Instructions manual

Thermostat 02950
Installer Manual

VIMAR

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1. Thermostat 02950

Recessed thermostat (2 modules, for use with the Eikon, Arkè and Plana series) on AC power, with multi-colour display and interface with capacitive buttons. Equipped with user-friendly functions to facilitate energy saving. Designed to control heating and air-conditioning via C, NC, NO relay output. Equipped with multi-function input for remote control. Input for management of an external temperature probe (not supplied).

2. Field of application

The thermostat 02950 is designed to control room temperature by acting on the control circuit of the burner or circulation pump (heating) or on the control circuit of the air conditioner (air conditioning), ensuring an ideal temperature.
Thanks to a touch screen display with an extremely user-friendly graphical interface, the user can manage the system easily and comprehensively while keeping the environment in a state of energy saving.

3. Installation

The appliance must be installed on a wall at a height of 1.5 m off the floor in a suitable position for correctly detecting the ambient temperature. It must not be installed in niches, behind doors and curtains or in areas affected by sources of heat or atmospheric factors.
It can be fitted on the mounting frames of the Plana, Eikon and Arkè series. Size: 2 modules.
It should be used in dry, dust-free places at a temperature between 0°C and +40°C.

4. Connections

4.1 Multi-function input

Depending on how it is configured, the multi-function input can be used to activate various functions of the thermostat (see par. 7.7).
It is active if terminal "IN" is connected to the system live "L"; if it is not connected or connected to neutral "N", the input is disabled.
The typical wiring diagram is the following:

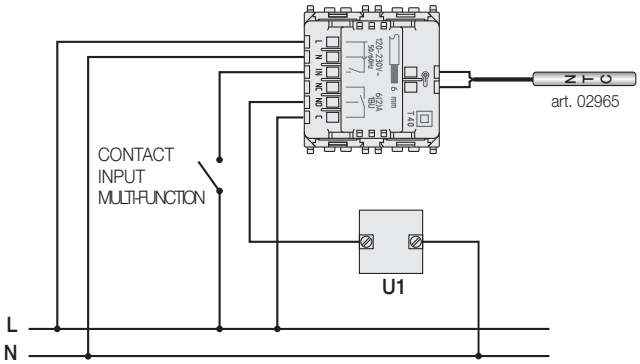


Fig. 1: Connection of relay and multi-function input

Activation type	clean contact 250V~, 1A
Type of conductor	1 single wire or 1 multi-wire cable conductor MAX. 1.5mm^2 insulation min. 250V~.
Length of the conductor	max 100 m between “L” and “IN”

4.2 External temperature probe

Depending on how it is configured, the external temperature probe can be used to accomplish several functions (see 7.6); it does NOT have polarity so you can connect the 2 wires in the 2 terminals without any particular order.
It is recommended to use the NTC 10k beta 3900 probe (art. 02965) that provides double insulation.
The typical wiring diagram is the following:

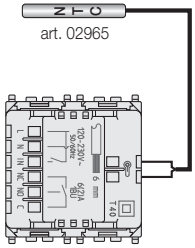
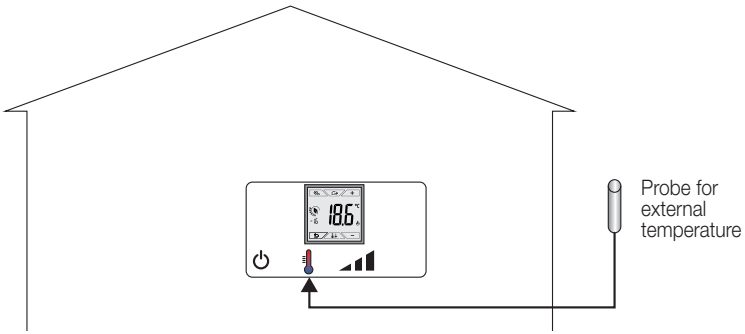


Fig. 2: Connecting the external temperature probe

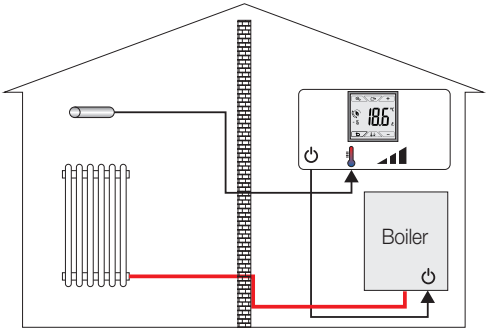
CAUTION: Cut off power to the system before connecting the probe to the thermostat.

4.2.1 Installation examples:

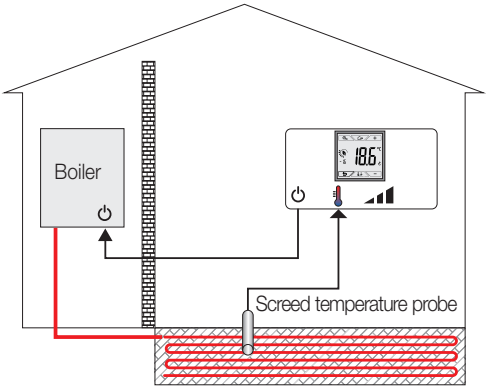
02695 used to display the outside temperature



02695 used for adjustment (of a remote environment)



02695 used for limiting the temperature of underfloor heating



IMPORTANT: During installation, take care not to damage the insulation of the probe while laying the screed. Perform the installation in such a way that the probe is accessible for any maintenance work.

5. Display

The touchscreen display allows you to control the system using the following buttons and icons:

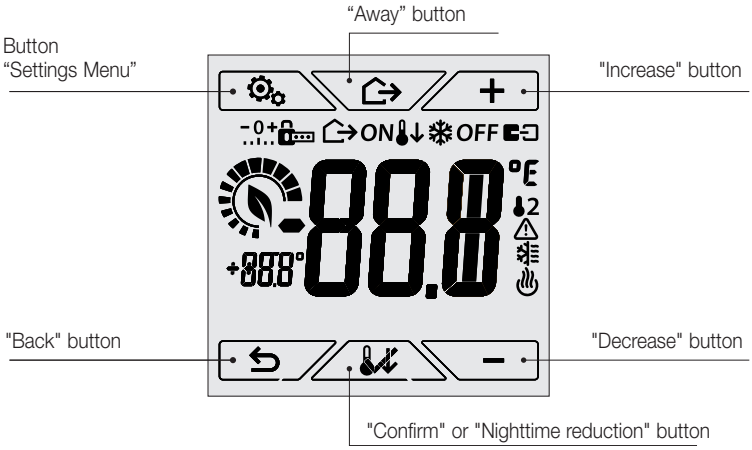


Fig. 3: Graphical interface and buttons

5.1 Functions of the buttons

: **increases** the numerical values and, in the process of navigation, scrolls through the available menus. When it "disappears" from the display it means that the value cannot be increased any more or the first of the scrollable items has been reached.

: decreases the numerical values and, in the process of navigation, scrolls through the available menus. When it "disappears" from the display it means that the value cannot be decreased any more or the last of the scrollable items has been reached.

: confirms the selected option (activates the submenu if there is one or displays the next parameter/digit).
After each confirmation, the display shows the icon for approximately 1 s.

: back (or cancel) exits the current screen/menu and returns to the previous one without saving any changes. In menus with changes to multiple digits it lets you go back to change the previous digit.

N.B. The field/value being edited is highlighted by the field/value itself flashing.

- If no operations are performed on the device for 30 seconds, the brightness of the backlighting decreases, and the touch screen does not respond to touch (thus you avoid the effects due to inadvertent touching and the backlighting is less “invasive”); on standby the button symbols are no longer visible because they are disabled.

- To exit standby mode, touch the screen and see that the button icons appear. The increase in the brightness level of the device and the appearance of active buttons will confirm restoration of the normal functions.

5.2 Symbols

Depending on the different operating modes, the following icons could also be displayed:

−0+ : Calibration

: Entering the PIN

: Away

ON : Manual (ON)

: Nighttime Reduction

: Antifreeze

OFF : OFF

: Multi-function input ON

2 : External temperature probe

: Alarm

: Air conditioning

: Heating

: Confirm

5.3 Ecometer

Fig. 4: Set of ECOMETER icons

On the left-hand side of the display there is a set of icons called the "ECOMETER" that provide an overview of the expected consumption.

The colour of the display, if configured in "ECO" mode, shows the expected consumption provided by the ECOMETER via the background colour (see 7.9).

This indicator facilitates system management geared to energy saving by associating a different colour depending on the estimated forecast.

5.4 Locking the interface via PIN

The thermostat lets you set a password (see par. 7.12) which inhibits any change to the operating mode (eg switching from Manual to OFF), limits setting the temperature values and, more generally, blocks access to the configuration menu.

This feature is useful to prevent the thermostat being used by unauthorized persons: the device prompts you to enter the PIN, indicating a shutdown with the icon.

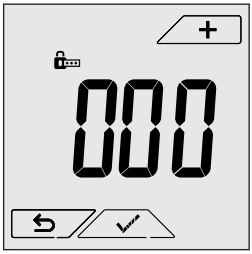


Fig. 5: Locking with PIN

6. Operating mode

The thermostat 02950 is able to adjust the temperature according to the following operating modes:

- **Switched off (OFF)**: switches the system off
- **Manual (ON)**: lets you set the environment temperature set-point manually
- **Away**: is an intermediate mode between manual and antifreeze that lets you set the set-point in order to achieve significant energy savings during periods when the user is away
- **Nighttime reduction**: this mode, which can be activated locally, is useful for changing the manual adjustment set point in the hours of nighttime operation.
- **Antifreeze**: used to set a minimum temperature level to avoid damage to pipework or prevent the temperature from falling below a safety level.

In addition, if the multi-function input of the thermostat has been suitably configured, you can remotely activate the following modes:

- **Remote reduction**: conceptually similar to nighttime reduction, it acts on the comfort set point instead of the manual set point
- **Remote activation**: lets you activate the system remotely by setting the comfort set point

The operating mode is selected via the SETTINGS menu (see chap. 7).

6.1 Switched off (OFF)

In this mode, the thermostat is turned off and you cannot make any adjustments; in this case, the **OFF** icon is displayed above the temperature indicator.
When the thermostat is OFF, you cannot perform any operations other than activating the menus.

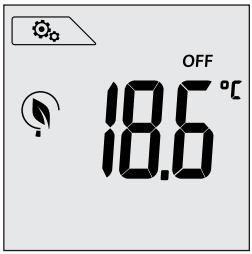


Fig. 6: Typical screen for OFF mode

For heating-only systems this mode is typically used in the summer.

6.2 Manual (ON)

This is the "traditional" operating mode. The thermostat controls the room temperature and takes it to the value set by the user (manual adjustment setpoint).

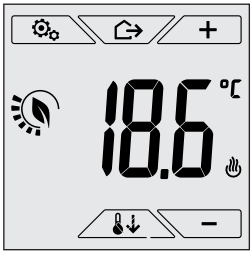


Fig. 7: Typical screen for Manual mode

The set point can always be changed via + or −.
In the process of setting, the set point flashes; the colour of the display may also vary, providing an indication of the expected consumption associated with the setting being made:

[1] Only if the colour set for the display is white (C0) or ECO, see par. 7.9.

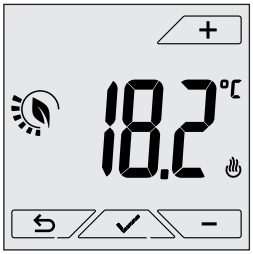


Fig. 8: Manual set point setting

The selection is confirmed by touching .

The and icons in the lower right corner indicate whether the system is operating in heating or air-conditioning mode respectively (icon illuminated = system on).

6.3 Away

This mode is useful to achieve energy savings quickly and effectively whenever the user leaves the regulated room.
In "Away" mode the system makes the adjustment according to the "away temperature" setpoint TD (see para. 7.4.2) which is more cost-effective than the manual setpoint and different to switching off the system completely.

The Away mode can only be activated in manual mode by touching .

The display will show the "away temperature" setpoint for approximately 2 seconds:

Fig. 9: Input in away mode showing the away temperature

Activation of this mode is identified by the icon above the temperature indicator:

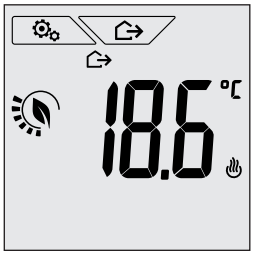


Fig. 10: Away Mode

To exit and return to Manual mode touch the button again.

6.4 Nighttime reduction

This is the typical mode to use at night to reduce system consumption significantly.
In "Nighttime reduction" mode the device reduces the consumption of the system, taking the room temperature to a lower value (or higher, if on air-conditioning) than the Manual mode by dIr degrees (see par. 4.4.4).

"Nighttime reduction" is activated starting from Manual mode by touching or remotely via the multi-function input (if enabled).

The display will show the "nighttime reduction" setpoint for approximately 2 seconds:

Fig. 11: Input in Nighttime reduction mode showing the reduction set point

Activation of this mode is identified by the icon above the temperature indicator:

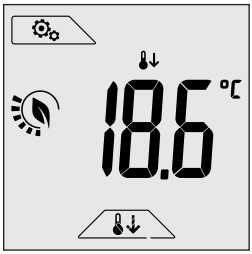


Fig. 12: Nighttime reduction mode

To exit and return to Manual mode touch again.

6.5 Antifreeze

This mode, which can only be activated when the system is operating in heating mode (see par. 7.3), lets you set a minimum temperature value (To setpoint) to avoid damage to the pipework or to keep it from falling below a certain safety level when you are away for lengthy periods in the winter.
The "antifreeze" mode is activated directly from the Settings menu (see par. 7.1).
Once activated, antifreeze mode is identified by the icon above the temperature indicator.

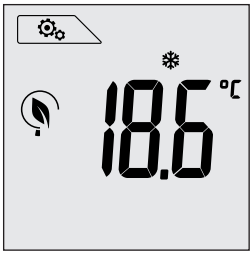


Fig.13: Antifreeze mode

6.6 Remote reduction

Remote reduction is a useful way to "centralize" energy saving if there are multiple 02950 thermostats in different rooms of the same house.
It is similar to Nighttime reduction mode with the only difference being that activation is by remote control.
Example: Before going to bed, using a simple switch, all the thermostats in the house are set onto "reduction" at the same time.
This mode comes into operation when the multi-function input is activated (see par. 4.1) only if it has been properly configured; the multifunction input is activated solely when the thermostat is in Manual mode.

In "remote reduction" mode, the device sets the temperature to a value equal to Tcomfort-dTr (see para. 7.4).
In this condition the display and its buttons have limited functions; access to the settings menu is disabled and you can only change the temperature setpoint within a limited range (see par. 7.4.5).

The "Remote reduction" mode is identified by the and icons located simultaneously above the temperature indicator.

The + and − buttons let the user change the temperature in the range dTu.

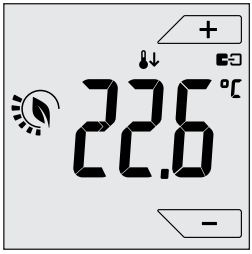


Fig. 14: Input in Remote reduction mode

On disabling the multi-function input, the thermostat returns to the previously set mode and the user can again manage the device completely.

6.7 Remote activation

This mode is typically used in applications where you want to remotely enable or disable temperature control of a room and limit the functions that can be performed by the user.
For example, this is a typical mode in hotel room management.
This mode comes into operation when the multi-function input is activated (see par. 4.1) only if it has been suitably configured by the installer (see par. 7.7).

In "remote activation" mode, the device sets the temperature to a value equal to Tcomfort (see para. 7.4). In this condition the display and its buttons have limited functions; access to the settings menu is disabled and you can only change the temperature setpoint within a limited range (see par. 7.4.5).

The "Remote activation" mode is identified by the icon located above the temperature indicator.

The + and − buttons let the user change the temperature in the range dTu.

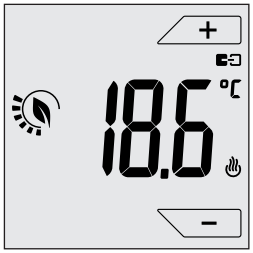


Fig. 15: Input in Remote manual mode

On disabling the multi-function input, the thermostat switches to Antifreeze mode (system on heating) or OFF (system on air-conditioning) and the user can again manage the device completely.

7. Settings menu

From the settings menu you can configure all the features of the thermostat.

On the main screen (see Fig. 3) tap the icon.

From the main menu, using + and − will display the following (flashing) symbols in succession, which provide access to the corresponding submenus:

1. ON ❄ OFF operating mode setting
2. °C unit of measurement setting
3. heating/air-conditioning setting
4. T_ temperature set point setting
5. -0+ calibration setting
6. 2 external probe setting
7. In and multi-function input setting
8. Out OnOff/PID temperature control algorithm setting
9. Col display colour setting
10. Sby standby brightness level setting
11. Inf device info
12. lock/unlock PIN setting

Touching ✓ opens the submenu and then the flashing highlights the parameters of the submenu.

7.1 Operating mode setting

This menu is used to select the operating mode of the device:

- **ON** Manual
- **OFF** Off
- ❄ Antifreeze (only if the thermostat is set on "heating")

Using + and − select the desired mode and confirm with ✓.

7.2 Unit of measurement setting

- The menu lets you set the unit of measurement used for the temperature (°C or °F)

Using + and − select the desired unit of measurement and confirm with ✓.

7.3 Heating/air-conditioning setting

This menu lets you set the operation of the device depending on the season (winter/summer):

- heating
- air-conditioning

Using + and − select the desired operation and confirm with ✓.

7.4 Temperature set point setting

This menu lets you set the temperatures and hystereses necessary for defining the temperature control set-point used in the different operating modes.
In particular, you can have setpoints for:

1. Tc temperature **Tcomfort ***
2. TU and temperature of the **Away mode ***
3. To and temperature of the **Antifreeze mode**
4. dTr thermal delta in **Nighttime reduction mode ***
5. dTu thermal delta (modifiable only within a range of values) with thermostat remote-controlled or inhibited by PIN
6. dT hysteresis of the device
7. TL and external probe alarm temperature (if the external probe is configured as a "limitation")

*** CAUTION: Depending on the mode the thermostat is in (heating or air-conditioning), setting this setpoint acts only on the value associated with the current mode highlighted by the or *icon (for example, Tcomfort of heating mode)*.**
After then changing the setpoints of the current mode in succession, change the mode (see 8.3) and set all the setpoints corresponding to it.

7.4.1 Comfort temperature

The menu, via + and −, lets you increase/decrease the value of the comfort temperature Tc.
The Tcomfort temperature is the "reference" temperature used in the remote settings and can be defined as the "comfort temperature" that you want to reach after remote activation. In addition, it can also be the temperature at which to apply the thermal delta for nighttime reduction when it is activated via the multi-function input.
The comfort temperature differs depending on whether you are in the heating or air-conditioning mode.

Example: If the thermostat is operating in heating mode, the value of Tcomfort is set to 20°C.

7.4.2 Away temperature

The menu, via + and − lets you increase/decrease the value of the away temperature TU.

The away temperature, preset by the installer, is an intermediate temperature between that of Manual and Antifreeze mode, geared to obtain substantial energy savings during periods when the user is away.

The away temperature differs depending on whether you are in heating mode (in which T.away is less than Tcomfort) or air-conditioning mode (in which T.away is greater than Tcomfort).

Example: While the user is away, the thermostat sets the ambient temperature to 16°C.

7.4.3 Antifreeze temperature

The menu, via + and −, lets you increase/decrease the value of the antifreeze temperature To.

Antifreeze mode is used to set a minimum temperature level to avoid damage to the pipework or keep the room temperature from falling below a safety level (see par. 6.5).

7.4.4 Nighttime reduction thermal delta

The menu, via + and −, lets you set the difference between the Nighttime reduction temperature and Tcomfort temperature (or the temperature set in Manual mode).

The hysteresis is an increase/decrease in temperature that is applied to the Manual setting (when nighttime reduction is activated by the display) or to Tcomfort (when nighttime reduction is activated by the multi-function input); the thermal delta value is identical both in heating mode and in air-conditioning mode with the only difference being that in the former case it causes a decrease in the set point while in the latter one it determines an increase.

The nighttime reduction mode can be activated either locally or via the multi-function input (if configured appropriately - see par. 6.4).

7.4.5 User settable thermal delta

The menu, via + and −, lets you set the range of values within which the user can adjust the temperature when the menus are inhibited following remote activation or entering the PIN.

When the thermostat is turned on remotely (via the multi-function input when suitably configured), the control temperature is fixed and therefore cannot be changed; with dTu instead, the user can modify the temperature within a certain range.

For example: multi-function input set as remote activation, T. comfort set at 20.0°C. Setting the thermal delta to 0.8°C allows the user to change the temperature setting from 19.2°C (20.0°C - 0.8°C) to 20.8 (20.0°C + 0.8°C).

7.4.6 Hysteresis of the device

The menu, via + and −, lets you set the temperature range of the heating/air-conditioning system between "ON" and "OFF".

This value can also be changed via the submenu for ON/OFF operation (see par. 7.8).

The parameter cannot be changed if the thermostat is set as PID operation

For example: Heating, with setpoint on 20.0°C, dT : 0.5°C → → → 20.5 (off), 19.9 (on)

7.4.7 External probe alarm temperature

The menu, via + and −, lets you set the temperature limit (read by the external probe) at which the thermostat switches off the heating system and triggers an alarm (useful to protect underfloor systems against overheating).

To view this menu, the external temperature probe must be set as a "limitation" (see par. 7.6).

7.5 Calibration setting

This menu lets you "calibrate" the temperature read by the thermostat.

Via + and −, you can add or subtract (at intervals of 0.1°) a fixed amount from the temperature detected by the thermostat to make it equal, for example, to that of a sample thermometer.

CAUTION: For correct calibration it is recommended to wait until the thermostat has been on for at least 1 hour in a room at constant temperature.

Tap ✓ to confirm your choice.

7.6 External probe setting

This menu lets you configure how to use the external temperature probe (installed according to the instructions in par. 4 .2)

Via + and − you can select the following options:

- **OFF**: the external probe (although physically present) is ignored by the device.
- **Adjustment (the measured temperature flashes)**: by enabling this function, the thermostat will regulate the temperature of the environment based ONLY on the temperature detected by the external probe (the temperature measured by the thermostat is ignored).

The temperature shown on the display will be that of the external probe identified by the 2 icon.

- **Display (the temperature measured by the thermostat and that of the external probe are shown alternately on the display)**: the external probe is only used to display the temperature in another environment.

On standby the display will alternate views of the internal temperature (measured by the thermostat) and external temperature (measured by the probe) and identifiable by the 2 icon.

- **Limitation (the ⚠ icon flashes)**: mode used for systems with underfloor heating.

In the associated submenu you set the limitation temperature, that is the one, read by the external probe immersed in the screed, that is considered an excessive temperature. If this threshold temperature is reached the thermostat turns off the heating system and displays the alarm as long as the condition that generated it remains.

At the end of this condition, the thermostat resumes its normal operation.

Tap ✓ to confirm your choice.

7.7 Multi-function input setting

This menu is used to set the operating mode of the multi-function input.

Via + and − you can select the following options:

- ***OFF***: the state of the multi-function input is ignored by the device.

- **ON remote activation**: the multi-function input (when enabled) automatically sets the “Tcomfort” temperature as the setpoint.
  In this context, the user can only change the temperature within a narrow range (see: 8.4.5) and cannot carry out any further operations on the device; with the multi-function input disabled, the default mode is "Antifreeze" (or OFF if on air-conditioning) and the user can manage the thermostat completely.
- **remote reduction**: the multi-function input (when enabled) forces a reduction in temperature (which can be set via the submenu associated with that selection) with respect to “Tcomfort”.
  In this context, the user can change the temperature within a narrow range (see par. 7.4.5) and cannot carry out any other operations on the thermostat; with the multi-function input disabled, the thermostat returns to the previously set operating mode and the user can manage the thermostat completely.
- (summer/winter switching): the multi-function input automatically switches the thermostat onto air-conditioning mode (when on) or heating mode (when off).
  On enabling this selection, the submenu described in 7.3 is no longer displayed.
  This option is useful for centralized systems in which the air-conditioning or heating mode is performed at the level of the entire building and impacts on many sub-environments.

  Tap ✓ to confirm your choice.

7.8 OnOff/PID setting

This menu lets you select the way in which the ambient temperature will be controlled.
Via + and − you can select the following options:

- **1-0 (OnOff control)**: this is the traditional "threshold" control so that, on exceeding the set temperature increased by dT (vice versa for air-conditioning), the heating is switched off to then be turned back on when the room temperature drops below the set temperature.
  The dT value can be set directly via the submenu that follows this selection.
- **PID (P.I.D. control)**: this is an evolved algorithm that is able to keep the temperature in the environment more stable, increasing comfort; this algorithm switches the system on and off appropriately so there will be a gradual increase or decrease in the thermal (or refrigerating) power of the system itself.

  To take full advantage of its performance it needs to be suitably calibrated according to the type of environment and heating system; in the light of this, the following parameters must be set via the submenus that follow this selection:
- **Tb (temperature of proportional band)**: starting from the set temperature, Tb is the temperature range in which the heating power goes from 0% to 100%.
  For example: with the temperature (for heating) set to 20.0°C and Tb=4.0°C, the thermostat activates the heating system on 100% when T.ambient is <= 16.0°C; as this temperature increases, the system power is consequently lowered down to 0% when the ambient temperature reaches 20°C.
  The value of Tb must be set consistently with the thermal capacity of the system; in general, it is recommended to use small values of Tb for environments with a good level of thermal insulation and vice versa.
- **tb (system cycle time)**: this is the time in which a cycle of regulation is completed; the shorter this time, the better the regulation but the temperature control system is under greater stress.
  This parameter setting is thus the result of a compromise between the accuracy of the regulator and

the load on the system; in general, the rule is that Tb can be that much higher (and therefore put fewer demands on the system), the slower the system or the larger the environment to regulate.

Tap ✓ to confirm your choice.

7.9 Colour setting

This menu is used to select the background colour of the display.
In addition to the four default colours, you can set a colour to your choice selected from the full range of colours, or set "ECO" mode in which the display colour is a clue to the expected level of consumption in the building.

Via + and − you can select:

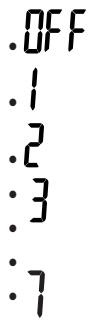
- C0 : white default colour
- C1 : colour matching the Plana series
- C2 : colour matching the Eikon series
- C3 : colour matching the Arkè series
- - - - **(custom colour)**: takes you to another menu and via + and − you set a custom colour; while the numbers scroll, the display shows the corresponding colour in real time.
- ECO : ECO mode allows displaying a colour that, depending on the set temperature, is associated with the expected level of energy consumption. Specifically:

ECO mode therefore does not display the colour as a function of the temperature measured at that time but only in relation to the set point.

Lastly, tap ✓ to confirm your choice.

7.10 Standby brightness level setting

The menu lets you set the brightness level when the thermostat is in standby mode.
Via + and − select one of the following levels with gradually increasing brightness:



While scrolling through the values, when the selection stops on a certain level, the brightness of the display will, for approximately 2 s, take on the brightness corresponding to the selected level in order to allow the user to check the visual effect.

Lastly, tap ✓ to confirm your choice.

7.11 Info

This menu lets you view information related to the thermostat and reset the device.

Via + and − you can select:

- h: displays the number of hours that the thermostat relay has been on (the same as the number of hours of operation of the heating/air-conditioning system).
  The counter can be reset, for example at changes in season to differentiate between heating and air-conditioning.
- VEr : displays the software version of the device.
- rSt : returns the device to the factory default values resetting all the settings made (temperature, colours, etc.).

7.12 Lock/unlock PIN setting

This menu lets you add/change the password to inhibit use of the thermostat.
Using + and − set the three digits of the PIN one at a time and then confirm each set digit with ✓.

If you wish to have free access to the thermostat (so without it prompting you for a password) it is sufficient to set the PIN to "000".

To reset your PIN, if you forget the value you entered, proceed as follows:

1. Cut off power to the thermostat
2. Power up the thermostat again
3. Within the first 30 s, i.e. before going into Standby mode, go to the PIN menu and enter the new value.

8. Summary table of thermostat parameters

Function	Parameters	Value range	Resolution	Default value
Multi-function input	IN selection	[Off, Nighttime Reduction, Activation, Heating/Air-Con.]	-	Off
External temperature probe	EXT Probe selection	[Off, View, Temperature Control, Limitation]	-	Off
Nighttime Reduction	δ_R (red. offset)	[1,..,6]°C	0.1°C	4°C
Limitation	T_L (Temp. limit)	[30,..,50]°C	0.1°C	35°C
Temperature control mode	Selection TempCtrl	[Heat., Air-con.]	-	Heating
Control algorithm	Algorithm	[ON/OFF, PID]	-	ON/OFF
Hysteresis (ON/OFF)	δ_T (Differential)	[0.1,..,1]°C	0.1°C	0.2°C
Proportional band (PID)	Band	[0.5,..,5]°C	0.1°C	1°C
Integral period (PID)	Period	[10,..,30] minutes	1 min	20 min
Unit of measurement (temperature)	Temperature unit	[°C , °F]	-	°C
Temperature offset	TE (Offset temp.)	[0,..,±3]°C	0.1°C	0°C
PIN number	Pin	[000,..,999]	1	000
Temperature set-point	T_M (Man Heat.)	[10,..,35]°C	0.1°C	18°C
	T_M (Man Air-Con.)	[10,..,35]°C	0.1°C	26°C
	T_2 (Comfort Heat.)	[10,..,35]°C	0.1°C	20°C
	T_2 (Comfort Air-Con.)	[10,..,35]°C	0.1°C	25°C
	T_0 (No Heat.)	[TG,10,..,35]°C	0.1°C	16°C
	T_0 (No Air-Con.)	[10,..,35,OFF]°C	0.1°C	29°C
	T_G (Antifreeze)	[4,..,10]°C	0.1°C	5°C

Table 1. Device parameters

9. Alarms

The thermostat is capable of displaying an alarm condition associated with the use of the external temperature probe as described in subsection 7.6.

10. Cleaning the device

The device features a touchscreen display with capacitive buttons and therefore requires you to be gentle during the cleaning phase. Avoid using aggressive products. Clean the display with a special cloth for cleaning lenses.

11. Main characteristics

- Power supply: 120-230 V~, 50-60 Hz.
- Maximum power draw: 1 VA.
- Output: relay with clean changeover contact 5(2) A 230 V~.
- Type of setting: ON/OFF or PID algorithm
- Room temperature display: 0°C +40°C.
- Reading resolution: 0.1°C.
- Settings resolution: 0.1°C.
- Accuracy of reading:
  - ≤ ±0.5°C between +15°C and +25°C;
  - ≤ ±0.8°C at the extremes.
- Software calibration: ability to change the probe reading with software calibration (±3°C max) to adapt the measurement to each specific installation condition.
- Hysteresis: adjustable from 0.1°C to 1°C.
- Adjustment range:
  - +4°C - +10°C on antifreeze;
  - +10°C - +35°C on heating or air-conditioning.
- Main functions:
  - adjustment for heating and air conditioning;
  - antifreeze function;
  - turning on and off with multi-function input
  - device reset;
  - keypad lock via password with 3-digit PIN to block access to all the functions of the device and protect its operation and programming (for example, if it is installed in a public place).
- Touchscreen display.
- Protection class: IP20.
- Appliance of class II
- Number of manual cycles: 3,000.
- Number of automatic cycles: 100,000.
- Type of contact opening: micro-disconnection.
- Action type: 1.B
- Tracking index: PTI175.
- Degree of pollution: 2 (normal).
- Rated pulse voltage: 4,000 V
- Ambient temperature during transport: -25°C +60°C.
- Operating temperature: T40 (0°C +40°C).
- Software class: A

12. Installation rules

Installation should be carried out in compliance with the current regulations regarding the installation of electrical systems in the country where the products are installed.

13. Regulatory compliance

LV directive
EMC directive
Standards EN 60730-1, EN 60730-2-9.

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