XX) (2 bytes) – Dato escrito en el registro (AA-BB) (2 bytes) – CRC16 (2 bytes)

ERRORS

If a code other than the indicated read or write code is used, the response received is:

Nº esclavo – Código OR 80Hex – Código de error (1) – CRC16 (2 bytes)

If an attempt is made to read or write to a register with a non-existent address, the response received is:

Nº esclavo – Código OR 80Hex – Código de error (2) – CRC16 (2 bytes)

If an attempt is made to write to a read-only register or an attempt is made to write an illegal value to a register, the response received is:

Nº esclavo – Código OR 80Hex – Código de error (3) – CRC16 (2 bytes)

MAP OF REGISTERS

Unused bits of the following registers are 0.

Note: In some communications software the first word address is configured as 400001, so that register 0 of the controller corresponds to word address 400001. In summary, the word address to which each controller register corresponds is calculated by adding 1 to the register number in the register map described below.

Device ID registration

- Register 0: 150 [read only].
  - The controller always responds 150 as a sentinel point in 16-bit binary.

Read/write registers

- Register 1: Communications address [read/write].
  - The value sent is the address value (1 to 240) in 16-bit binary.
    Default value: 1 [1].
    If the controller is connected to a serial communications network, it is not possible to configure any network devices at address 245, as the controller also responds to this address.
    BROADCAST ADDRESS: Address 250 (the controller receives the communication, but does not respond). All write registers are broadcast.

- Register 2: Operating status on/off [read/write].
  - 0: Off.
    1: On.
    Default value: 0 [0ff].
    =240 (0xF0): Default values.
    =255 (0xFF): Reset.
- Register 3: Cool/heat operating mode [read/write].
  - 0: Cool.
    1: Heat.
    Default value: 0 [Cool].
- Register 4: Temperature setpoint [read/write].
  - The value sent is the setpoint value (15ºC to 30ºC) in 16-bit binary*. Default value: 23 [23ºC].*
- Record 5: Temperature setpoint start period 1 (time schedule) [read/write].
  - The value sent is the setpoint value (15ºC to 30ºC) in 16-bit binary. *Default value: 21 [21ºC].*
- Register 6: Start temperature setpoint period 2 (time schedule) [read/write].
  - The value sent is the setpoint value (15ºC to 30ºC) in 16-bit binary. *Default value: 22 [22ºC].*
- Register 7: Inter-stage differential [read/write].
  - The value sent is the value of the differential (1.0ºC to 5.0ºC) multiplied by 10 in 16-bit binary.
    Default value: 20 [2,0ºC].

- Register 8: Underfloor stage hysteresis [read/write].
  - The value sent is the hysteresis value (0.5ºC to 1.0ºC) multiplied by 10 in 16-bit binary.
    Default value: 5 [0,5ºC].

- Register 9: Fan-coil stage hysteresis [read/write].
  - The value sent is the hysteresis value (0.5ºC to 1.0ºC) multiplied by 10 in 16-bit binary.
    Default value: 5 [0,5ºC].

- Register 10: Auto/continuous fan-coil fan operation [read/write].
  - 0: Auto. Fan operation with fan-coil valve demand.
    1: Continous. Continuous fan operation (independent of fan-coil valve demand).
    Default value: 0 [Auto].

- Register 11: Fan-coil fan speed [read only].
  - *0: Auto speed (VA).*
    1: On low speed (V1).
    2: On medium speed (V2).
    3: On high speed (V3).
    Default value: 0 [Auto speed].

- Register 12: Fan-coil fan speed differential [read/write].
  - The value sent is the value of the differential (1.0ºC to 2.0ºC) multiplied by 10 in 16-bit binary.
    Valor por defecto: 10 [1,0ºC].

- Register 13: Fan-coil fan speed hysteresis [read/write].
  - The value sent is the hysteresis value (0.5ºC to 1.0ºC) multiplied by 10 in 16-bit binary.
    Default value: 5 [0,5ºC].

- Register 14: Temperature measurement filtering [read/write].
  - High byte: Time between measurement acquisition.
    The value sent is the value of the filtering (1 to 100) in 8-bit binary.
    To obtain the time between temperature measurements, given in ms, multiply this parameter by 50.
    Default value:20 [1000ms].
    1 50ms 0x0001
    ...
    20 1000ms(1s) 0x0014
    ...
    100 5000ms(5s) 0x0064
  - Low byte: Limits consecutive measurement.
    The value sent is the value of the limit (±1 to ±16) in 8-bit binary.
    Default value: 1 [±1].
- Register 15: Temperature offset (calibración medida de temperatura) [read/write].
  - The value sent is the value of the offset (-5.0ºC to +5.0ºC) multiplied by 10 in binary from 16 bits.
    Default value: 0 [0,0ºC].
    Negative values are sent in 2's complement in 16-bit binary.
    -5,0ºC 0xFFCE
    0,0ºC 0x0000
    +5,0ºC 0x0032
- Registro 16: Velocidad baja ventilador EC [lectura/escritura].
  - The value sent is the speed value (0% to 100%) in 16-bit binary.
    Default value: 30 [30%].
- Register 17: Average EC fan speed [read/write].
  - The value sent is the speed value (0% to 100%) in 16-bit binary.
    Default value: 60 [60%].
- Register 18: EC fan high speed [read/write].
  - The value sent is the speed value (0% to 100%) in 16-bit binary. Default value: 100 [100%]. *Default value: 100 [100%].*
- Register 19: Anti-condensation command [read/write].
  Consigna de humedad relativa para desactivar válvula suelo radiante en frío (función anticondensación).
  - The value sent is the setpoint value (0: function disabled, 1% to 95%) in 16-bit binary.
    Default value:0 [0: Función deshabilitada]. Histéresis=5%

- Register 20: Relative humidity offset (calibración medida de humedad relativa) [read/write].
  - The value sent is the offset value (-10% to +10%) in 16-bit binary.
    Default value:0 [0%].
    Los valores negativos se envían en complemento a 2 en binario de 16 bits.
    -10% 0xFFF6
    0% 0x0000
    +10% 0x000A

- Register 21: System configuration (underfloor heating and/or fan-coil) [read/write].
  - High byte: Underfloor heating configuration.
    Bit 8: Underfloor heating in heat (0: No, 1: Yes).
    Bit 9: Underfloor heating in cold (0: No, 1: Yes).
    Default value: 3 [radiant floor heating and cooling].
  - Low byte: Fan-coil configuration.
    Bit 0: Fan-coil heating (0: No, 1: Yes).
    Bit 1: Fan-coil cooling (0: No, 1: Yes).
    Default value: 3 [radiant floor heating and cooling].
- Register 22: Time scheduling [read/write].
  - 0: Time scheduling deactivated
    1: Time scheduling activated.
    Default value: 0 [Time scheduling disabled].
- Register 23: Day (current date) [read/write].
  - The value sent is the value of the day (0 to 6) in 16-bit binary.
    0 Monday
    1 Tuesday
    2 Wednesday
    3 Thursday
    4 Friday
    5 Saturday
    6 Sunday
    Default value: 0 [Monday].
    This register is not stored in EEPROM, although it remains in the RTC for about 1 week without voltage (the regulator integrates a supercap that acts as a temporary battery to store the time).
- Register 24: Hour:Minutes (current date) [read/write].
  - High byte: Time.
    The value sent is the time value (0h to 23h) in 8-bit binary.
    Default value: 0 [0h].
  - Low byte: Minutes.
    The value sent is the value of the minutes (0min to 59min) in 8-bit binary.
    Default value: 0 [0min].
    This register is not stored in EEPROM, although it remains in the RTC for about 1 week without voltage (the regulator integrates a supercap that acts as a temporary battery to store the time).
- Register 25: Beginning of period 1 MONDAY (hour:minutes) [read/write].
  0xAAAAA: Time not defined (- - : - - -).
  - High byte: Time.
    The value sent is the time value (0h to 23h, 0xAA [170dec]: Not defined) in 8-bit binary.
    Default value: 0xAA[170dec] [Not defined].
  - Low byte: Minutes.
    The value sent is the value of the minutes (0min to 59min, 0xAA [170dec]: Not defined) in 8-bit binary.
    Default value: 0xAA[170dec] [Not defined].
- Record 26: End of scheduling period 1 MONDAY (hour:minutes) [read/write].
  0xAAAAA: Time not defined (- - : - - -).
  - High byte: Time.
    The value sent is the time value (0h to 23h, 0xAA [170dec]: Not defined) in 8-bit binary.
    Default value: 0xAA[170dec] [Not defined].
  - Low byte: Minutes.
    The value sent is the value of the minutes (0min to 59min, 0xAA [170dec]: Not defined) in 8-bit binary.
    Default value: 0xAA[170dec] [Not defined].

- Record 27: Beginning of period 2 MONDAY (hour:minutes) [read/write].
  0xAAAAA: Time not defined (– – : – –).
  - High byte: Time.
    The value sent is the time value (0h to 23h, 0xAA [170dec]: Not defined) in 8-bit binary.
    Default value: 0xAA[170dec] [Not defined].
  - Low byte: Minutes.
    The value sent is the value of the minutes (0min to 59min, 0xAA [170dec]: Not defined) in 8-bit binary.
    Default value: 0xAA[170dec] [Not defined].
- Record 28: End of scheduling period 2 MONDAY (hour:minutes) [read/write].
  0xAAAAA: Time not defined (- - : - - -).
  - High byte: Time.
    The value sent is the time value (0h to 23h, 0xAA [170dec]: Not defined) in 8-bit binary.
    Default value: 0xAA[170dec] [Not defined].
  - Low byte: Minutes.
    The value sent is the value of the minutes (0min to 59min, 0xAA [170dec]: Not defined) in 8-bit binary.
    Default value: 0xAA[170dec] [Not defined].
- Record 29: Beginning of period 1 TUESDAY (hour:minutes) [read/write].
  0xAAAAA: Time not defined (- - : - - -).
  - High byte: Time.
    The value sent is the time value (0h to 23h, 0xAA [170dec]: Not defined) in 8-bit binary.
    Default value: 0xAA[170dec] [Not defined].
  - Low byte: Minutes.
    The value sent is the value of the minutes (0min to 59min, 0xAA [170dec]: Not defined) in 8-bit binary.
    Default value: 0xAA[170dec] [Not defined].
- Register 30: End of time schedule period 1 TUESDAY (hour:minutes) [read/write].
  0xAAAAA: Time not defined (- - : - - -).
  - High byte: Time.
    The value sent is the time value (0h to 23h, 0xAA [170dec]: Not defined) in 8-bit binary.
    Default value: 0xAA[170dec] [Not defined].
  - Low byte: Minutes.
    The value sent is the value of the minutes (0min to 59min, 0xAA [170dec]: Not defined) in 8-bit binary.
    Default value: 0xAA[170dec] [Not defined].
- Register 31: Beginning of period 2 TUESDAY (hour:minutes) [read/write].
  0xAAAAA: Time not defined (- - : - - -).
  - High byte: Time.
    The value sent is the time value (0h to 23h, 0xAA [170dec]: Not defined) in 8-bit binary.
    Default value: 0xAA[170dec] [Not defined].
  - Low byte: Minutes.
    The value sent is the value of the minutes (0min to 59min, 0xAA [170dec]: Not defined) in 8-bit binary.
    Default value: 0xAA[170dec] [Not defined].

- Register 32: End of time schedule period 2 TUESDAY (hour:minutes) [read/write].
  0xAAAAA: Time not defined (- - : - - -).
  - Byte alto: Hora.
    The value sent is the time value (0h to 23h, 0xAA [170dec]: Not defined) in 8-bit binary.
    Default value: 0xAA[170dec] [Not defined].

  - Low byte: Minutes.
    The value sent is the value of the minutes (0min to 59min, 0xAA [170dec]: Not defined) in 8-bit binary..
    Valor por defecto: 0xAA[170dec] [No definido].
- Register 33: Start of period 1 schedule WEDNESDAY (hour:minutes) [read/write].
  0xAAAAA: Time not defined (- - : - - -).
  - High byte: Time.
    The value sent is the time value (0h to 23h, 0xAA [170dec]: Not defined) in 8-bit binary.
    Default value: 0xAA[170dec] [Not defined].

  - Low byte: Minutes.
    The value sent is the value of the minutes (0min to 59min, 0xAA [170dec]: Not defined) in 8-bit binary.
    Default value: 0xAA[170dec] [Not defined].
- Record 34: End of scheduling period 1 WEDNESDAY (hour:minutes) [read/write].
  0xAAAAA: Time not defined (- - : - - -).
  - High byte: Time.
    The value sent is the time value (0h to 23h, 0xAA [170dec]: Not defined) in 8-bit binary.
    Default value: 0xAA[170dec] [Not defined].

  - Low byte: Minutes.
    The value sent is the value of the minutes (0min to 59min, 0xAA [170dec]: Not defined) in 8-bit binary.
    Default value: 0xAA[170dec] [Not defined].
- Record 35: Beginning of period 2 schedule WEDNESDAY (hour:minutes) [read/write].
  0xAAAAA: Time not defined (- - : - - -).
  - High byte: Time.
    The value sent is the time value (0h to 23h, 0xAA [170dec]: Not defined) in 8-bit binary.
    Default value: 0xAA[170dec] [Not defined].

  - Low byte: Minutes.
    The value sent is the value of the minutes (0min to 59min, 0xAA [170dec]: Not defined) in 8-bit binary.
    Default value: 0xAA[170dec] [Not defined].
- Record 36: End of time schedule period 2 WEDNESDAY (hour:minutes) [read/write].
  0xAAAAA: Time not defined (- - : - - -).
  - High byte: Time.
    The value sent is the time value (0h to 23h, 0xAA [170dec]: Not defined) in 8-bit binary.
    Default value: 0xAA[170dec] [Not defined].

  - Low byte: Minutes.
    The value sent is the value of the minutes (0min to 59min, 0xAA [170dec]: Not defined) in 8-bit binary.
    Default value: 0xAA[170dec] [Not defined].

Register 37: Beginning of time scheduling period 1 THURSDAY (hour:minutes) [read/write].

0xAAAAA: Time not defined (- - : - - -).

- High byte: Time.
  The value sent is the time value (0h to 23h, 0xAA [170dec]: Not defined) in 8-bit binary. 8-bit binary.

  Default value: 0xAA[170dec] [Not defined].
- Low byte: Minutes.
  The value to be sent is the value of the minutes (0min to 59min, 0xAA [170dec]: Not defined) in 8-bit binary.

  Default value: 0xAA[170dec] [Not defined].

Record 38: End of time schedule period 1 THURSDAY (hour:minutes) [read/write].

0xAAAAA: Time not defined (- - : - - -).

- High byte: Time.
  The value sent is the time value (0h to 23h, 0xAA [170dec]: Not defined) in 8-bit binary. 8-bit binary.

  Default value: 0xAA[170dec] [Not defined].
- Low byte: Minutes.
  The value to be sent is the value of the minutes (0min to 59min, 0xAA [170dec]: Not defined) in 8-bit binary.

  Default value: 0xAA[170dec] [Not defined].

Record 39: Beginning of period 2 time schedule THURSDAY (hour:minutes) [read/write].

0xAAAAA: Time not defined (- - : - - -).

- High byte: Time.
  The value sent is the time value (0h to 23h, 0xAA [170dec]: Not defined) in 8-bit binary. 8-bit binary.

  Default value: 0xAA[170dec] [Not defined].
- Low byte: Minutes.
  The value to be sent is the value of the minutes (0min to 59min, 0xAA [170dec]: Not defined) in 8-bit binary.

  Default value: 0xAA[170dec] [Not defined].

Register 40: End of time schedule period 2 THURSDAY (hour:minutes) [read/write].

0xAAAAA: Time not defined (- - : - - -).

- High byte: Time.
  The value sent is the time value (0h to 23h, 0xAA [170dec]: Not defined) in 8-bit binary. 8-bit binary.

  Default value: 0xAA[170dec] [Not defined].
- Low byte: Minutes.
  The value to be sent is the value of the minutes (0min to 59min, 0xAA [170dec]: Not defined) in 8-bit binary.

  Default value: 0xAA[170dec] [Not defined].

Register 41: Start of time programming period 1 FRIDAY (hour:minutes) [read/write].

0xAAAAA: Time not defined (- - : - - -).

- High byte: Time.
  The value sent is the time value (0h to 23h, 0xAA [170dec]: Not defined) in 8-bit binary. 8-bit binary.

  Default value: 0xAA[170dec] [Not defined].
- Low byte: Minutes.
  The value to be sent is the value of the minutes (0min to 59min, 0xAA [170dec]: Not defined) in 8-bit binary.

  Default value: 0xAA[170dec] [Not defined].

Register 42: End of time schedule period 1 FRIDAY (hour:minutes) [read/write].

0xAAAAA: Time not defined (- - : - - -).

- Byte alto: Hora.
  The value sent is the time value (0h to 23h, 0xAA [170dec]: Not defined) in 8-bit binary.
  Default value: 0xAA[170dec] [Not defined].

- Low byte: Minutes.
  The value sent is the value of the minutes (0min to 59min, 0xAA [170dec]: Not defined) in 8-bit binary..
  Valor por defecto: 0xAA[170dec] [No definido].

Register 43: Start of period 2 schedule FRIDAY (hour:minutes) [read/write].

0xAAAAA: Time not defined (- - : - - -).

- High byte: Time.
  The value sent is the time value (0h to 23h, 0xAA [170dec]: Not defined) in 8-bit binary.
  Default value: 0xAA[170dec] [Not defined].

- Low byte: Minutes.
  The value sent is the value of the minutes (0min to 59min, 0xAA [170dec]: Not defined) in 8-bit binary.
  Default value: 0xAA[170dec] [Not defined].

Record 44: End of scheduling period 2 FRIDAY (hour:minutes) [read/write].

0xAAAAA: Time not defined (- - : - - -).

- High byte: Time.
  The value sent is the time value (0h to 23h, 0xAA [170dec]: Not defined) in 8-bit binary.
  Default value: 0xAA[170dec] [Not defined].

- Low byte: Minutes.
  The value sent is the value of the minutes (0min to 59min, 0xAA [170dec]: Not defined) in 8-bit binary.
  Default value: 0xAA[170dec] [Not defined].

Record 45: Beginning of period 1 schedule SATURDAY (hour:minutes) [read/write].

0xAAAAA: Time not defined (- - : - - -).

- High byte: Time.
  The value sent is the time value (0h to 23h, 0xAA [170dec]: Not defined) in 8-bit binary.
  Default value: 0xAA[170dec] [Not defined].

- Low byte: Minutes.
  The value sent is the value of the minutes (0min to 59min, 0xAA [170dec]: Not defined) in 8-bit binary.
  Default value: 0xAA[170dec] [Not defined].

Record 46: End of time schedule period 1 SATURDAY (hour:minutes) [read/write].

0xAAAAA: Time not defined (- - : - - -).

- High byte: Time.
  The value sent is the time value (0h to 23h, 0xAA [170dec]: Not defined) in 8-bit binary.
  Default value: 0xAA[170dec] [Not defined].

- Low byte: Minutes.
  The value sent is the value of the minutes (0min to 59min, 0xAA [170dec]: Not defined) in 8-bit binary.
  Default value: 0xAA[170dec] [Not defined].

- Record 47: Beginning of period 2 SATURDAY time schedule (hour:minutes) [read/write].
  0xAAAAA: Time not defined (- - : - - -).
  - High byte: Time.
    The value sent is the time value (0h to 23h, 0xAA [170dec]: Not defined) in 8-bit binary.
    Default value: 0xAA[170dec] [Undefined].
  - Low byte: Minutes.
    The value sent is the value of the minutes (0min to 59min, 0xAA [170dec]: Not defined) in 8-bit binary.
    Default value: 0xAA[170dec] [Undefined].
- Record 48: End of time schedule period 2 SATURDAY (hour:minutes) [read/write].
  0xAAAAA: Time not defined (- - : - - -).
  - High byte: Time.
    The value sent is the time value (0h to 23h, 0xAA [170dec]: Not defined) in 8-bit binary.
    Default value: 0xAA[170dec] [Undefined].
  - Low byte: Minutes.
    The value sent is the value of the minutes (0min to 59min, 0xAA [170dec]: Not defined) in 8-bit binary..
    Default value: 0xAA[170dec] [Undefined].
- Register 49: Beginning of time programming period 1 SUNDAY (hour:minutes) [read/write].
  0xAAAAA: Time not defined (- - : - - -).
  - High byte: Time.
    El valor que se envía es el valor de la hora (0h a 23h, 0xAA [170dec]: No definido) en binario de 8 bits.
    Default value: 0xAA[170dec] [Undefined].
  - Low byte: Minutes.
    The value sent is the value of the minutes (0min to 59min, 0xAA [170dec]: Not defined) in 8-bit binary.
    Default value: 0xAA[170dec] [Undefined].
- Record 50: End of time schedule period 1 SUNDAY (hour:minutes) [read/write].
  0xAAAAA: Time not defined (- - : - - -).
  - High byte: Time.
    The value sent is the time value (0h to 23h, 0xAA [170dec]: Not defined) in 8-bit binary.
    Default value: 0xAA[170dec] [Undefined].
  - Low byte: Minutes.
    The value sent is the value of the minutes (0min to 59min, 0xAA [170dec]: Not defined) in 8-bit binary.
    Default value: 0xAA[170dec] [Undefined].
- Record 51: Beginning of time period 2 SUNDAY (hour:minutes) [read/write].
  0xAAAAA: Time not defined (- - : - - -).
  - High byte: Time.
    The value sent is the time value (0h to 23h, 0xAA [170dec]: Not defined) in 8-bit binary.
    Default value: 0xAA[170dec] [Undefined].
  - Low byte: Minutes.
    The value to be sent is the value of the minutes (0min to 59min, 0xAA [170dec]: Not defined) in 8-bit binary.
    Default value: 0xAA[170dec] [Undefined]..

- Record 52: End of time schedule period 2 SUNDAY (hour:minutes) [read/write].
  0xAAAAA: Time not defined (- - : - - -).
  - High byte: Time.
    The value sent is the time value (0h to 23h, 0xAA [170dec]: Not defined) in 8-bit binary.
    Default value: 0xAA[170dec] [Undefined].].
  - Byte bajo: Minutos.
    The value to be sent is the value of the minutes (0min to 59min, 0xAA [170dec]: Not defined) in 8-bit binary.
    Default value: 0xAA[170dec] [Undefined].].

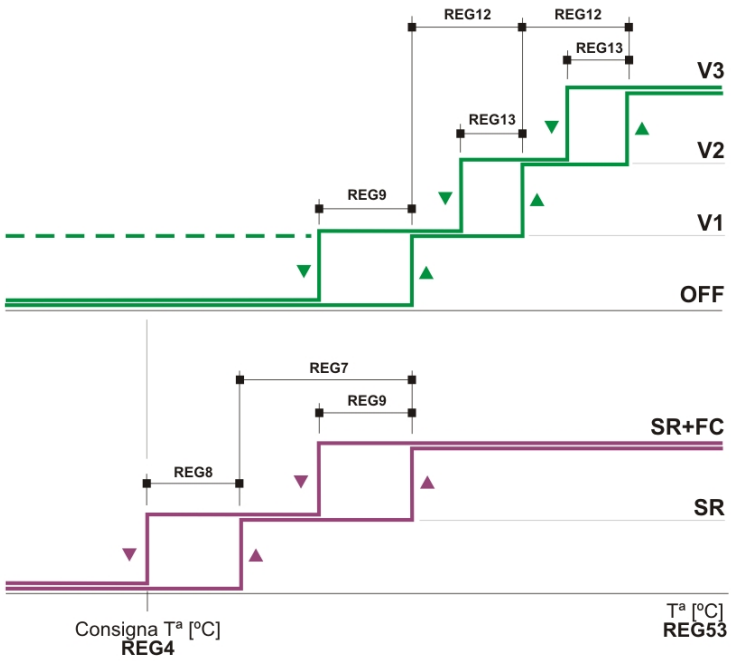
Note [EEPROM]: The values of the read/write registers are stored in EEPROM each time they change value.

Read-only records

- Register 53: Ambient temperature [read only].
  - The value sent is the temperature value (0.0ºC to 50.0ºC) multiplied by 10 in 16-bit binary.

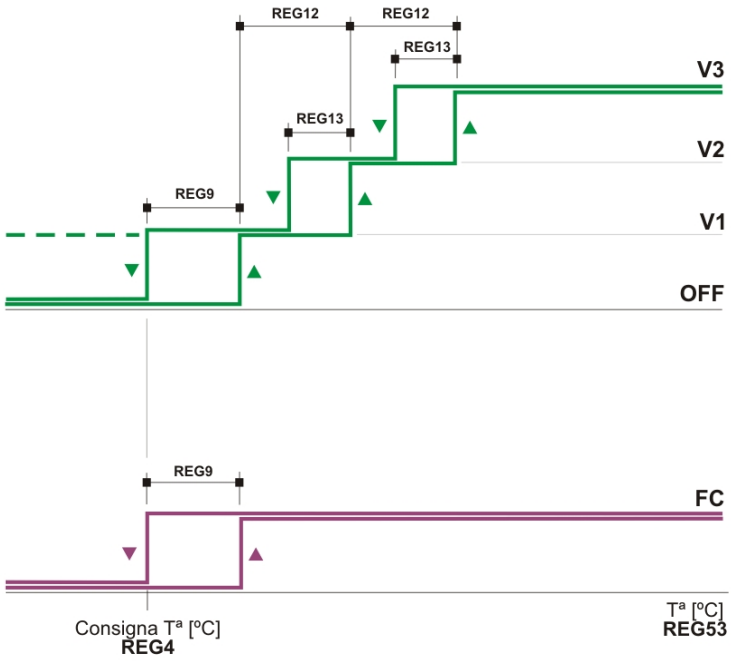
    0,0ºC 0x0000
    50,0ºC 0x01F4
    In case of sensor failure, data 0xFFFF is sent.
- Register 54: Ambient relative humidity [read only].
  - The value sent is the relative humidity value (0.0% to 100.0%) multiplied by 10 in 16-bit binary.

    0,0% 0x0000
    100,0% 0x03E8
    In case of sensor failure, data 0xFFFF is sent.
- Record 55: Demand status [read only].
  - High byte: Demand cold stages.
    0: No demand.
    1: Demand 1 stage.
    2: Demand 2 stages.
  - Low byte: Demand heat stages.
    0: No demand.
    1: Demand 1 stage.
    2: Demand 2 stages.
- Register 56: Underfloor heating valve status [read only].
  - 0: Off (relay deactivated: relay contact open). 1:
    On (relay activated: relay contact closed).
- Register 57: Fan-coil valve status [read only].
  - 0: Off (relay deactivated: relay contact open). 1:
    On (relay activated: relay contact closed).
- Register 58: Fan-coil fan status [read only].
  - High byte: AC fan 3 speed.
    0: Off (relays deactivated: relay contacts VL, VM and VH open).
    1: On low speed (VL) (low speed relay activated: VL relay contact closed).
    2: On medium speed (VM) (medium speed relay energized: relay contact VM closed).
    3: On high speed (VH) (high speed relay energized: relay contact VH closed).
  - Low byte: EC fan 0...10V.
    The value sent is the speed value (0% to 100%) in 8-bit binary.



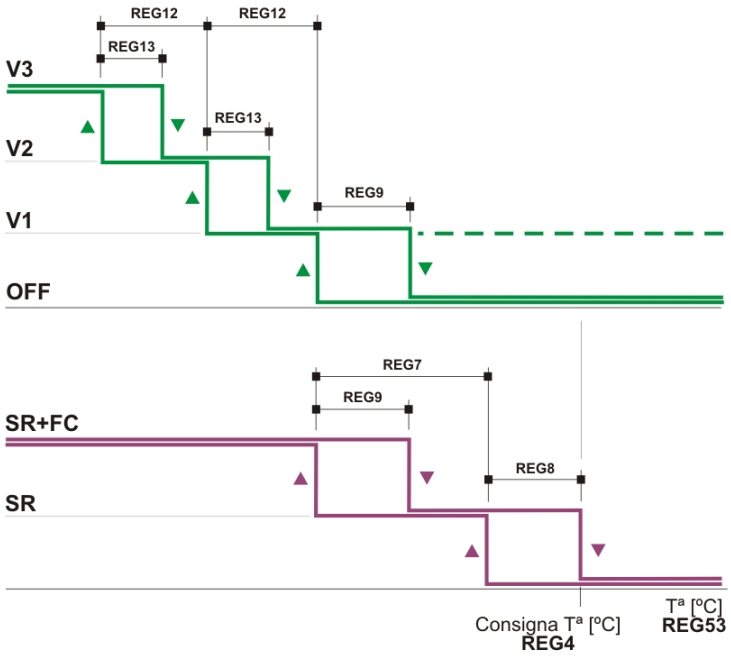
SR + FC: Underfloor heating + Fan-coil

SR: Suelo radiante



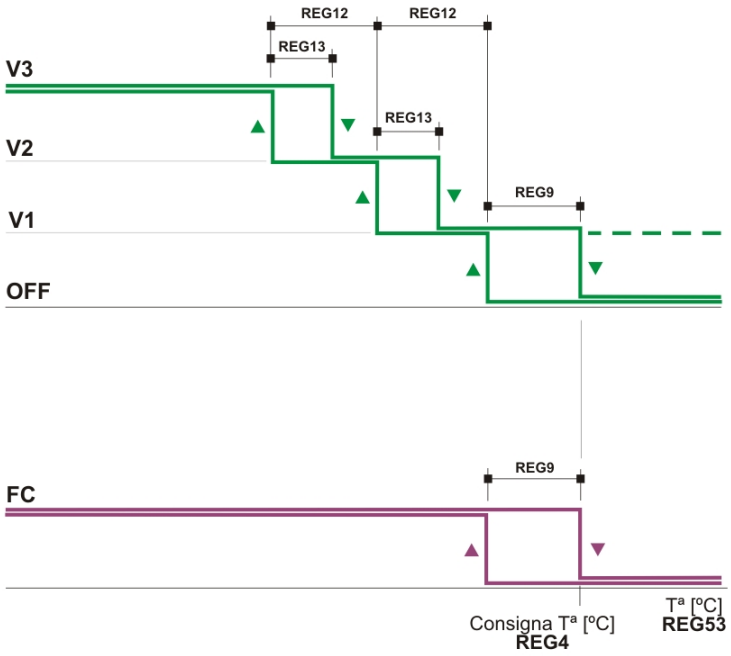
FC: Fan-coil

Funcionamiento modo **FRÍO**



SR + FC: Underfloor heating + Fan-coil

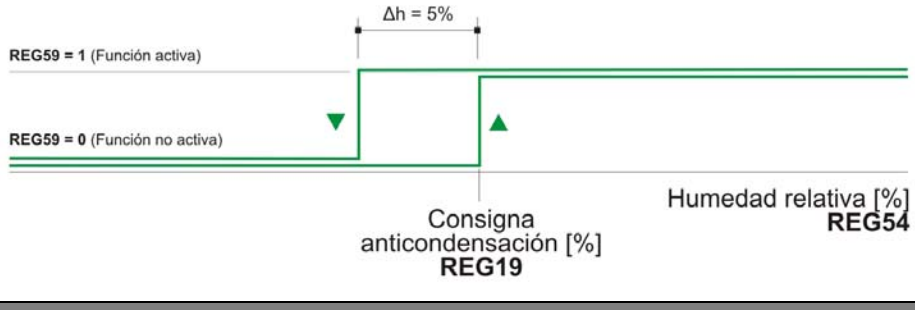
SR: Suelo radiante



FC: Fan-coil

Funcionamiento modo **CALOR**

- Register 59: Anti-condensation function [read only].
  - 0: Not active.
    1: Active. Underfloor heating valve closure.



Función anticondensación

- Register 60: Time schedule status [read only].
  - High byte: Time scheduling activated/deactivated.
    0: Time scheduling deactivated.
    1: Time scheduling enabled.
  - Low byte: Programming period.
    The scheduling period is calculated independently of the activation or deactivation of the time scheduling.
    0: Stop period.
    1: Running period 1.
    2: Running period 2.
- Record 61: Firmware version [read only].
  - The value sent is the value of the controller software version (XX.X) multiplied by 10 in 16-bit binary.

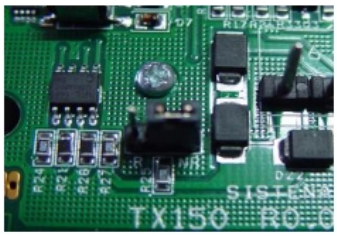
    Note: When power is applied to the controller, or after a reset of the controller, the controller displays the firmware version

Configuración resistencia de final de línea

Resistencia final de línea (bloque de pines JP6):

- Jumper en posición NR 

RESISTENCIA FINAL DE LÍNEA **NO CONECTADA** (por defecto)



- Jumper en posición R 

RESISTENCIA FINAL DE LÍNEA **CONECTADA**

Resistencia de final de línea

NOTAS