DIGITAL THERMOSTAT
MENU DRIVEN with BACKLIT DISPLAY

ENGLISH

Flush-mounted installation 3 modules for civil series

Mod. TE541
Series: V003

Power supply
230V~

Power supply: 230V~
Winter / Summer
2 temperature levels (t1 = Confort, t2 = Economy)
+ OFF temperature level = antifreeze or thermal protection
Input for remote external contact

FULL instructions
for installation, settings and use

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PE - DETIPE026EN 01/24

CONTENTS

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.

WARNING! When mounting the front panel on the thermostat module, take care **NOT to remove** the heat-conducting part, see the warning and instructions in the accompanying leaflet.

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 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; alternatively it is possible to select temperature regulation in Differential ON/OFF mode with the hysteresis settable from 0.2°C to 1.2°C to adapt to the thermal inertia of your specific system. The set temperature scale is in degrees Centigrade with the option to calibrate room temperature measurement setting a correction value (from -6 to +6 °C). Special attention was devoted to energy saving: optional Set temperature (MAX/MIN) lock, adjustable antifreeze/thermal protection temperature value, control through an remote external contact, are conducive to avoiding wasting energy with consequent savings.

⚠ 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 manufacturer reserves the right to make all the technical and construction changes it deems necessary without prior notice.

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.

Before starting any operations on the device, disconnect the 230V~ mains power supply

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 **0.0 °C or 45.0 °C** room temperature flashes on the display, **the measured temperature is beyond the scale**, the device is still operational. In the event of a temperature probe failure, code **E1** will be shown on the display (see par. 11).

IMPORTANT: in case of a power black-out (230V~), the thermostat guarantees **retention in memory of all the data entered.** When mains power is restored, the display turns on and the device returns to the active operating mode before the power failure.

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

1 - TECHNICAL DATA

Power supply:	230V~ +/- 10% 50Hz
Display and key back-lighting:	timed 6 secs. / always on / always off / brightness reduction after 6 sec.
Type of action, disconnection and device:	1 B / Electronic
Type of output:	voltage free relay with COM / NO / NC changeover contact, max 5(3)A/250 V ~
Keeping memory setting during power failure:	Yes
Software:	class A
Rated impulse voltage:	4 kV
Cross-section of wires to terminals:	1,5 mm^2 ÷ 2,5 mm^2
Contact input for remote thermostat deactivation:	for contact free from potential, minimum insulation 250V~, maximum cable length 15 m.
Type of insulation:	class II ⧈
Degree of protection:	IP 30 (recessed wall-mounted with wall plate)
Pollution rating:	2
Operating mode:	Winter 🔥 heating (default) / Summer ❄ cooling
Number of temperature levels:	n° 2 « **t1** = CONFORT», «**t2** = ECONOMY» + **OFF** antifreeze/thermal protection
Ambient temperature display range:	0 °C ÷ +45 °C
Relay ON signal:	🔥 + ON (Winter) o ❄ + ON (Summer)
Room temperature indicator resolution:	0.1 °C
Temperature Set adjustment range:	+4 °C ÷ +37.7 °C (limitable with Max and Min temperature blocks)
Setting temperature Set:	a step di 0.1 °C
Temperature correction (Offset) separated by seasons:	adjustable from -6.0 °C to +6.0 °C (default 0.0 °C)
Antifreeze Tset temperature OFF (Winter):	adjustable from + 4 °C to t2 (default 5 °C)
Thermal protection Tset temperature OFF (Summer):	adjustable from t2 included to +37,7 °C (default «disabled»)
Type of temperature adjustment: - Proportional with control period (default) - DIFFERENTIAL ON/OFF	 cycles adjustable from 7 to 20 minutes (default 7 minutes) adjustable from 0.2 °C to 1.2 °C (default 0,3 °C)
Thermal gradient:	max 1°K / 15 min
Temperature reading tolerance:	± 1°C
Operating temperature limits::	0 °C ÷ +45 °C
Storing temperature limits:	-10 °C ÷ +60 °C
Type of installation:	Built-in
Type of use:	civil and tertiary sectors
ErP energy classification:	ErP: Class I; 1% Reg. EU 811/2013
Reference regulations for CE markings:	LVD - EMC EN60730-1 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
Active season	Winter 🔥	Default
Set t1 COMFORT Winter 🔥	20.0°C	Default
Set t2 ECONOMY Winter 🔥	17.0°C	Default
Set tOFF antifreeze (Winter) 🔥	5.0°C	Default
Set t1 COMFORT Summer ❄	24.0°C	Default
Set t2 ECONOMY Summer ❄	27.0°C	Default
Set tOFF thermal protection(Summer) ❄	Disabled	Default
Room temp. correction 🔥	0,0 °C	Default
Room temp. correction ❄	0,0 °C	Default
Temp. locks Winter 🔥	Disabled	Default
Temp. locks Summer ❄	Disabled	Default
Temp. adjustment mode	Modulating proportional	Default
Modulating period	7 min.	Default
Thermal differential On:OFF	On:OFF (not active)	Default
Differential hysteresis	0.3°C (not active)	Default
External input	not active	Default
Back-lighting	Switched off after 6 sec.	Default
Display brightness	Level 7	Default
Installer password	none	Default
Keyboard lock	not active	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.

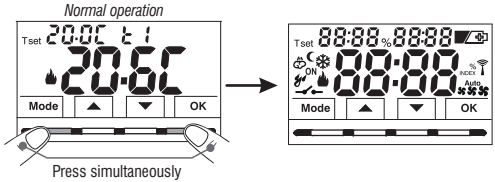
The Restore operation is recommended to be carried out by the qualified installer or experienced user, as indicated in paragraph 10.9 of the menu: FACt dEF

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 **Mode** and **OK** keys.

The thermostat resumes normal operation.



It will be possible to perform the same operation by following the instructions in paragraph 10.10 of the menu: rESEt

IMPORTANT: in case of a power black-out (230V~), the thermostat guarantees **retention in memory of all the data entered.**
In case of absence of power supply the display switches off saving all the programmed settings effected, when power supply is reinstated, the display switches back on and the device returns to its normal functions.

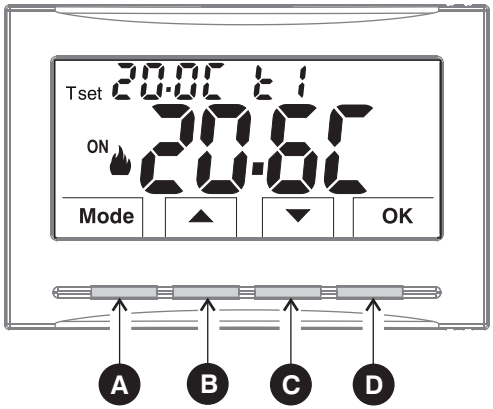
3 - KEY FUNCTION LEGEND

DISPLAY AND KEY BACK-LIGHTING

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

Note: setting the backlight always on (par. 10.7) the words selection and navigation will also always be visible.

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



A **Multifunction Key Mode** / back
its use changes depending on function or active menu:
Mode = short pulse pressure switch from Tset t1 temperature (comfort) to t2 (economy) to OFF
prolonged pressure (6 sec.) access to Prog menus.
short press within menus = return (back) to previous item, exit from Prog menus.

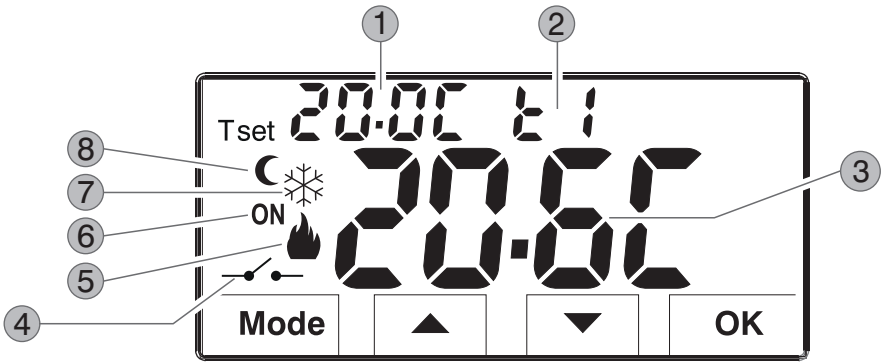
B ▲ **Key** increases the desired Set temperature;
navigation through the menus: to increase a setting value;

C ▼ **Key** decreases the desired Set temperature;
navigation through the menus: to decrease a setting value;

Press the pulse arrow key for single increase/decrease, in some settings it will be possible to keep pressed for fast increase/decrease

D **OK Key** (confirm setting)
Level confirmation and T set selected (t1 or t2 or OFF)
access to selected menu / confirm function or set value (within the menus)

4 - DISPLAY FEATURES

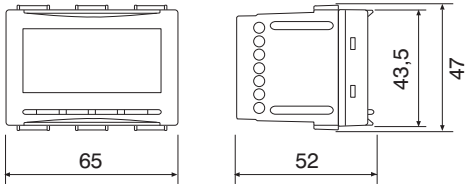


1	Display Set temperature
2	Currently active set temperature depending on the desired setting: **t1** Confort or **t2** Economy (saving) or **OFF** (antifreeze/thermal protection)
3	Detected room temperature
4	Remote thermostat control (connected to an external contact)
5	Heating mode (Winter) active
6	Signalling operating user = **ON** and fixed (e.g. boiler on) Signalling operating user = and **ON** fixed (e.g. conditioner on)
7	Cooling mode (Summer) active
8	Night reduction icon (indicates the selection of the temperature set T: **t2** «Economy»)

Note: *further displays are described in the specific operation paragraphs.*

5 - INSTALLATION

5.1 - DIMENSIONS



5.2 - INSTALLATION REGULATIONS

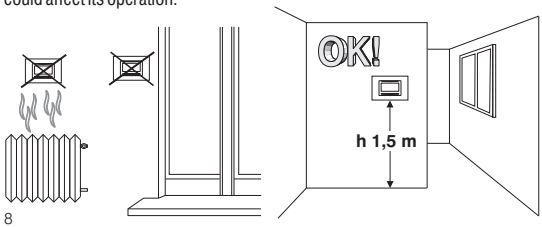
Important: the installation and electrical connection of the devices and appliances must be implemented by qualified personnel and in conformity with current laws and regulations. The manufacturer declines all liability in connection with the use of products subject to special environmental and/or installation standards.

WARNING! When mounting the front panel on the thermostat module, take care **NOT to remove** the heat-conducting part, see the warning and instructions on the accompanying leaflet.

Thermostat installation: independent - fixed

recessed in rectangular box 3 civil modules or higher.

Install the thermostat at a height of 1,50 m ÷ 1,70 m from the floor, far from heat sources, air vents, doors or windows and anything else that could affect its operation.



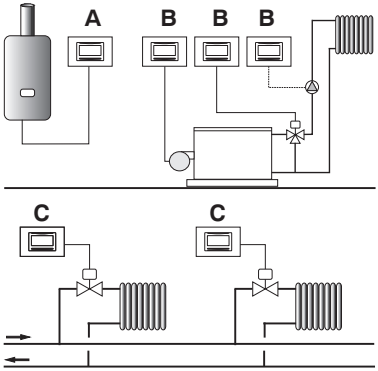
5.3 - INSTALLATION EXAMPLES

Disconnect the 230V~ mains power supply

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.



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 - INSTALLATION

5.4 - ELECTRICAL CONNECTIONS

ATTENTION! Disconnect the 230V~ mains voltage

230V~ 50Hz power supply terminals

Connect line voltage power supply to the terminals:
n° **3** - **NEUTRAL**
n° **4** - **LINE**

Relay terminals

- connect the device to be controlled to the terminals
  n° **5** - common (C)
  n° **6** - normally closed contact (NC)
  n° **7** - normally open contact (NO)

AUX Terminals (remote contact)

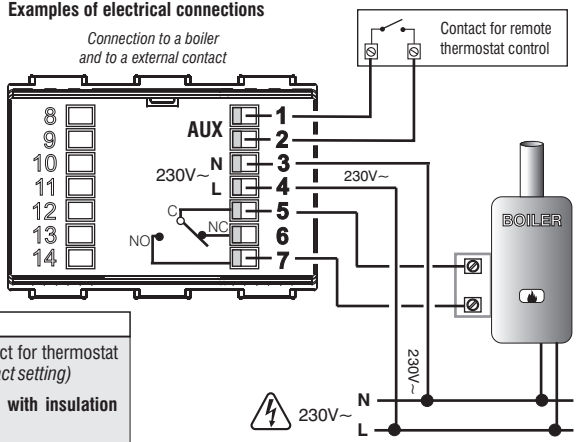
terminals **1** and **2** may be connected to a external contact for thermostat remote deactivation *(see paragraph 10.6 for external contact setting)*

AWARNING: only connect switches and contacts with insulation suitable to work at 230Vac mains voltage.

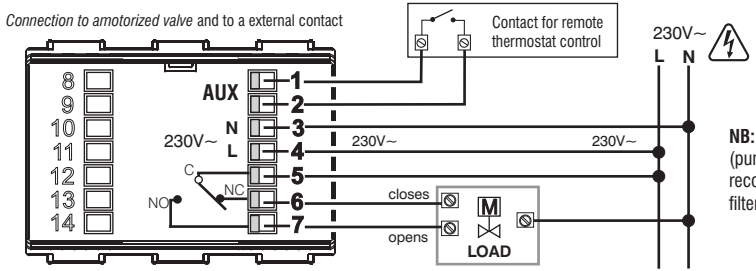
MULTIPLE INSTALLATIONS - <u>It is NOT permitted</u> to connect the remote contact on more than one thermostat; each thermostat must have its AUX input operated independently of the others.

Examples of electrical connections

Connection to a boiler and to a external contact



Connection to amotorized valve and to a external contact

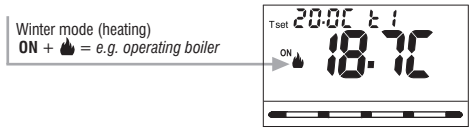


NB: with strong inductive loads (pumps and solenoid valves) it is recommended to connect an RC filter in parallel to the load.

6 - START THE THERMOSTAT

The first time mains voltage is engaged, 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 displays the normal operation screen.

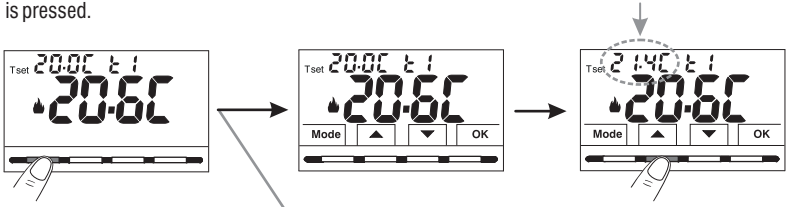
Normal operation



The thermostat is operational, it shows on the display: the **Winter** "heating" mode, the Temperature Set t1 (Confort) at 20°C, the detected room temperature.

7 - USE OF THE THERMOSTAT

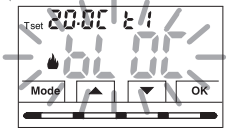
From normal thermostat operation in stand-by, pressing a key, the backlight activates (if not excluded) and the words selection and navigation (if backlighting is not set to always on) appear. Within 6 secs., a variation is made the second time the desired key is pressed.



Each press of ▲ or ▼ results in a change of 0.1 degrees.

Example: changed Set t1 (Comfort) from 20.0°C to 21.4°C.

Note: if the keyboard lock is engaged (see par. 10.12) or deactivated the thermostat by remote contact as described in par. 10.6.3 and 10.6.4, when any key is pressed, the word "**bLOC**" will appear flashing for a few seconds; it will not be possible to make any changes directly from the normal operation screen.



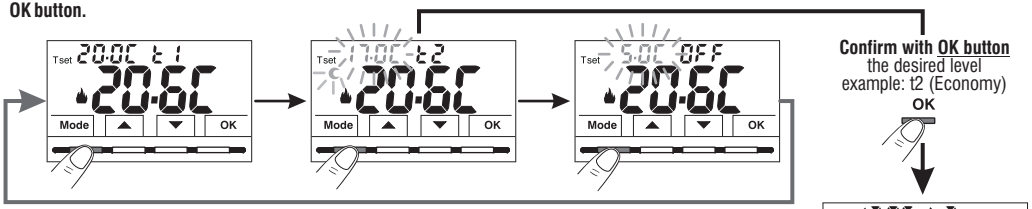
7.1 - SETTING THE "T SET" TEMPERATURE OF THE CURRENT LEVEL

in the absence of temperature locks, it will be possible to change directly by pressing the keys ▲▼ the new **current T set** value will be saved automatically.

To select the **desired temperature level** and change the T set, see the next paragraph. ⟶

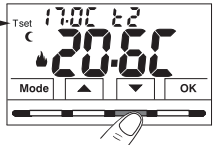
7 - USE OF THE THERMOSTAT

7.2 - SELECTING AND SETTING THE DESIRED TEMPERATURE LEVEL: t1 (Comfort), t2 (Economy), OFF (Antifreeze or Thermal protection)
From normal operation of the device, pulse the **Mode** button, display the **desired temperature level t1 or t2 or OFF, confirm this by pressing the OK button.**



It will be possible to change the **current T set** value directly by pressing the buttons ▲▼, which will be saved automatically.

*Changing the value of **T set** level **OFF** (Antifreeze or Thermal protection) will ONLY be possible by accessing the dedicated menu (see par. 10.5).*



Each press of ▲ or ▼ results in a change of 0.1 degrees;

Normal operation

Factory preset T Set temperatures (can be changed as required)

in Winter mode
Example: boiler in operation with room temperature below:
t1 = 20,0 C - Confort
t2 = 17,0 C - Economy
OFF = *5.0 C - Antifreeze

*The **Tset** value of the **OFF** (Anti-Freeze) level **can ONLY be changed by accessing the dedicated menu** (see par. 10.5).

in Summer mode
Example: air conditioner operating with room temperature higher than:
t1 = 24,0 C - Confort
t2 = 27,0 C - Economy
OFF = ** - - - C - Thermal protection (disabled)

****Enabling and changing the **Tset** value of the OFF (Thermal protection) level **will ONLY be possible by accessing the dedicated menu** (see par. 10.5).

It will be possible to change the preset Set temperatures according to the level chosen, bearing in mind that:
in WINTER operation T set **t1** must be **greater than or equal to t2; t2** must be **greater than or equal to OFF**.
in SUMMER operation T set **t1** must be **less than or equal to t2; t2** must be **less than or equal to OFF** (if enabled).

If a Max. and/or Min. temperature lock has been set, it will also be possible to change the temperature T set within these locks (see par. 10.3).

7 - USE OF THE THERMOSTAT

7.3 - SETTING THE CURRENT WINTER/SUMMER SEASON (Quick Command)

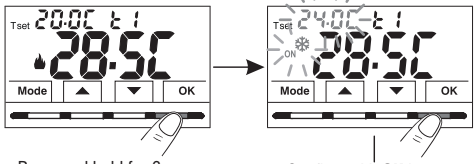
With the device in normal operation, press and hold the **OK** button for at least 6 seconds.
The product will present the proposed season change so if for example the current season is Winter (heating), it will show the icon ❄ flashing and the corresponding level and T set.

Confirm with OK button.

If no confirmation is made within 5 seconds by pressing the OK button, the device returns to normal operation without making any changes.

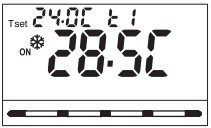
The season change request is prevented in the case of active external contact (see par. 10.6 onwards).

Example:
normal operation
WINTER season
(heating)



Press and hold for 6 sec.

Confirm with **OK** button



Example:
normal operation
SUMMER season
(cooling)

At the change of season, the t1 level (with its corresponding T set value) of the incoming season will be taken over, regardless of the active level in the previous season.

Changing the season from Winter (heating) to Summer (cooling) or vice versa can also be done from the appropriate menu item **"Prog"**, see paragraph 10.1.

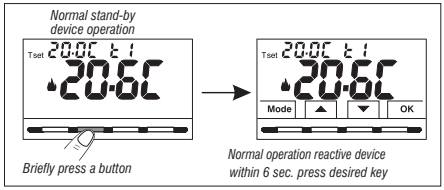
8 - STRUCTURE OF MENUS AVAILABLE (configuration)

WARNING: access to the Prog menu (configuration) is recommended <u>for the qualified installer or experienced user</u> since the modification of some settings might affect correct system operation. Access to the menu can be password-protected *(see par. 10.11).*

The following menus are available sequentially:

① SEt SEAS = **Season WINTER** (heating) / **SUMMER** ❄ (cooling)
② SEt Corr = **Correction of room temperature reading** (OFFSET)
③ SEt bLOC = **MAX and/or MIN set temperature loks**
④ SEt rEG = **Type of temperature adjustment mode**: Proportional modulating **«PrOP»** (Default) or Differential ON /OFF **«On:OF»**
⑤ SEt PEr = **Setting period duration for modulating Proportional** (if **Prop** has been set in the **SEt rEG** menu)
⑥ SEt ISt = **Hysteresis value for Differential ON/OFF** (Screen visible if the **SEt rEG** menu has been set to **On:OF**)
⑦ SEt OFF = **Antifreeze Protection (INV) Thermal protection (EST ❄)**
⑧ SEt CntE = **Input for external contact** (deactivating the thermostat remotely)
⑨ SEt LEd = **Display backlighting**
⑩ SEt LUnI = **Brightness setting** (menu visible if backlighting has not been switched off)
⑪ FACt Or.Y = **Installer Reset** (returns the device to factory settings)
⑫ rESE t = **Restart** (does not delete entered settings)
⑬ SEt CodE = **Password setting**
⑭ SEt LOC = **Keyboard lock** (menu only visible if a Password has been entered)

8.1 - How to navigate within Menus



From normal thermostat operation (with button symbols visible), **<u>press and hold the Mode button for at least 6 seconds</u>** to access the ***PROG*** menu.
Access to menus can be password-protected (see par. 10.11).
Press ▲▼ to scroll through the various menu items.

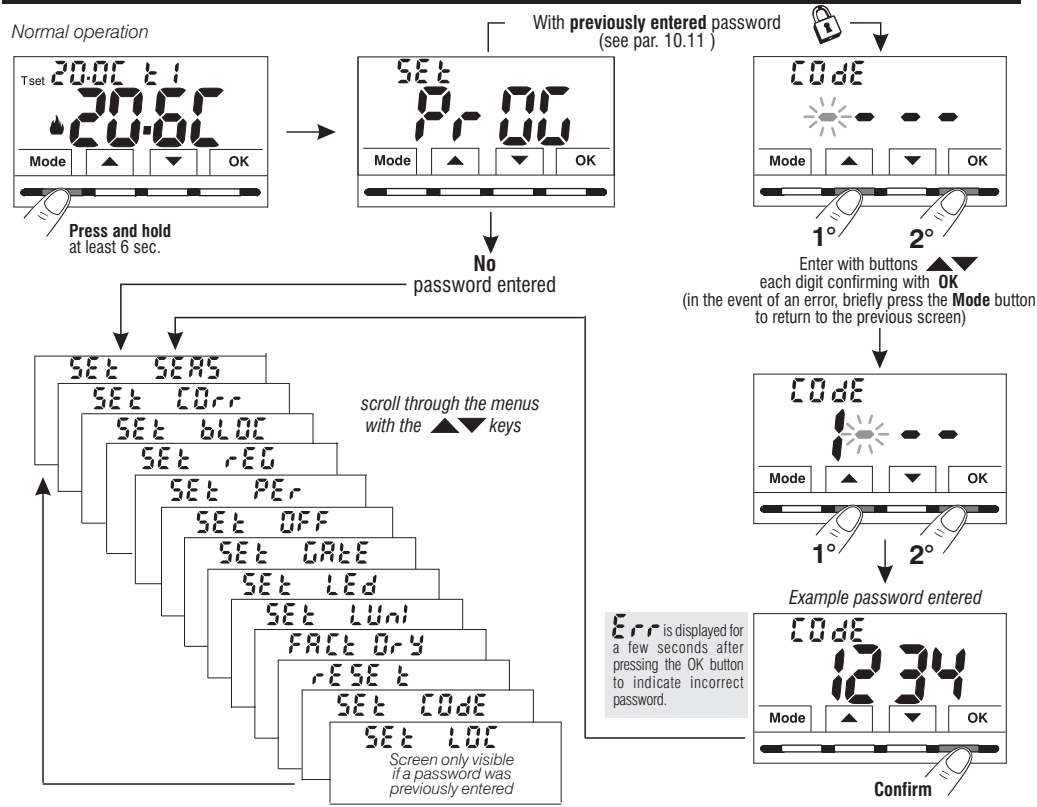
When the desired menu item is displayed, press **OK, the current setting flashes,**

press ▲▼ to change the chosen menu parameter or setting.
NOTE: pressing the **Mode** button returns to the previous screen.
Confirm with the OK button (the display shows a clockwise rotation of the following segments  to indicate successful saving.

Proceed to change another parameter or briefly press the **Mode** button to exit the menus and return to normal operation of the device, the display briefly shows the flashing message End .

The automatic exit from the menus « End » is also obtained **when 60 seconds** (Time-out) have elapsed since the last key was pressed, the thermostat returns to normal operation, any unconfirmed last modification will not be retained..

9 - ACCESS TO THE CONFIGURATION MENU



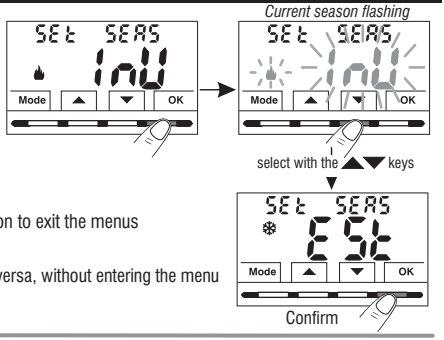
10 - CONFIGURATION MENU (Installer)

10.1 - SETTING WINTER 🔥 or SUMMER ❄ MODE

From normal thermostat operation, access the menus by pressing and holding the «**Mode**» key as explained in chapter 9.

- Under item ***Set SEAS*** confirm with **OK**.
- Select with the ▲▼ keys the WINTER 🔥 (heating) or SUMMER ❄ (cooling) mode
- Confirm with **OK** key.

- Use the ▲▼ buttons to select another menu item or press the **Mode** button to exit the menus and return to normal operation.



It will be possible to change the season between Winter/Summer and vice versa, without entering the menu (see par. 7.3)

10.2 - CORRECTION OF ROOM TEMPERATURE READING

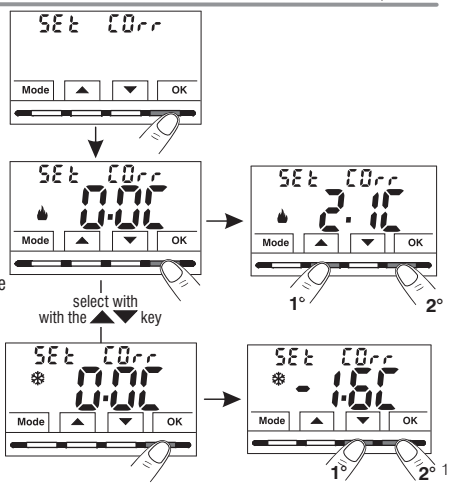
*If for any reason the thermostat must be installed in a position where the measured room temperature might be affected (e.g. perimeter wall which is on average colder in winter and warmer in summer than the rest of the dwelling) the device has 2 separate parameters to adjust the room temperature measured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

Possible correction: -6.0 °C ÷ 6.0 °C (default 0.0 °C).

From normal thermostat operation, access the menus by pressing and holding the «**Mode**» key as explained in chapter 9.

- Under item ***Set Corr,*** confirm with **OK,** the displayed value flashes.
- Use the buttons ▲▼ to select the room temperature correction for the WINTER 🔥 or SUMMER ❄ mode .
- Change the required temperature value with the buttons ▲▼.
- Confirm with **OK** key.

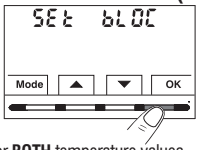
- Press the Mode button briefly and use the ▲▼ buttons to select another menu item, or press the **"Mode"** button twice to exit the menus and return to normal operation.



10 - CONFIGURATION MENU (Installer)

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

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



It is possible to limit (lock) the **MAXIUM**, **MINIMUM** or **BOTH** temperature values settable (T set) on the device.
The restriction may be applied either to the **Winter** ♨ or **Summer** ❄ distinctly.

Note: by default, no temperature lock is entered - - -.

From normal operation of the thermostat, access the menus by holding down the **Mode** button as described in Chap. 9.

- Under the ***SEt bLOC*** menu item, confirm with **OK.**
- Pressing the buttons ▲▼, sequentially displays the MAX and MIN temperature locks for Winter ♨ and Summer ❄ mode.

If there are no locks already inserted, the display shows - - -.

- Select the desired lock, confirm with **OK** the 3 dashes flash, using the buttons ▲▼ enter the desired temperature value.
- **Confirm with the OK button.**

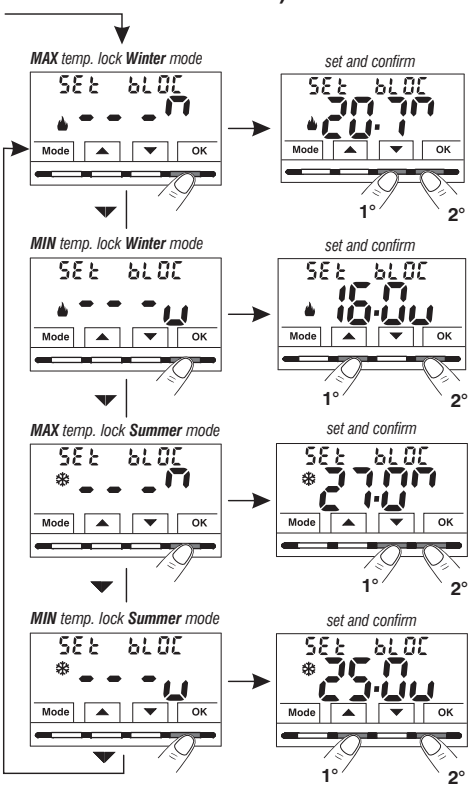
- Press the **Mode** button briefly and use the ▲▼ buttons to select another menu item, or press the **Mode** button twice to exit the menus and return to normal operation.

GENERAL RULE: if **Set temperature t1** (comfort) is **greater than the maximum entered lock**, it will level out with it. If **Set OFF o t2** temeperature setting is **less than the minimum entered lock**, it will level out with it.

The following rule will apply to all other temperatures: **WINTER** (♨) = **t1** ≥ than **t2**; **t2** ≥ than **OFF** - **SUMMER** (❄) = **t1** ≤ than **t2**; **t2** ≤ **OFF**.

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

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

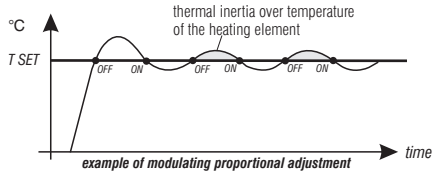


10 - CONFIGURATION MENU (Installer)

10.4 - TYPE TEMPERATURE ADJUSTMENT METHODS

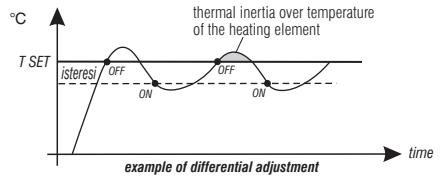
The thermostat is factory set to work in **MODULATING PROPORTIONALLY (PrOP)** mode; setting cycles from 7 to 20 minutes (default 7 minutes).
This system maintains the desired temperature more stable, whilst increasing the user's comfort sensation and saving on energy consumption.

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).



example of modulating proportional adjustment

As opposed to the Modulating Proportionally, the temperature can be adjusted **THERMAL DIFFERENTIAL** mode **ON/OFF** with a preset thermal differential value (Hysteresis) of 0,3 °C (default).
Note: adjustable from 0,2 °C to 1,2 °C.
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.



example of differential adjustment

10.4.1 - SELECTION OF THE TEMPERATURE ADJUSTMENT MODE (PROPORTIONAL OR DIFFERENTIAL ON/OFF)

From normal thermostat operation access the menus by pressing and holding the «**Mode**» key as described in Chap. 9, select ***Set rEG,*** confirm with **OK** (the current setting flashes).

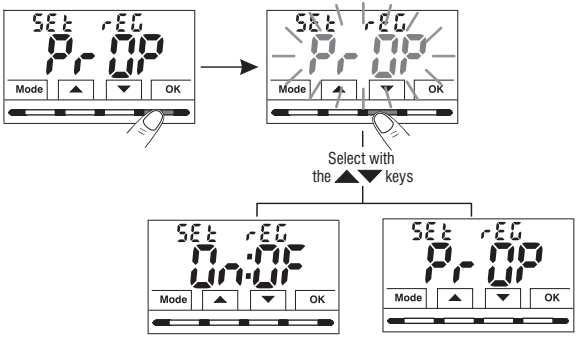
It will be possible to select temperature adjustment mode between **Modulating proportional (PrOP)** factory setting, or **Thermal differential (On:OFF)**.

Use the ▲▼ keys, to select the desired temperature adjustment mode.

Press OK to confirm.

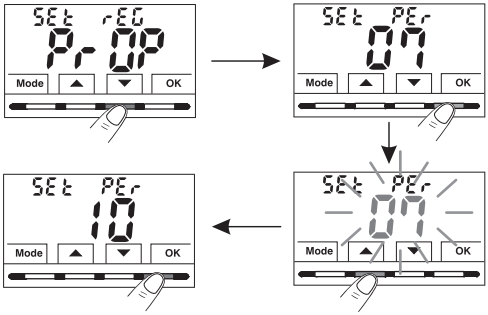
Depending on the chosen mode, the next menu displays the setting of the **PERIOD** if you have opted for **PrOP** (see paragraph 10.4.2) or to set **HYSTERESIS** if you have opted for **On:OFF** (see paragraph 10.4.3).

If you wish to exit the menus, press the **Mode** button to return to normal operation.



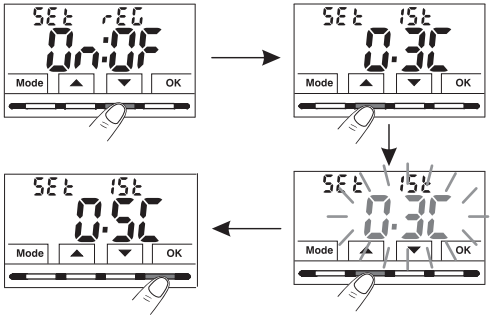
10 - CONFIGURATION MENU (Installer)

10.4.2 - SETTING PERIOD DURATION FOR MODULATING PROPORTIONAL IN TIME



- Select the ***SEt rEG PrOP***, *menu screen*, as described in paragraph 10.4.1.
- Press the ▼ button to display the next menu ***SEt Per*** (*period duration*).
- **Confirm with OK if** you want to change the period duration, the current value flashes.
- With the ▲▼ buttons, enter the duration of the desired period (settable from 7 to 20 minutes, default 7 minutes).
- Press **OK** to confirm.
- Press ▼ to select another menu item or press the **Mode** button to exit the menus and return to normal operation.

10.4.3 - SETTING HYSTERESIS FOR THERMAL DIFFERENTIAL ON-OFF



- Select the ***SEt rEG On:OF*** *menu screen,* as described in paragraph 10.4.1.
- Press the ▼ button to display the next menu ***SEt Ist*** *(Hysteresis).*
- **Confirm with OK** if you want to change the hysteresis, the current value flashes.
- Use the buttons ▲▼ to enter the desired hysteresis value, which can be set from 0.2 °C to 1.2 °C (default 0.3 °C).
- Press **OK** to confirm.
- Press ▼ to select another menu item or press the **Mode** button to exit the menus and return to normal operation..

10 - CONFIGURATION MENU (Installer)

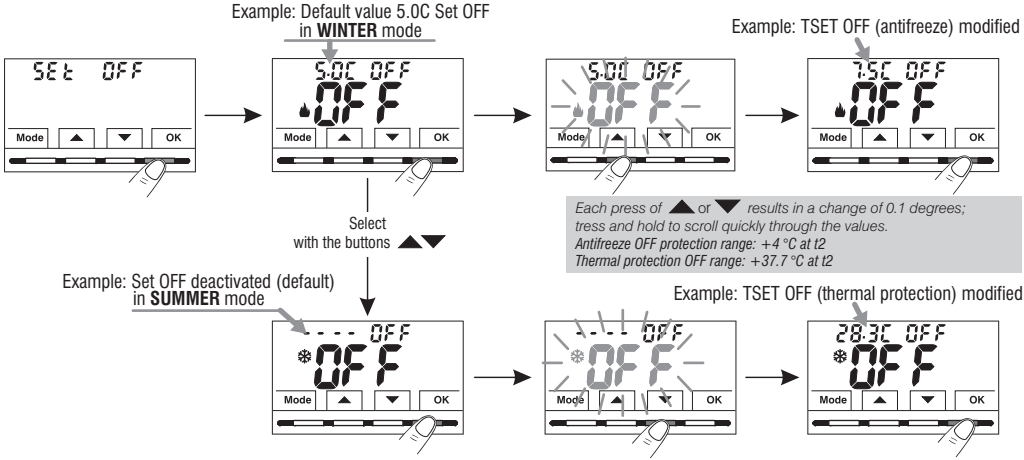
10.5 - SET OFF, Anti-freeze protection (Winter) or Thermal protection (Summer)

- From normal operation of the thermostat, access the menus by holding down the **Mode** button as described in Chap. 9, the ***SEt OFF*** screen appears, confirm with **OK**.
- Select the **SET OFF** to be changed for WINTER mode (antifreeze) or SUMMER mode (thermal protection) using the buttons ▲▼.
- Confirm with the **OK** button, OFF flashes.
- With the buttons ▲▼ set the desired antifreeze or thermal protection T Set OFF temperature. Press **OK** to confirm.

To DEACTIVATE Tset OFF (antifreeze), go below +4.0 °C

4.0C OFF ⇨ ▼ ⇨ - - - - OFF = **Antifreeze OFF temperature deactivated**

In this case, the system will be exposed to possible frost damage.



If the OFF level of antifreeze or thermal protection is deactivated and the user sets a minimum lock for Winter or a maximum lock for Summer (see par.10.3), the **OFF** level is automatically re-enabled and automatically sets the minimum lock value for Winter or maximum lock value for Summer; it will be prevented for the user to attempt to disable (- - - -) the **OFF** protection level again.

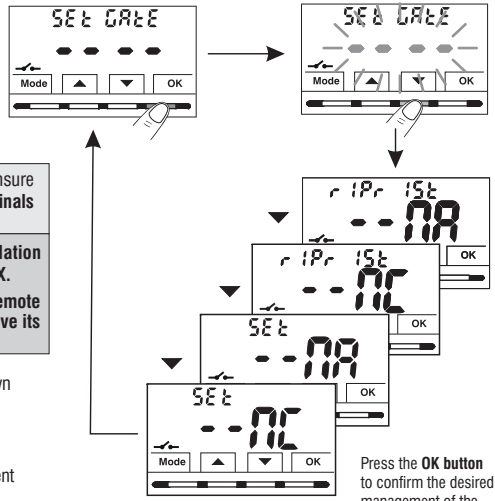
- Press the **Mode** button and then ▼ to select another menu item or press the **Mode** button twice to exit the menus and return to normal operation.

10 - CONFIGURATION MENU (Installer)

10.6 - MANAGEMENT OF EXTERNAL CONTACT for remote thermostat switching on/off

The thermostat is equipped with an input (AUX) for an external contact, it will be possible to connect accessory equipment (e.g. time switch, switch, window contact, etc.) that can deactivate the thermostat remotely, **whose control must necessarily be potential-free**.

A typical use is the window contact that can be connected to this input e.g. to switch off the temperature control in Winter (or Summer) when a window is opened.



Press the **OK button** to confirm the desired management of the external contact

Before enabling any item of the «**Set GAtE**» menu listed below ensure you have connected an external contact potential-free to the **terminals 1** and **2** (**AUX**) see par. 5.4.

WARNING: only connect switches and contacts with insulation suitable to work at 230Vac mains voltage to terminals 1 and 2 AUX.

MULTIPLE INSTALLATIONS: It is NOT permitted to connect the remote contact on more than one thermostat; each thermostat must have its AUX input operated independently of the others.

- From normal operation of the thermostat, access the menus by holding down the **"Mode"** button as described in Chap. 9.

The ***SEt GAtE*** screen is displayed.

- Confirm by pressing **OK,** the dashes flash.
- Using the buttons ▲▼, select the desired external contact management mode screen **(see table below)**.
- **press OK** to confirm.
- **press the Mode button to exit the menus** and return to normal thermostat operation.

SEt GAtE	= **No external contact enable (default);**
rIPr ISt nA	= **RESETTABLE command on N.O. external contact** "Normally Open"
rIPr ISt nC	= **RESETTABLE command on N.C. external contact** "Normally Closed"
SEt nA	= **Command NOT RESETTABLE on N.O. external contact** "Normally Open"
SEt nC	= **Command NOT RESETTABLE on N.C. external contact** "Normally Closed"

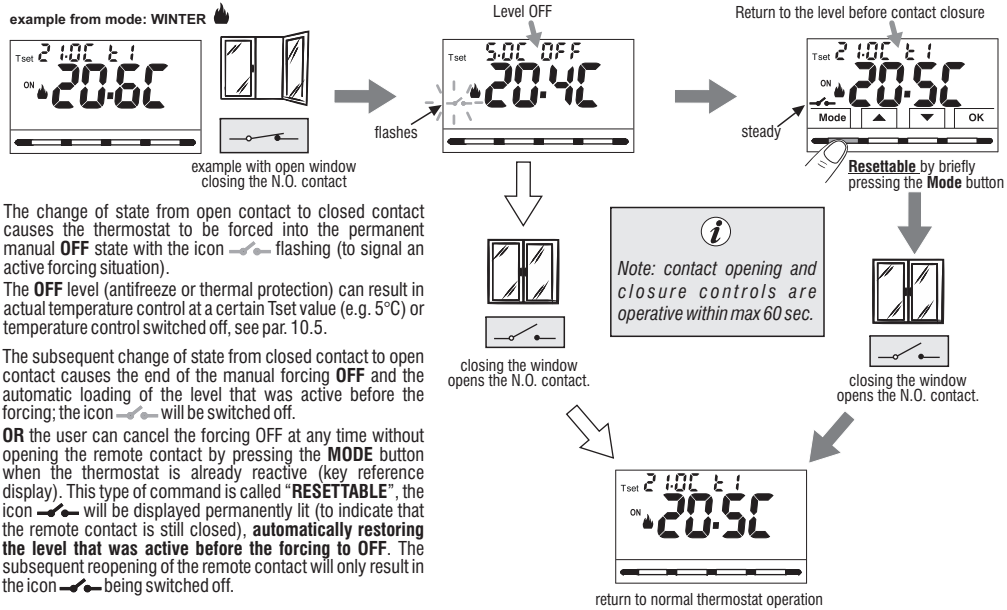
Follows ⟶

10 - CONFIGURATION MENU (Installer)

10.6.1 - RESETTABLE COMMAND on N.O. external contact “Normally Open”

Confirmed screen for the management of the **resettable** N.O. external contact with a command on the thermostat as per the procedure in paragraph 10.6, the following operation is obtained::

e.g. external contact N.A.	Thermostat operation
Contact closure	activates level **and Tset OFF ANTI-FREEZE if in WINTER ( ) or THERMAL PROTECTION in SUMMER ( )**
Contact opening	return to the **level and Tset active before closing the contact**



The change of state from open contact to closed contact causes the thermostat to be forced into the permanent manual **OFF** state with the icon flashing (to signal an active forcing situation).

The **OFF** level (antifreeze or thermal protection) can result in actual temperature control at a certain Tset value (e.g. 5°C) or temperature control switched off, see par. 10.5.

The subsequent change of state from closed contact to open contact causes the end of the manual forcing **OFF** and the automatic loading of the level that was active before the forcing; the icon will be switched off.

OR the user can cancel the forcing OFF at any time without opening the remote contact by pressing the **MODE** button when the thermostat is already reactive (key reference display). This type of command is called “**RESETTABLE**”, the icon will be displayed permanently lit (to indicate that the remote contact is still closed), **automatically restoring the level that was active before the forcing to OFF**. The subsequent reopening of the remote contact will only result in the icon being switched off.

10 - CONFIGURATION MENU (Installer)

10.6.2 - RESETTABLE COMMAND on N.C. external contact “Normally Closed”

Confirmed screen r1Pr 1St -- nC for the management of the **resettable** N.C. external contact with a command on the thermostat as per the procedure in paragraph 10.6, the following operation is obtained:

Do not enable the r1Pr 1St -- nC item prior to connecting a switch or other device that allows change of state from **OFF** mode to current operating mode and vice versa to terminals **1** and **2** (AUX)..

e.g. external contact N.C.	Thermostat operation
Contact opening	activates level **and Tset OFF ANTI-FREEZE if in WINTER ( ) or THERMAL PROTECTION in SUMMER ( )**
Contact closure	return to the **level and Tset active before closing the contact**

For the operating principle procedure and the displays on the display when the state of the external contact changes and/or reset with control directly on the thermostat, see images shown in the previous paragraph 10.6.1. taking into account that the contact is normally closed N.C. and not N.A.

10.6.3 - NON-RESETCABLE COMMAND on external N.O. contact. «Normally Open»

Confirmed screen SEt -- nA of external contact management N.A. as per the procedure in paragraph 10.6 the following operation is obtained:

e.g. external contact N.A.	Thermostat operation
Contact closure	activates level **and Tset OFF ANTI-FREEZE if in WINTER ( ) or THERMAL PROTECTION in SUMMER ( )**
Contact opening	return to the **level and Tset active before closing the contact**

example from mode: WINTER

example with open window which closes the N.O. contact.

Note: a flashing **“bLOC”** will appear when any button is pressed.

Closing the window opens the N.A. contact.

contact opening and closure controls are operative within max 60 sec.

The change of state from open remote contact to closed contact causes forcing into the permanent manual **OFF** state (antifreeze or thermal protection) with the display of the flashing “ ” icon (to indicate an active forcing situation). The **OFF** level can result in actual temperature control at a certain Tset value (e.g. 5°C) or temperature control switched off, see par. 10.5.

The subsequent change of state from closed contact to open contact causes the end of the manual forcing **OFF** and the automatic loading of the level that was active before the forcing; the icon will be switched off.

10 - CONFIGURATION MENU (Installer)

10.6.4 - COMMAND NOT RESETTABLE on N.C. external contact "Normally Closed"

Confirmed screen SEt - - nC for the management of the N.C. external contact as per the procedure in paragraph 10.6, the following operation is obtained:

Do not enable the SEt - - nC item prior to connecting a switch or other device that allows change of state from **OFF** mode to current operating mode and vice versa to terminals **1** and **2** (AUX).

e.g. external contact N.C.	Thermostat operation
Contact opening	activates level **and Tset OFF ANTI-FREEZE if in WINTER ( ) or THERMAL PROTECTION in SUMMER ( )**
Contact closure	return to the **level and Tset active before closing the contact**

For the operating principle procedure and the displays when the external contact changes state, see the images in the previous paragraph 10.6.3, bearing in mind that the contact is normally closed N.C. and not N.O.

10.7 - DISPLAY AND KEY BACK-LIGHTING

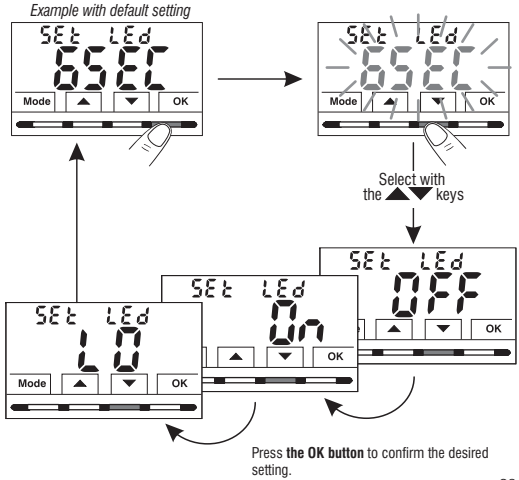
The menu SEt LEd ,allows you to manage the backlighting of the display.

•From normal operation of the thermostat, access the menus by holding down the **Mode** button as described in Chap. 9, the ***Set Led*** screen appears, confirm with **OK.**
The currently active setting flashes on the display, example in the figure:
6 SEC=timing at 6 seconds (default)..

•With the ▲▼ keys select the desired item

6SEC = Backlight off after 6 sec. (default).
OFF = Disabled backlighting.
ON = Backlight always ON.
LO = Backlighting with mild intensity (cannot be changed) after 6 sec.

•Press **OK** key to confirm the desired setting.
•Press ▼ to select another menu item or press the **Mode** button to exit the menus and return to normal operation.

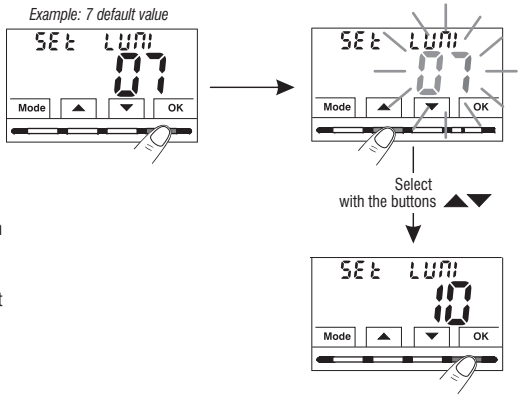


10 - CONFIGURATION MENU (Installer)

10.8 - BRIGHTNESS ADJUSTMENT (back-light)

This setting is only accessible if the ***SEt Led*** parameter is not set to **OFF** (backlight always off) *see par. 10,7)*

Example: 7 default value



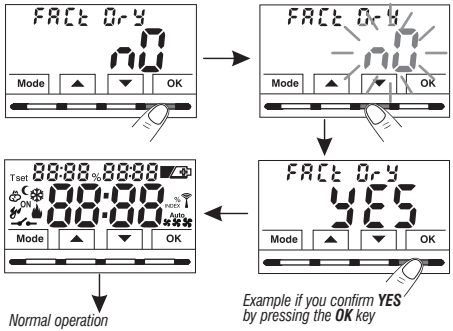
• From normal operation of the thermostat, access the menus by holding down the **Mode** button as described in Chap. 9.
The ***SEt LUMI*** screen is displayed.
• Confirm with the **OK** button, the set brightness value flashes
• Using the buttons ▲▼, choose the intensity of the backlight, which can be set from 1 to 10 levels (default 7).
• Press the **OK** button to confirm the desired setting..
• Press ▼ to select another menu item or press the **Mode** button to exit the menus and return to normal operation..

10 - CONFIGURATION MENU (Installer)

10.9 - RESTORE (FACt OrY) factory reset

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

- From normal operation of the thermostat, access the menus by holding down the **Mode** button as described in Chap. 9..
- When the ***FACtOrY*** screen is displayed, confirm with **OK,** the word ***nO*** flashes..
- Using the buttons ▲▼ choose **"YES"** to perform the Restore or **"NO"**.
- Confirming **YES** by pressing the **OK** button, the display shows all lit segments for a few seconds, then the thermostat restores the factory settings (see summary table in par. 2), positioning yourself on the normal operation screen.



The RESTORE operation deletes any password entered.

- Confirming with **OK "NO"** cancels the Restore operation.
- Press the ▼ button to move to the next menu or press the **Mode** button to exit the menus and return to normal operation.

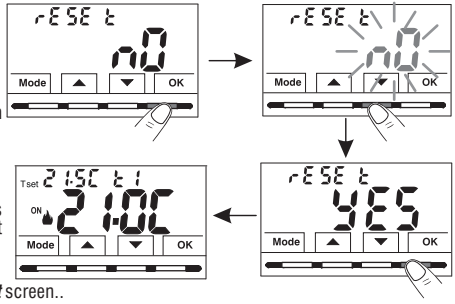
The thermostat is operating, in **Winter** mode "heating", Temperature Set **t1** (Comfort) at 20°C.

10.10 - RESET (Restart)

Does not cancel ANY previously entered or modified settings

Should the thermostat feature malfunctioning, wrong displays or other incorrect conditions, perform a ***"rESEt"***.

- From normal operation of the thermostat, access the menus by holding down the **Mode** button as described in Chap. 9.
- When the ***rESET*** screen is displayed, confirm with **OK,** the word **NO** flashes.
- Using the buttons ▲▼ choose **"YES"** to perform the Reset or **"NO"**.
- Confirming **YES** by pressing the **OK** button, the display shows all lit segments for a few seconds, then the thermostat returns to normal operation without changing any previous settings.



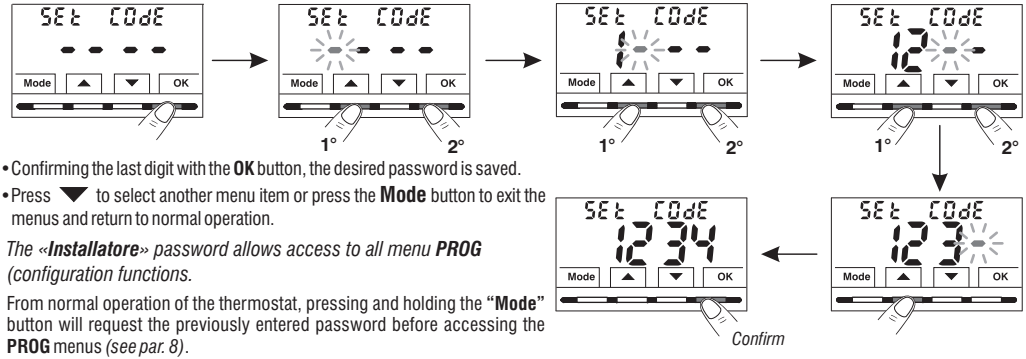
- If you opt for **NO** the display exits the function and goes back to the initial ***rESEt*** screen..
- Press ▼ to select another menu item or press the **Mode** button to exit the menus and return to normal operation.

10 - CONFIGURATION MENU (Installer)

10.11 - ENTERING AND MANAGING PASSWORDS TO ACCESS THE MENUS

- From normal thermostat operation, access the menus by holding down the **"Mode"** key as described in Chap. 9.
- When the ***SEt COdE*** screen is displayed, confirm with **OK**, the first dash flashes.
- Using the ▲▼ keys, enter 4 digits (dashes not included) between **0000** and **9999**, individually confirm them with **«OK».**

*Note: press the **Mode** key to return to the previous screen in the event of an error or to exit the SEt COdE menu.*



- Confirming the last digit with the **OK** button, the desired password is saved.
- Press ▼ to select another menu item or press the **Mode** button to exit the menus and return to normal operation.

*The «**Installatore**» password allows access to all menu **PROG** (configuration functions.*

From normal operation of the thermostat, pressing and holding the **"Mode"** button will request the previously entered password before accessing the **PROG** menus *(see par. 8)*.

10.11.1 - PASSWORD MODIFICATION OR CANCELLATION

- To **CHANGE** the password already entered, from normal operation of the thermostat, access the menus by holding down the **"Mode"** button as described in Chap. 9.
- When the ***SEt COdE*** screen is displayed, confirm with **OK** - - - - will be displayed with the first dash flashing.
- Using the buttons ▲▼, enter the 4 digits **of the NEW password** (excluding dashes) between **0000** and **9999,** confirming them individually with the "OK" button or if you wish to **CANCEL IT**, enter the 4 dashes instead of the numbers: - - - - *(note: if a dash is entered as the first digit in this situation, the other 3 digits can only be set as dashes).*

Information reserved to installer or expert user only

in the event of FORGOTTEN password enter the reset code - 927 to the request to access the PROG configuration menus (see par. 8). The password will be CANCELED!

10 - CONFIGURATION MENU (Installer)

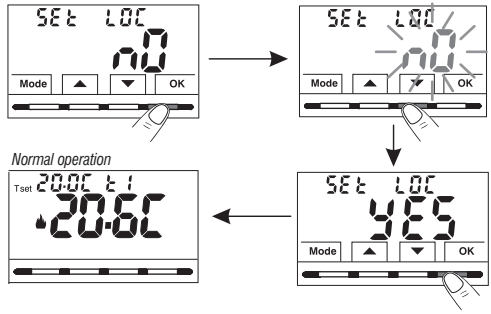
10.12 - KEYBOARD LOCK (menu displayed ONLY with password set)

IMPORTANT: this ***SEt LOC*** menu will only be **VISIBLE** if a ***Password*** has previously been set (see par. 10.11).

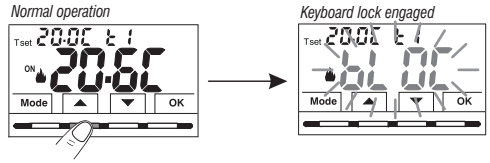
This function serves to prevent unauthorised persons from modifying any thermostat settings.

- From normal operation of the thermostat, access the menus by holding down the **Mode** button as described in Chap. 9.
- **Enter the Password** previously set.
- On the ***SEt LOC*** menu screen, confirm with **OK, nO** flashes..
- With the buttons ▲▼ choose **"YES"** to enable the lock or **"NO"** to disable it.
- Press **OK** to confirm.
- Press the **Mode** button to exit.

Consequently, when the keyboard lock is engaged, from the Normal thermostat operation screen, pressing any key will show **"bLOC"** flashing on the display for a few seconds.



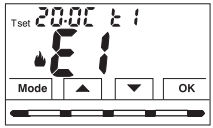
<u>To temporarily disable</u> the keyboard lock, it is necessary to access the ***PROG*** menus by holding down the **"Mode"** button, enter the ***Password*** and return to Normal thermostat operation by briefly pressing the **Mode** button. Any user setting of the thermostat, will be possible **<u>within 120 seconds</u>** of the last pressing of any key and will then be reset to "Keyboard lock" again.



<u>To permanently disable</u> the "Keyboard lock", in the ***SEt LOC*** menu screen confirm with **OK,** the word **NO** as described above.

11 - FAULT SIGNALLING

In the event of a malfunction of the room temperature probe (short-circuited or open probe), it is identified on the display by the fixed text **"E1",** instead of the room temperature (TA) reading.
A qualified installer will be required to replace or repair the device.
The thermostat deactivates the temperature control and the relay.



*Thermostat in "Normal operation" with fault indication on display **E1***

12 - POSSIBLE PROBLEMS AND SOLUTIONS

PROBLEM	CAUSE	SOLUTION
The thermostat display is OFF	No power supply	Checl that the switch or protection differential isn't on OFF
	Electrical cables not properly tightened in the terminals	After you turn off the power supply of 230V ~ check the power cables if tightened to the appropriate terminals on the wall base.
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
In **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 10.5

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.