DIGITAL THERMOSTAT
MENU DRIVEN with BACKLIT DISPLAY
Recessed installation

Mod. TE540

Battery-operated
Winter / Summer
2 temperature levels + antifreeze
Input for remote contact
Input for remote temperature probe

2x 1,5V dc LR6-AA
(not included)

COMFORT 20.6°C
Set 20.5°C

Menù

ELECTRIC
PERRY
www.perry.it

INDICE

COMPATIBILITY TO THE MOST COMMON RESIDENTIAL SERIES PLATES

IMPORTANT: for the assembly procedure of the thermostat with the chosen residential plate, follow instructions contained in the specific compatibility sheet contained in the package.

PRESENTATION

Dear Customer, thank you for choosing our product.

The thermostat, suitable for all heating and/or cooling system, is fitted with a large and clear backlit display to keep all its functions under control in real time. The fundamental feature is its easy to use menu navigation, which makes it extremely user-friendly despite its comprehensive range of functions. The thermostat is factory-set to adjust temperature in a Differential ON/OFF manner and hysteresis can be set from 0.2°C to 1.2°C to adapt to the thermal inertia of your specific installation. Alternatively, modulating Proportional operation may be selected with settable duration cycles (from 7 to 20 minutes): this system ensures the desired temperature is maintained more stable, increasing user comfort and is particularly suitable for installations with high thermal inertia such as, for instance, for underfloor radiant panels. The set temperature scale is in degrees Centigrade (Celsius) with the option to calibrate room temperature measurement setting a correction value (from -3 to +3 °C). The thermostat can be connected to a separate remote controllable temperature probe (optional) which may then be set according to one's installation needs: remote, floor, external.

Special attention was devoted to energy saving: pausing for household cleaning, optional Set temperature (MAX/MIN) lock, adjustable anti-freeze temperature value, control through an external contact (e.g. optional telephone programmer), are conducive to avoiding wasting energy with consequent savings. See the following pages for a description of these as well as of other features.

⚠ WARNINGS!

Read this manual carefully before using the product as it provides important guidelines regarding safety, installation and use. The manual must be preserved with care for future reference.

The installation and electrical connection of the programmable thermostat must be implemented only by a qualified electrician and in conformity with current laws and regulations.

The thermostat is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or by those with a lack of experience and knowledge of the instructions, unless they are supervised or have received the necessary instructions concerning use of the device by a person responsible for their safety.

Children should be supervised to ensure that they do not play with the device.

If **-5 °C or +37.7 °C** (+23°F or + 99.9 °F) room temperature flashes on the display, the measured temperature is beyond the scale.

If **"Err"** flashes on the display, it indicates faulty probe: any temperature control activity is suspended.

Use 2 stilo **alkaline** 1.5V batteries type AA (LR6). Batteries not included.

N.B.: the product has been tested and its characteristics are guaranteed when alkaline DURACELL or ENERGIZER batteries are used.

If necessary, gently clean the thermostat and the display with a soft, dry cloth.

The manufacturer reserves the right to introduce any technical and/or constructive changes deemed necessary, with no prior notice.

1 - TECHNICAL DATA

Power supply:	n° 2 **Alkaline** batteries 1,5 V type AA (LR6)
Autonomy:	Approx. 2 years
Battery life after the ▬▱ "battery low" symbol starts flashing on the display:	Approx. 15 days
White color backlight:	timed 6 sec. (default) / always off
Type of action, disconnection and device:	1 / B / U / Electronic
Type of output:	voltage free relay with COM / NO / NC changeover contact, max 5(3)A/250 V ∼
Software:	class A
Rated impulse voltage:	4 kV
Cross-section of wires to terminals:	1,5 mm² ÷ 2,5 mm²
Input for remote contact ON/OFF:	for NO or NC contact free from potential
Input for separate remote probe:	yes - probe may be set depending on use: remote, floor, external
Type of insulation:	class II ▣
Degree of protection:	IP 30
Pollution rating:	normal
Number of temperature levels:	n° 2 « **t1** = COMFORT», «**t2** = ECONOMY» + t❄ antifreeze
Ambient temperature display range:	- 5.0 °C ÷ + 37.7 °C (+ 23 °F ÷ +99.9 °F)
Floor probe threshold display range:	- 0.0 °C ÷ + 60.0 °C (+ 32 °F ÷ +140 °F)
External probe display range:	- 9.9 °C ÷ + 60.0 °C (+14.2 °F ÷ +140 °F)
Relay ON signal:	Flashing ☀+ ON (winter) or ❄ + ON (summer)
Room temperature indicator resolution:	0.1 °C (0.1 °F)
Temperature Set adjustment range:	+5 °C ÷ +37.7 °C (+41.0°F ÷ +99.9 °F) limitable
Setting temperature Set:	adjustable by 0.1 °C / 0.1 °F sets
Temperature correction (Offset):	adjustable from -3.0 °C (5.4°F) to +3.0 °C (5.4°F) default 0.0 °C/0,0 °F
Antifreeze temperature: (t❄):	adjustable + 5 °C ÷ <t2 (41,0 °F ÷ <t2) default 6 °C (42.8 °F)
Type of temperature adjustment: - DIFFERENTIAL ON/OFF (default) - PROPORTIONAL WITH CONTROL PERIOD	adjustable from 0.2 °C to 1.2 °C (from 0,3 °F to 2.1 °F) default 0,3 °C (0,4°F) cycles adjustable from 7 to 20 minutes (default 10 minutes)
Thermal gradient:	max 1°K / 15 min
Temperature reading tolerance:	± 0,5°C (± 0,9°F)
Operating temperature limits:	0 °C ÷ +45 °C
Storing temperature limits:	-10 °C ÷ +60 °C
ErP energy classification:	ErP Class I; 1% (Reg. EU 811/2013)
Reference regulations for CE markings:	LVD - EMC EN60730-2-7 EN60730-2-9

2 - FACTORY SETTINGS

The data entered in the thermostat called «FACTORY SETTINGS» refer to operation defined as «Standard».
The following chapters describe all customisable functions, in order to satisfy any ambient comfort need.

FACTORY SETTINGS TABLE (default)

Parameter	Default	Restore «reset»
Language	IT (Italian)	To confirm
Active season	Winter	Default
Temperature unit of measure	°C (celsius)	Last value
Set t1 COMFORT Winter ♨	20.0°C	Default
Set t2 ECONOMY Winter ♨	18.0°C	Default
Set t❄ antifreeze (Winter) ♨	6.0°C	Default
Set t1 COMFORT Summer ❄	24.0°C	Default
Set t2 ECONOMY Summer ❄	27.0°C	Default
Temp. locks Winter ♨	Disabled	Default
Temp. locks Summer ❄	Disabled	Default
Temp. adjustment mode	DIFF. ON/OFF	Default
Differential hysteresis	0.3°C	Default
Modulating proportional	Prop (not active)	Default
Modulating period	10 min. (not active)	Default
Room temp. correction ♨	0,0 °C	Default
Room temp. correction ❄	0,0 °C	Default
Anti-scale protection cycle	Disabled	Last value
Display contrast	Level 6	Default
Display back-lighting	Timed 6 sec.	Default
Remote Probe	(not active)	Last value
External Input	(not active)	Last value
User Password	none	Default
Installer Password	none	Default
Password reset code	0927	Default

RESTORE «Installer RESET»
Restore many factory settings (default)
RESTORE brings the thermostat back to factory settings with the exception of some items as shown in the table; to perform the operation follow the instructions in paragraph 11.13.
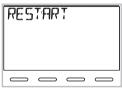
RESTART
It does not cancel the entered settings
Should the thermostat feature malfunctioning, wrong displays or other incorrect conditions, perform a «**User reset**».
Simultaneously press for 4 secs. the **Menu** and 👤 keys.
The thermostat resumes normal operation.
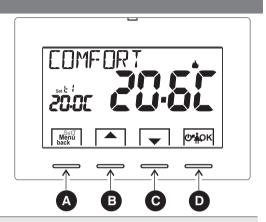
Press simultaneously for 4 seconds

3 - KEY FUNCTIONS

Backlit display

*Touching any key activates back-lighting, displaying the words selection and navigation, **press the desired key within 6 sec. to vary the settings** (touching any key reactivates a 6 secs. time-out).*

COMFORT
Set t 1
20.0°C **20.6°C**

Menu back | ▲ | ▼ | ⏻☀OK

A **B** **C** **D**

Note: more particular button functions are described in the specific paragraphs.

A **Multifunction Key Menu/back,**
its use changes depending on function or active menu:
  Menu = press briefly to switch temperature from comfort to economy and vice-versa,
    press and hold (3 sec.) access to menus
  back = go back to previous item, exit from menus

B ▲ **Key** increases the desired Set temperature;
  navigation through the menus: to increase a setting value;

C ▼ **Key** decreases the desired Set temperature;
  navigation through the menus: to decrease a setting value;
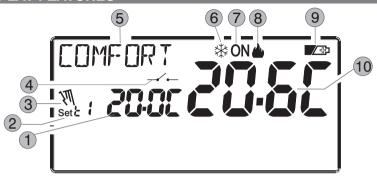
Press the pulse arrow key to increase/decrease per unit and keep pressed to increase/decrease rapidly.

D **Multifunction Key** ⏻☀OK
  ⏻ thermostat in OFF (disabled temperature control)
  ☀ current program pause for household cleaning
  OK access to selected menu / confirm function or set value (within the menus)

4 - DISPLAY FEATURES

1. Display Set temperature

2. Currently active set temperature depending on the desired setting:
   t1 Comfort or **t2** Economy (saving) or **t ❄** antifreeze

3. Current program pause *(example: for household cleaning)*

4. Enabling thermostat from remote control

5. Info and thermostat operating mode, menu items

6. Cooling mode (❄ Summer) active

7. Signalling operating user = **ON** and 🔥 flashing (e.g. boiler on)
   Signalling operating user = ❄ and **ON** flashing (e.g. conditioner on)

8. Heating mode (🔥 Winter) active

9. Batteries low signal

10. Detected room temperature

Note: further displays are described in the specific operation paragraphs

5 - INSTALLATION

5.1 - DIMENSIONS

battery
thermostat module

47

43,5

65   39   20 13

5.2 - INSTALLATION REGULATIONS

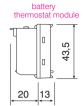**The installation and electrical connection of the programmable thermostat must be implemented only by a qualified electrician and in conformity with current laws and regulations. The manufacturer declines all liability in connection with the use of products subject to special environmental and/or installation standards.**

Thermostat installation: independent - fixed

recessed in rectangular box 3 modules.

Install the thermostat at a height of 1.50 to 1.70 m from the floor, far from sources of heat, windows and anything that may alter its operation.

OK!

h 1,5 m
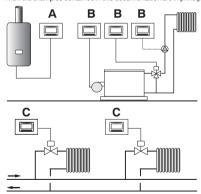
5.3 - INSTALLATION EXAMPLE

Warning: before installing, deactivate the mains voltage of the device to be controlled.

Examples of installation in heating systems with a thermostat that controls:

A) Wall mounted boiler
B) Burner or Circulation pump or Motorized solenoid valve
C) Zone solenoid valve
(example for floor system or other)

N.B.: the examples contained in this documentation are in principle..

A   B   B   B

C   C

IMPORTANT: for the assembly procedure of the thermostat with the chosen residential plate, follow instructions contained in the specific compatibility sheet contained in the package.

5.4 - ELECTRICAL CONNECTIONS

⚠ **Disconnect the 230V~ mains voltage that powers the devices to be controlled**

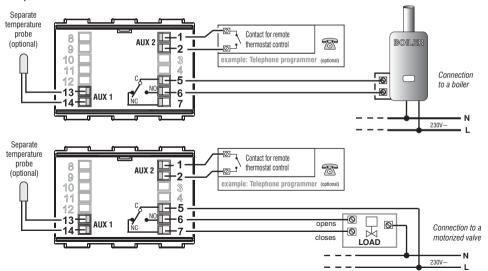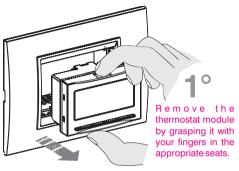| Relay terminals	AUX 1 Terminals (remote probe)	AUX 2 Terminals (remote contact)
• connect the device to be controlled to the terminals **5** - common (C) **6** - normally open contact (NO) **7** - normally closed contact (NC)	• terminals **13** and **14** may be connected to a separate temperature probe • *(see paragraph 11.7 to set the probe)* Note: maximum cable length 4 m	• terminals **1** and **2** may be connected to a telephone programmer (or switch) for remote thermostat enabling *(see paragraph 11.8 for external contact setting)*

Examples of electrical connections

9

5.5 - THERMOSTAT REMOVAL AND INSERTION (es. battery replacement, programming)

Insert or replace with 2 1.5V AA-LR6 batteries paying attention to polarity.

ONLY USE GOOD QUALITY ALKALINE BATTERIES
(Duracell or Energizer batteries are recommended)

Attention: battery life may be more than 2 years.
However, it is recommended to replace them at least every 24 months to avoid them running out when you are away (e.g. Christmas holidays, etc.)

1°
Remove the thermostat module by grasping it with your fingers in the appropriate seats.

2°
+ ALKALINE −
− ALKALINE +

Dispose of flat batteries in appropriate containers and as required by the environmental protection regulations.

3°
Reinsert the thermostat module fully into the recessed base.

Convenient programming

All setting operations may be performed before inserting the thermostat module to the recessed base; this means setting may be carried out while comfortably seated.
The flashing **ON** indication with fixed winter or summer symbol indicates that the thermostat is detached from the recessed base.

Attention!

If programming of the thermostat module takes place before fixing to the recessed base, upon completing installation the **ON** indication (off or flashing) on the display might not correspond to the actual relay status.
Within **1 minute at the most** the insertion of the thermostat module to the recessed base, the relay activates with the indication **ON** (off or flashing) displayed.

Important: if the display shows the message NO RELAY, it indicates that the thermostat module has not been correctly inserted all the way into the recessed relay base.
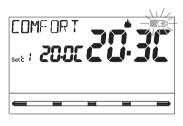
5.6 - SIGNALLING BATTERIES LOW OR DOWN

When the ▭ symbol blinks, this indicates that the batteries are running out and as from this moment there are 15 days to replace them.

Note: the backlight of the display is automatically deactivated.

If the discharged batteries are not replaced within this time the display will completely turn off.

All thermoregulation is suspended and all settings are saved to be restored when the new batteries are inserted.
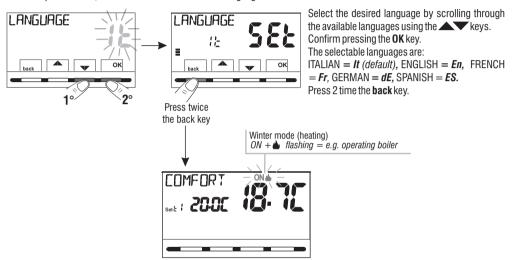
6 - START THE THERMOSTAT

Upon first insertion of the batteries, the thermostat performs a lamp-test by switching on all display segments, displaying the installed software version for a few seconds.
When this phase is over, the thermostat asks to select the language of use.

Select the desired language by scrolling through the available languages using the ▲▼ keys.
Confirm pressing the **OK** key.
The selectable languages are:
ITALIAN = *It (default),* ENGLISH = *En,* FRENCH = *Fr,* GERMAN = *dE,* SPANISH = *ES.*
Press 2 time the **back** key.

Press twice the back key

Winter mode (heating)
ON + 🔥 *flashing = e.g. operating boiler*

The thermostat is operative, displaying: **Winter** «heating» mode, the temperature Set at 20°C COMFORT, room temperature detected.

From normal thermostat operation in stand-by, pressing a key lights up the display (unless back-lighting has been disabled) and the words selection and navigation appear. Within 6 secs., a variation is made the second time the desired key is pressed.

See use of the thermostat to the next chapter.

7 - USE OF THE THERMOSTAT

7.1 - MODIFICATION of temperature from COMFORT to ECONOMY (energy saving) and vice-versa

Press the **MENU** key briefly

(i) ♨ **WINTER** = heating (factory setting)
With COMFORT temperature

7.2 - MODIFICATION OF T Set **TEMPERATURE SET**
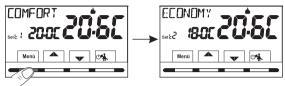
Directly press the ▲▼ keys.

IMPORTANT!
The thermostat allows temperature values that satisfy the following conditions:
Winter: t1 greater than or equal to t2 greater than or equal to t ❄
Summer: t2 greater than or equal to t1

In the presence of max and min. temperature locks (see paragraph 11.6) it is not possible to set a **Set t** higher or lower than the entered locks. The display will signal impossibility to perform the operation by displaying LOCK.
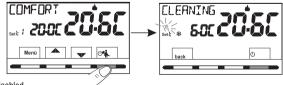
(i) *Every time the ▲ or ▼ keys are pressed, it changes by 0.1 degrees; pressing and holding enables you to scroll through the values rapidly. Range: +5 °C to +37,7°C (+41,0°F ÷ 99,9°F).*

7.3 - TEMPERATURE CONTROL PAUSE (example for household cleaning)

Pressing the ✳👤 key connected user will switch off for a max 3-hour period during which the thermostat will enter antifreeze mode (t❄).

After 3 hours the thermostat temperature control will resume.
It is possible to restart temperature control before the 3 hours have elapsed, press «**back**»: the word «**CLEANING**» disappears.

Note: in the event antifreeze temperature has been permanently disabled or in "Summer" operation, the connected user (e.g. boiler or air conditioner) will remain disabled for 3 hours maximum.

7 - USE OF THE THERMOSTAT

7.4 - OFF (disabling the thermostat)

This setting has the purpose of locking thermostat functions when heating or cooling must remain off.

1- In «CLEANING» mode, press the ⏻ button briefly to set the thermostat to **OFF** and consequently **«Switch off the system»**.

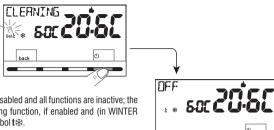2- The display shows **OFF**, to indicate that the thermostat is disabled and all functions are inactive; the display only shows room temperature reading, the descaling function, if enabled and (in WINTER mode) the temperature Set plus the antifreeze protection symbol **t✳**.

(i) in WINTER mode with antifreeze temperature disabled or in Summer mode, the t✳ symbol will not be visible.

3- Press key ⏻ **to reactivate the thermostat**.

8 - STRUCTURE OF THE MAIN MENUS (use and configuration)

The Menus are arranged in sequential order

User Menu:

① **SEASON** (Winter 🔥 or Summer ✳ mode)

② **SET TEMP** (modification or disabling of Set antifreeze temperature)

③ **USER PASSWORD** (set user password)

Installer or skilled user menu:

④ **CONFIGUR**

- *LANGUAGE* (selection of the desired language)
- *RULE* (selection of temperature control mode)
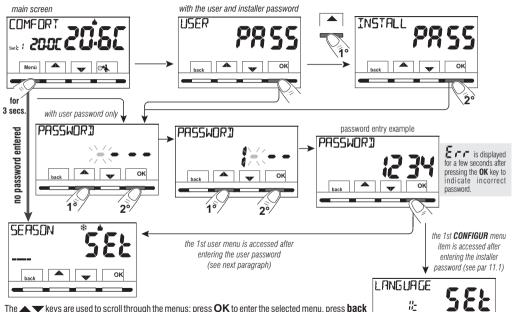
- *UNIT* (selection of temperature unit of measure °C/°F)
- *OFFSET* (correction of detected room temperature)
- *BLOCKS* (it lets you limit the value of set temperature points)
- *PROBE* (setting a remote temperature probe)
- *INPUT* (setting an external contact for remotely enabling / disabling the programmable thermostat)
- *PUMP ON* (disabling / enabling the descaling function)
- *CONTRAST* (to change display contrast)
- *BACKLIGHT* (to enable/disable display backlighting)
- *PASSWORD* (to restrict the use of user and/or installer functions of the thermostat)
- *RESTORE* (RESET operation)
- *INFO SW* (information about the firmware version installed)

9 - ACCESS TO MENUS

From normal thermostat operation, press the **Menu** key for 3 secs. to access the first available menu.

Or, if a secret user and/or installer access code **has been previously entered**, follow the steps below to access the user or installer menus.

main screen

with the user and installer password

main screen — COMFORT 20·6C, set 20·0C, Menù

with the user and installer password — USER PASS, back OK, 1°

INSTALL PASS, back OK, 2°

for 3 secs.

no password entered

with user password only

PASSWORD — back OK, 1° 2°

PASSWORD — back OK, 1° 2°

password entry example

PASSWORD — 1234, back OK

Err is displayed for a few seconds after pressing the **OK** key to indicate incorrect password.

SEASON — Set, back OK

the 1st user menu is accessed after entering the user password (see next paragraph)

the 1st CONFIGUR menu item is accessed after entering the installer password (see par 11.1)

LANGUAGE — Set, back OK

The ▲▼ keys are used to scroll through the menus: press **OK** to enter the selected menu, press **back** to go back to the previous item. Settings in the menus must be confirmed by pressing the **OK** key where required, otherwise, after 3 minutes have elapsed, the thermostat goes back to normal stand-by operation and changes will not be saved.
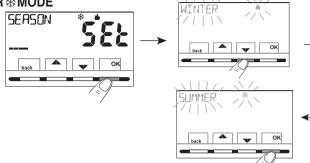
10.1 - SET WINTER ♨ OR SUMMER ❄ MODE

From normal thermostat operation, access the menus by pressing and holding the «**Menu**» key.

Under item **SEASON SEt** confirm with **OK**.
Select with the ▲▼ keys the WINTER (heating) or SUMMER (cooling) mode and confirm with **OK.**

Press the «**back**» key to exit.

10.2 - MODIFICATION OR DISABLING OF SET ANTIFREEZE TEMPERATURE

From normal thermostat operation, access the menus by pressing and holding the «**Menu**» key.
Use the ▲▼ keys to select item **SET TEMP Set**.
Press **OK** to confirm.
The screen displays **ANTIFREEZE**.
Press **OK** to confirm.
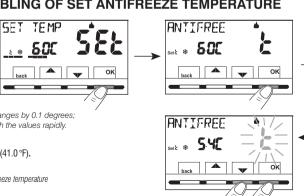Use the ▲▼ keys to set the desired antifreeze temperature.

ⓘ *Every time the ▲ or ▼ keys are pressed, it changes by 0.1 degrees; pressing and holding enables you to scroll through the values rapidly. Range: +5 °C a +12°C*

To disable antifreeze temperature t❄, go below +5.0 °C (41.0 °F)**.**

 disabled antifreeze temperature

Confirm with **OK.** Press the «**back**» key to exit.

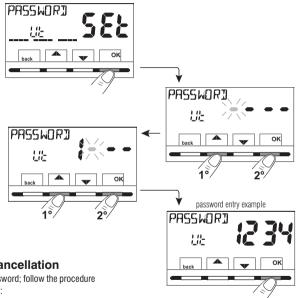## 10.3 - USER PASSWORD Menu

10.3.1 - Entering the user password

No code is set in the factory configuration.

From normal thermostat operation, access the menus by pressing and holding the «**Menu**» key.

1- *Select item **USER PASSWORD Set** with the keys* ▲▼ and confirm with **OK**.

2- Use the ▲▼, keys enter 4 digits (dashes not included) between **0000** and **9999**, individually confirm them with **«OK».**

The thermostat enters normal operation.

From now on, the password will be required for any variation on the thermostat.

password entry example

10.3.2 - Password modification or cancellation

Press **MENU for 3 secs.**, and enter the previously set password; follow the procedure described above to access the **User PASSWORD SEt** menu:

- set 4 hyphens (- - - -), the password will be cancelled,

- set another number and it will be modified.

11.1 - ACCESS TO CONFIGURATION MENU

ATTENTION: access to the configuration menu is recommended <u>for the installer or experienced users</u> since the modification of some settings might affect correct system operation.

From normal thermostat operation, access the menus by pressing and holding the «**Menu**» key.

Select with the ▲▼ keys the *CONFIGUR Set* item and confirm with **OK:** access the 1st item *LANGUAGE SEt* of the menu (see chapter 8 the list of sub-menus to the item CONFIGUR).
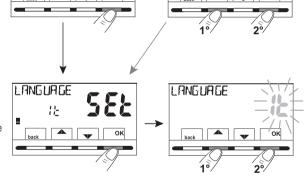
> 🔒 **If only an installer password was entered** the display requests entering the 4 digits, which may be selected using the ▲▼; keys; individually confirm them with «**OK**».

11.2 - CHANGE SET LANGUAGE

When *LANGUAGE SEt* is displayed, press **OK** to confirm.

• Use the ▲▼ keys to select the desired language scrolling through available ones.
• Confirm by pressing **OK.**

The selectable languages are:
ITALIAN = *It (default)*, ENGLISH = *En,* FRENCH = *Fr,* GERMAN = *dE,* SPANISH = *ES.*

• Press the «**back**» key to exit.

11.3 - TYPE TEMPERATURE ADJUSTMENT METHODS

The thermostat is factory set to work in **THERMAL DIFFERENTIAL** mode **ON/OFF** with a preset thermal differential value (Hysteresis) of 0,3 °C.
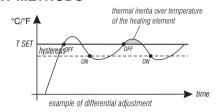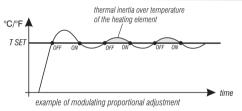Note: adjustable from 0,2 °C to 1,2 °C *(from 0,3 °F to 2,1 °F)*.
The hysteresis value must be set according to the system's thermal inertia; a low value is recommended for systems with radiators made of e.g. cast iron and a high value for systems with fan coils.

thermal inertia over temperature of the heating element

example of differential adjustment

As opposed to the thermal differential, the temperature can be adjusted **MODULATING PROPORTIONALLY (PROP)** setting cycles from 7 to 20 minutes (default 10 minutes).

This system maintains the desired temperature more stable, whilst increasing the user's comfort sensation and saving on energy consumption.

A long cycle is recommended for systems with high thermal inertia (cast iron radiators, floor systems) and a short cycle for systems with low thermal inertia (fan coils).

thermal inertia over temperature of the heating element

example of modulating proportional adjustment

11.3.1 - SELECTION OF THE TEMPERATURE ADJUSTMENT MODE (DIFFERENTIAL ON/OFF OR PROPORTIONAL)
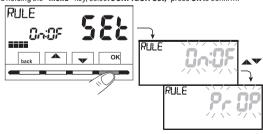
From normal thermostat operation, access the menus by pressing and holding the «**Menu**» key, select ***CONFIGUR Set,*** press **OK** to confirm.

With the keys ▲▼ *select la item **RULE Set***.
Press **OK** to confirm.
It will be possible to select temperature adjustment mode between **Thermal differential (On:OFF)** factory setting or **Modulating proportional (PrOP)** operation.
Use the ▲▼ keys to select the desired temperature adjustment mode. After making your choice press **OK** to confirm and display the screen to set **HYSTERESIS** if you have opted for **On:OFF,** or to set the **PERIOD** if you have opted for **PrOP** (see next paragraphs: 11.3.2 and 11.3.3).

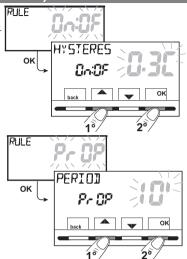## 11.3.2 - Setting hysteresis for thermal differential ON-OFF

From normal thermostat operation, access the menus by pressing and holding the «**Menu**» key.

• Through the path **CONFIGUR SEt -> RULE SEt ->** *select On:OF,* then press **OK**.

• With the keys ▲▼ enter the desired hysteresis value
(values may be set from 0.2 °C to 1.2 °C / from 0.3 °F to 2.1 °F - default 0.3 °C/0.4 °F).
• Press **OK** to confirm.
• Press the **back** key to exit.

11.3.3 - Setting period duration for modulating Proportional

Dal normale funzionamento del termostato, accedere ai menu tenendo premuto tasto «**Menu**».

• Through the path **CONFIGUR SEt -> RULE SEt ->** *select PrOP,* then press **OK**.

• With the ▲▼ keys enter the duration of the desired period
(settable from 7 to 20 minutes, default 10 min.).
• Press **OK** to confirm.
• Press the **back** key to exit.

11.4 - CHANGE UNIT OF MEASURE FOR TEMPERATURE READING
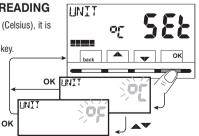
The thermostat is pre-set in the factory to display temperatures in degrees Centigrade (Celsius), it is possible to switch to the Fahrenheit scale or vice versa with the following procedure:

From normal thermostat operation, access the menus by pressing and holding the «**Menu**» key.

• Through the path **CONFIGUR SEt ->** *select UNIT SEt* then press **OK**.
• Select the desired unit of measure with the ▲▼ keys: °C or °F,
then press **OK** to confirm.
All temperature set points will be updated according to the new scale.
• Press the **back** key to exit.

11 - ACCESS TO CONFIGURATION MENU (installer)

11.5 - CORRECTION OF ROOM TEMPERATURE READING

*If for any reason the thermostat must be installed in a position where the measured room temperature might be affected (e.g. perimeter wall which is on average colder in winter and warmer in summer than the rest of the dwelling) the device has 2 separate parameters to adjust the room temperature measured in the **Winter** and **Summer** modes.*

From normal thermostat operation, access the menus by pressing and holding the «**Menu**» key.

• Through the path *CONFIGUR SEt -> select item **OFFSET Set.***
Press **OK** to confirm.

OFFSET for winter mode (☀)

The display alternates the empty fields to be inserted (**- - - -**) with the current temperature value.

• Use the ▲ key to enter positive values, the ▼ key to enter negative values (sign «-»).
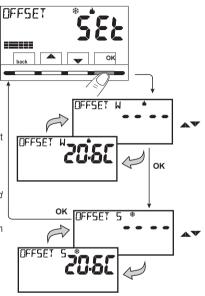**Possible correction -3.0 °C** *(-5.4 °F)* ÷ **3.0 °C** *(5.4 °F)*

default 0.0 °C/°F = **- - - -**

At each selection the display will show the new correction value (e.g.: 0.6°C) alternated to the detected temperature value (e.g.: 21.2°C).

• After performing the correction press «**OK**».

The display shows the **OFFSET for the Summer mode** (❄); proceed with the correction as per the above procedure or press **back** to quit.

ⓘ *to cancel any previously set temperature corrections take OFFSET back to - - - - .*

11.6 - MAX AND MIN SET TEMPERATURE LOCK (Winter and Summer mode)

In certain thermostat installations (public buildings, hotels, etc.) it might be useful to limit the maximum and minimum temperature set points. This avoids incorrect settings by unauthorised personnel (energy savings).

It is possible to limit (lock) the maximum, minimum or both temperature values settable on the thermostat.
The restriction may be applied either to the **Winter** or **Summer** mode.

11 - ACCESS TO CONFIGURATION MENU (installer)

From normal thermostat operation, access the menus by pressing and holding the «**Menu**» key.
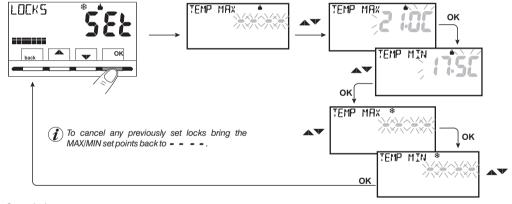
• Through the path *CONFIGUR SEt ->*, select item *LOCKS SEt*. Press **OK** to confirm.

In a sequential manner it is possible to set maximum temperature locks **(t1 comfort)** and/or minimum (**t2 economy**) for the **winter mode** ♨ and/or maximum temperature **(t1 comfort)** and/or minimum (**t2 economy**) for the **Summer mode** ❄.
If no locks have been entered yet, the display shows empty flashing fields (**- - - -**).

• Use the ▲▼, keys to set the desired temperature lock values from time to time.

• Upon completing each setting press **OK** to confirm and move to the next lock item.
*Press the **OK** impulse key to move to a different item. Press the **back** key to exit.*

To cancel any previously set locks bring the MAX/MIN set points back to `- - - -`.

General rule
If **Set temperature t1** (comfort) is **greater than the maximum entered lock**, it will level out with it.
If **Set temperature t** ❄ **or t2** is **less than the minimum entered lock**, it will level out with it.
The following rule will apply to all other temperatures: WINTER (♨) = **t1 > t2 > t**❄ - SUMMER (❄) = **t1 < t2**

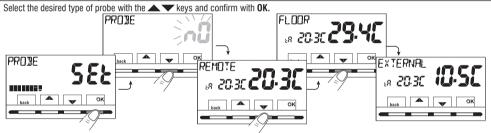During thermostat operation, the user may not set a **Set t** higher or lower than the max and min. locks entered.
The display will signal impossibility to perform the operation by displaying $LOCK$.

11.7 - PROBE MENU

In addition to the internal probe of the thermostat, it is possible to connect to terminals **13** and **14** «**AUX 1**» (see wiring diagrams in ch. 5.4) a supplementary probe (optional) which may be set to read temperature in various modes.

• Press for 3 secs. the key **Menu** -> *CONFIGUR SEt* -> *PROBE Set*, press **OK**. Selectable functions are as follows:

PROBE NO	**The separate probe is not read, it is disabled** (factory setting upon first witch on).
REMOTE PROBE	**It measures the temperature of a room in replacement to the internal probe of the thermostat.**
FLOOR PROBE	**It measures the floor temperature and switches off the connected load if it exceeds a certain set threshold. Room temperature control is managed by the internal thermostat probe.**
EXTERNAL PROBE	**It measures the temperature outside the home without affecting internal room temperature control.**

Select the desired type of probe with the ▲▼ keys and confirm with **OK.**

Possible fault signals on the display concerning the separate probe	
☼☼☼☼	*4 flashing hyphens = thermostat removed from the wall base*
Err	*Err flashing = interrupted probe or in short or no probe connected. Temperature control is suspended.*
-5.0C ÷ 37.7C	*Flashing beginning or end of scale value = the probe detects a higher or lower value than the operating range.*

11.7.1 - NO CONNECTION TO SEPARATE PROBE

Should you wish to disable the previously active separate temperature probe and go back to using the standard internal one (default), follow this procedure: key **Menu** down for 3 secs. and through path **-> CONFIGUR SEt -> PROBE SEt ->** select item **PROBE nO** (NO) and press **OK** to confirm.
Press the **back** key to exit.
Internal probe reading range: - 5.0°C ÷ +37.7°C (+ 23.0°F ÷ +99.9°F)

11.7.2 - SETTING SEPARATE REMOTE PROBE

This is a remote probe to detect temperature in a different room from the one where the thermostat is installed, for instance in the event of unfavourable installation or in premises unsuitable to reading and adjusting the temperature. The remote probe has the same parameters and reading range as the internal probe. Reading range: -5.0°C ÷ +37,7°C (+23°F ÷ +99,9°F).

It completely replaces the internal thermostat probe and the product will control room temperature through this remote probe.

After connecting the remote temperature probe to the thermostat, it may be activated through the path:
Menu *key* for 3 secs. **-> *CONFIGUR Set* -> *PROBE SEt* ->** select item **REMOTE**.

Press «**OK**» to confirm.

Press the **back** key to exit.

11.7.3 - SETTING FLOOR PROBE (over temperature protection function)

This is a separate and remote controllable temperature probe, buried in the screed of an underfloor heating system with radiating panels, to monitor the temperature and turn off the system in case the temperature read exceeds a pre-set threshold value.

After connecting the separate temperature probe to the thermostat, it may be activated holding down the
Menu key for 3 secs. **-> *CONFIGUR SEt* -> *PROBE SEt* ->** select item **FLOOR.**

Confirm with the **OK** key.

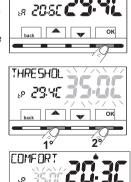Use the ▲▼, keys to define the desired temperature **threshold** (e.g. 35°C)

Press **OK** to confirm. Press the **back** key to exit.

Floor probe reading range: + 0.0°C ÷ +60.0°C (+ 32.0°F ÷ +140.0°F)

(*i*) *Exceeding the 99.9°F value (Fahrenheit scale) involves suppressing decimals*

The thermostat displays and controls the room temperature detected by the internal probe:
at the same time the separate probe also detects the floor temperature, which will be compared with the threshold set by the installer, to prevent this temperature from exceeding the safety threshold.
Should this occur the thermostat will switch off the system even if **Set t** temperature is not reached; the display signals this condition by displaying the code **tP** and the set threshold value flashes.

Set threshold exceeded warning. The temperature control system is disabled.

11.7.4 - SETTING SEPARATE EXTERNAL PROBE

This is an additional probe to read the temperature outside the dwelling (**tE**).
It does not have any home temperature control features, which are controlled by the internal thermostat probe.

After connecting the external temperature probe to the thermostat, it may be activated by pressing the **Menu** key for 3 secs. and through the path *CONFIGUR SEt* -> *PROBE Set* -> select item **EXTERNAL.**
Press **«OK»** to confirm. Press the **back** key to exit.

External probe reading range: - 9.9℃ ÷ +60.0℃ (+ 14.2°F ÷ +140.0°F).

Exceeding the 99.9°F value (Fahrenheit scale) involves suppressing decimals.

Note: *in normal thermostat operation, the display will alternate reading external temperature (**tE**) with the currently Set temperature value every 10 seconds.*

11.8 - CONNECTION TO EXTERNAL CONTACT FOR REMOTE THERMOSTAT SWITCHING ON/OFF

⚠ Before enabling any item of the «INPUT» menu listed below ensure you have connected an external contact to terminals 1 and 2 (AUX2).
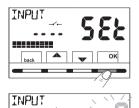
A remote device may be connected to the thermostat (e.g. telephone programmer, hourly switch, switch) able to remotely enable/disable the thermostat.
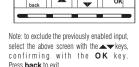From normal thermostat operation, access the menus by pressing and holding the key for 3 secs. «**Menu**» and through the path *CONFIGUR SEt -* **>,** select item **INPUT SEt**.
Press **OK** to confirm.
Various operation modes may be selected depending on the type of contact free from potential (NO or NC) and type of device connected to the terminals **1** and **2** «**AUX 2**» (see par. 5.4 electrical connections):

- **INPUT nO** = Input exclusion (factory setting);
- **PHONE nC** = for «Normally Closed» contact of a telephone Programmer;
- **PHONE nA** = for «Normally Open» contact of a telephone Programmer;
- **DUTY nA** = for «Normally Open» contact e.g.: switch;
- **DUTY nC** = for «Normally Closed» contact e.g.: switch.

Note: to exclude the previously enabled input, select the above screen with the ▲▼ keys, confirming with the **OK** key. Press **back** to exit.
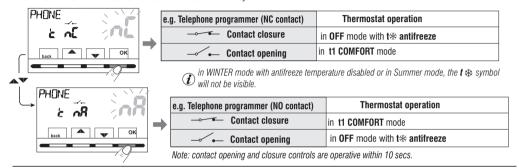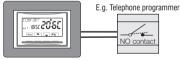
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11 - ACCESS TO CONFIGURATION MENU (installer)

11.8.1 - ACTIVATION / DISABLING WITH A TELEPHONE PROGRAMMER

After connecting the Telephone programmer (optional) to the thermostat or other control device, it will be possible to select the NA (normally open contact) or NC (normally closed contact) contact type setting on the telephone programmer.

Press the **Menu** key for 3 secs. and through the path **CONFIGUR SEt -> display item INPUT SEt,** press «**OK**» and with keys ▲ ▼ choose item **PHONE nC** or **PHONE nA**. Press «**OK**» to confirm. Press the **back** key to exit.

e.g. Telephone programmer (NC contact)	Thermostat operation
Contact closure	in **OFF** mode with **t** ❄ antifreeze
Contact opening	in **t1 COMFORT** mode

(i) *in WINTER mode with antifreeze temperature disabled or in Summer mode, the **t** ❄ symbol will not be visible.*

e.g. Telephone programmer (NO contact)	Thermostat operation
Contact closure	in **t1 COMFORT** mode
Contact opening	in **OFF** mode with **t** ❄ **antifreeze**

Note: contact opening and closure controls are operative within 10 secs.

11.8.1a - Example of remote thermostat switching on/off, connected to a telephone programmer with «nA» contact (NO normally open).

E.g. Telephone programmer

- **Programmer contact closure** (change of state): **causes temperature t1 COMFORT override** and displaying the steady icon " ⌁ " indicating incoming telephone override.
After that it will be possible to change the operation mode on the spot by manually acting on the thermostat keypad, even if the telephone programmer contact remains closed; the icon " ⌁ " it will remain on (steady), indicating that the contact is still closed.

- **Programmer contact opening** (change of state): **causes operation status override OFF** (par. 7.4 - Thermostat disabling) with antifreeze function unless it is disabled; the display shows **OFF** (steady) and icon " ⌁ " flashing, indicating incoming telephone override. After that it will be possible to go back to normal thermostat operation by pressing the ⏻ key , the icon " ⌁ " will go out indicating the end of telephone override.

Note: contact opening and closure controls are operative within 10 secs.

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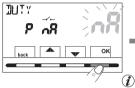## 11.8.2 - «nA» DUTY - for normally open contact (NO)

By selecting this function it is possible to connect a NO remote contact which upon closing sets the thermostat in the **OFF** mode with antifreeze temperature t❄, unless it has been previously disabled.

In this condition it will not be possible to act on the thermostat keys to change operation status.

Open the contact and the thermostat **resumes operation mode active before overriding**.

Press the **Menu** key for 3 secs., follow the path *CONFIGUR SEt -> INPUT SEt ->* select item **nA DUTY**.

Press **«OK»** to confirm. Press the **back** key to exit.

e.g. Switch		Thermostat operation
⊸⸍⊶	Contact closure	in **OFF** mode with **t**❄ **antifreeze**
⊸⸍⊶	Contact opening	operation mode in progress

ⓘ *in WINTER mode with antifreeze temperature disabled or in Summer mode, the **t** ❄ symbol will not be visible.*
Note: contact opening and closure controls are operative within 10 secs.

11.8.3 - «nC» DUTY - for normally closed contact (NC)

Attention: do not enable the nC DUTY item prior to connecting a switch or other device that allows change of state from **OFF** mode to operation mode in progress and vice versa to terminals **1** and **2** (AUX 2).
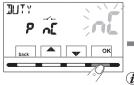
By selecting this function it is possible to connect a NC remote contact which upon opening sets the thermostat in the **OFF** mode with antifreeze temperature t , unless it has been previously disabled.

In this condition it will not be possible to act on the thermostat keys to change operation status.

Close the contact and the thermostat **resumes operation mode active before overriding.**

Press the **Menu** key for 3 secs., follow the path *CONFIGUR SEt -> INPUT SEt ->* select item **nC DUTY**.

Press **«OK»** to confirm. Press the **back** key to exit.

e.g. Switch		Thermostat operation
⊸⸍⊶	Contact closure	operation mode in progress
⊸⸍⊶	Contact opening	in **OFF** mode with **t**❄ **antifreeze**

ⓘ *in WINTER mode with antifreeze temperature disabled or in Summer mode, the **t** ❄ symbol will not be visible..*
Note: contact opening and closure controls are operative within 10 secs.
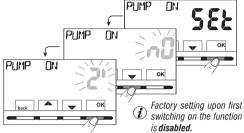
11.9 - DESCALING CYCLE

If the function is activated, the programmable thermostat activates every day of the year (24h after the last intervention of the relay), for 2 minutes. It activates the controlled device (pump, valve etc.) to prevent scaling or jamming caused by prolonged inactivity.

(i) *The thermostat activates only if the connected load was never switched on in the previous 24 hours.*

From normal thermostat operation, press the **Menu** key for 3 secs., follow the path *CONFIGUR SEt -> PUMP ON SEt ->* press «**OK**» and with the ▲▼ keys select the desired item:
PUMP ON nO (NO) or **PUMP ON 2'**.
Press «**OK**» to confirm. Press the **back** key to exit.

(i) *Factory setting upon first switching on the function is disabled.*

11.10 - DISPLAY CONTRAST ADJUSTMENT

8 adjustment levels are available. Level 6 is set in the factory.
From normal thermostat operation, press the **Menu** key for 3 secs., follow the path *CONFIGUR SEt ->* use ▲▼ keys to select item *CONTRAST Set*.
Press **OK** to confirm.

Select the desired level with the ▲▼ keys.
The contrast variation obtained will be visible at every selection.
Press **OK** to confirm. Press the **back** key to exit.
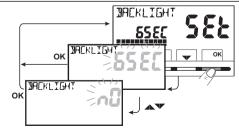
11.11 - BACKLIGHTING

It lets you enable or disable timed display backlighting. From the normal operate of the thermostat press the **Menu** key for 3 secs., follow the path *CONFIGUR SEt ->* use ▲▼ keys to select item *BACKLIGHTING Set*.
Press **OK** to confirm.

With the ▲▼ keys select the desired item: timed backlighting **6secs.** or disabled backlighting **nO** (NO).
Press **OK** to confirm. Press the **back** key to exit.

(i) *Factory setting: timed backlighting 6 secs.*

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11.12 - ENTERING AND MANAGING PASSWORDS

Some functions of the thermostat may be protected by a user Password **(Ut)** and/or installer **(Inst)**, so that they may be only modified by authorised persons. No password is active in factory settings.

11.12.1 - ENTERING THE NEW PASSWORD

• From normal thermostat operation, press the **Menu** key for 3 secs. and follow the path *CONFIGUR Set -> PASSWORD SEt ->* press «**OK**» to access the screen to create a secret **User** code (*PASSWORD SEt Ut*), confirm with **OK**, or select item *PASSWORD SEt InSt* with the ▲▼ keys and confirm with **OK** to create the **Installer** code.

• Using the ▲▼, keys enter 4 digits (dashes not included) between **0000** and **9999**, individually confirm them with «**OK**».
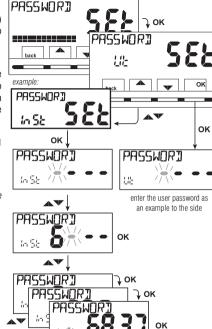
Press the **back** key to exit.

The «User» password lets you access available functions through the Menu key. If an installer password is also present the CONFIGUR SEt menu may not be accessed.

The «Installer» password lets you access all «Configurations» (CONFIGUR SEt) menu functions as well as User settings.

11.12.2 - PASSWORD MODIFICATION OR CANCELLATION

When required, enter the previously created User or Installer password; follow the above procedure and access item *PASSWORD SEt Ut* or *InSt* :
- enter 4 hyphens (- - - -) to cancel the password
- enter 4 new digits to modify the password

Information reserved to installer or expert user only

in the event of forgotten password enter the reset code **0927** when user or installer access is requested. The secret user or installer code will be cancelled.

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11 - ACCESS TO CONFIGURATION MENU (installer)

11.13 - RESTORE (RESET)

IMPORTANT! The RESTORE (Reset) operation is recommended for the installer or expert user. In fact, this operation deletes many previous settings carried out also according to the type of system.

• The operation may be carried out pressing the **Menu** key for 3 secs., follow the path *CONFIGUR Set - >:* using keys ▲▼ select item *RESTORE SEt* confirm with **OK**.

The display will ask to choose between restore **«YES»** and **«NO»**.
• Use the ▲▼ keys, to select then press **OK** to confirm.

• If you opt for **NO** the display exits the function and goes back to the initial *RESTORE SEt* screen. Press the **back** key to exit.

• If you confirm **YES «RESTORE»** will be displayed for 3 seconds, then the system will restart and display the language screen.
• Use the ▲▼ keys to select the **desired language** scrolling through available ones.
• Confirm by pressing **OK.** Press 2 times the **back** key to exit.
• The thermostat enters normal operation.

Note: the thermostat restores many factory settings (default) with the exception of some special items that use the last set value (see summary table in chapter 2).

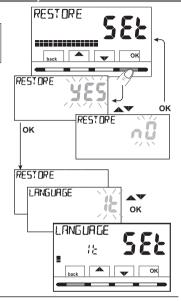🔒 *The RESTORE operation deletes any user and/or installer password entered.*
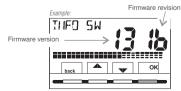
11.14 - SYSTEM SOFTWARE INFORMATION

From normal thermostat operation, pressing for 3 secs. the **Menu** key and follow the path *CONFIGUR SEt - >,* use ▲▼ keys to select item *INFO SW* to obtain information about the installed firmware.
Press the **back** key to return to the previous menu or press **OK** to exit the menu.

ⓘ This information is useful in the event of request for technical support.

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12 - POSSIBLE PROBLEMS AND SOLUTIONS

PROBLEM	CAUSE	SOLUTION
The thermostat display is OFF	Batteries not installed Wrong battery polarity Dead batteries	Check that the batteries are installed Check polarity of batteries Replace the batteries
The display flashes the ▰✚ symbol	The batteries are running low	Replace the batteries within 15 days
The display only shows a steady ✚ symbol	The batteries are dead	Replace the batteries
Display of the inscription: **NO RELAY**	The thermostat module has not been fully inserted into the recessed relay base.	Extract and reinsert the thermostat module fully into the recessed relay base as indicated in paragraph 5.5.
The thermostat works but the system does not start	No power to the system The thermostat is not connected properly	Make sure the switch or differential protection device is not set to OFF Contact the installer
The temperature fluctuates too much between hot and cold	The thermostat is not set correctly for the type of system	Contact the installer
Iin OFF operation (Winter🔥), the Set antifreeze temperature is not displayed	The antifreeze temperature has been excluded	Set the antifreeze temperature by following the instructions in paragraph 10.2

DISPOSAL OF OLD ELECTRICAL AND ELECTRONIC EQUIPMENT
When this symbol is found on the product or on its packaging, it indicates that this product cannot be disposed of as household waste.
It must be delivered to a specific collection point where electrical and electronic equipment is recycled, such as:
 - retail outlets, if a new product is bought, similar to that being disposed of
 - local collection points (waste collection centres, local recycling centres, etc).
By ensuring that the product is disposed of correctly, you will help prevent potential negative consequences for the environment and health, which can be caused by this product being disposed of inappropriately.
Recycling the materials will help conserve natural resources.
For more detailed information about recycling this product, please contact your Local Council, household waste disposal service or the shop where you purchased the product.