

CHORUS **S** MART

GEWISS

THERMO ICE WI-FI (SURFACE-MOUNTING)



GW16970CB

GW16970CL

GW16970CN

GW16970CT

Programming manual

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2 Aim of this manual

This manual is aimed at both the installer and the end user. It explains how the thermostat works, and how to set and adjust the various operating parameters (setpoint, timer programming, type of control, type of operation, operating mode, etc.).

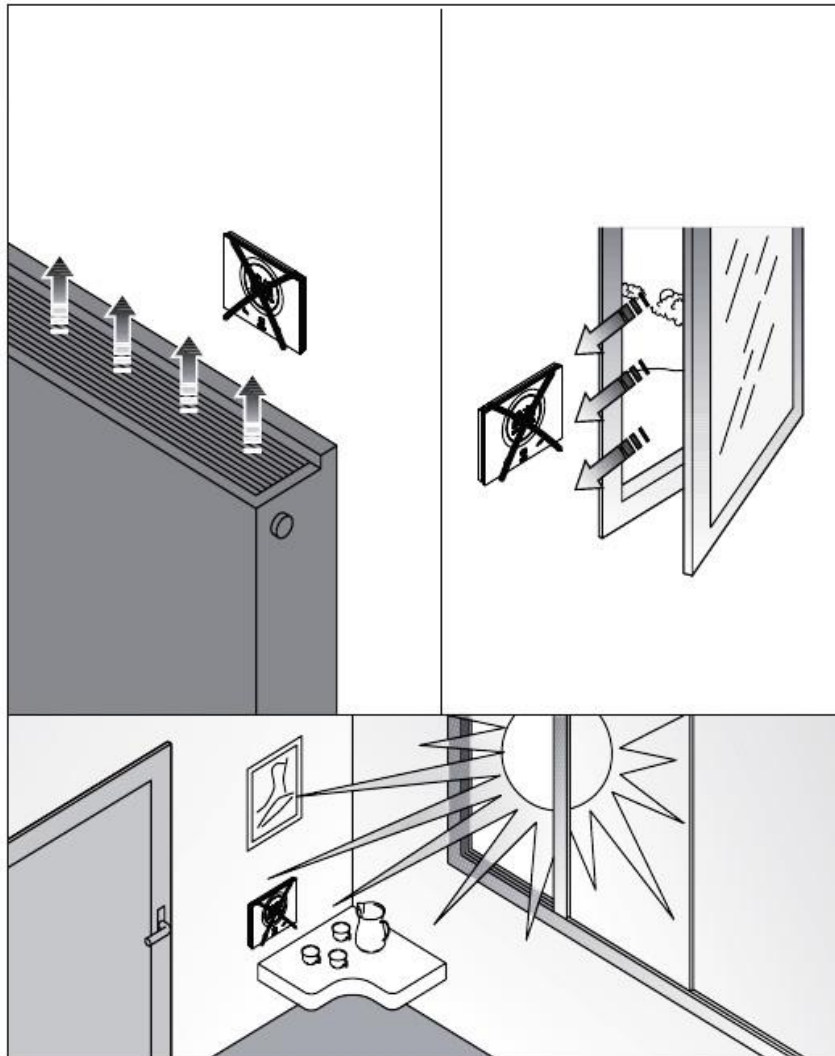
All the information concerning the technical data of the product, the connection diagrams, the descriptions of the commands and the instructions for correct assembly is contained in the installation manual supplied with the product and which can also be downloaded from the website www.gewiss.com.

3 Technical datasheet

Power supply:	110V AC ÷ 230V AC, 50/60 Hz
Power supply absorption:	< 3W (in standby < 1W)
Command elements:	3 touch commands, 1 circular touch slider
Inputs:	1 input for an external temperature sensor (type NTC 10K, e.g. GW 10 800)
Outputs:	2 relays with NO potential-free contact. Max. switching current equal to: 6A (cosΦ = 1) 250V AC 1.5A (cosΦ = 0.6) 250V AC with relay implementation every two minutes
Display elements:	1 LED backlit display
Temperature:	Measurement range = 0°C ÷ +45°C Resolution = 0.1°C Precision = ±0.5°C between +10°C and +30°C NOTE: the measurement precision refers to optimum installation conditions
Relative humidity:	Measurement range = 10-95% Resolution = 1% Precision = ±5% between 20% and 90%
Communication elements:	Wi-Fi radio module 2.4GHz IEEE 802.11 b/g/n
Antifreeze setpoint regulation range:	+5°C ÷ +10°C
High temperature protection setpoint regulation range:	+35°C ÷ +40°C
Regulation range for other setpoints:	+10 ÷ +35°C
Usage environment:	Dry indoor places
Operating temperature:	-5°C ÷ +45°C
Storage temperature:	-25°C ÷ +70°C
Relative humidity:	Max 93% (non-condensative)
Electric connections:	Screw terminals, max. cable section = 1.5 mm ²
Degree of protection:	IP20
Type of action (ref. EN 60730):	2
Type of software use (ref. EN 60730):	Class A (ref. EN 60730)
Pollution level (ref. EN 60730):	2 (normal)
Rated impulsive voltage (ref. EN 60730):	4000V
ErP classification (Reg. EU 811/2013):	With ON/OFF algorithm = class I, contribution 1% With PI (PWM) algorithm = class IV, contribution 2%
Dimensions (L x H x D):	123.2 mm x 95.2 mm x 20.6 mm
Reference standards:	EN 60730-2-7, EN 60730-2-9

4 Installation requisites: CORRECT POSITIONING

To correctly measure the controlled ambient temperature, the thermostat must not be installed in niches, near doors or windows, or next to radiators or air-conditioning units, and it must not be in the line of draughts or direct sunlight.



If necessary, the temperature measurement can be corrected using the advanced parameter P2 (with a range of $\pm 5^{\circ}\text{C}$). The parameter can be regulated both via the app and locally, as explained in 20.2.3.

5 Commonly used terms

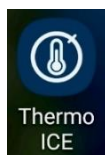
Base User:	A user with limited access to the app functions. The limits are set by the Administrator user, via the app itself
HVAC:	Heating / Ventilation / Air-Conditioning
MAC address:	Media Access Control address: a unique network identification address
Local:	An action implemented directly on the thermostat
Remote:	An action implemented via the app
Setpoint:	The required temperature
SSID:	Service Set Identifier: the name of the network
Slave:	A type of thermostat control that does not give access to the advanced parameters and limits the regulations that can be made locally
Stand-alone:	A type of thermostat control that gives access to all the parameters (basic and advanced) if access is enabled on the app
Administrator:	The user that can access all the commands, regulations, enablings/disablings via the app, and also add or remove users

INSTALLING THE APP

6 Installing the app on a mobile device

The GW16970CB/CL/CN/CT device is a thermostat for managing the temperature and, if necessary, the humidity, in the room where it is installed. The GW16970CB/CL/CN/CT - THERMO ICE Wi-Fi (surface-mounting) completes the range of touch temperature adjustment for traditional, non-KNX systems; it acts directly on the relays in the device, without interacting with the other devices installed in the system. The Thermo ICE Wi-Fi does not need an external power supply, so it can be directly powered from the 110/230V line.

It is fitted with a Wi-Fi module so it can be distance-managed and programmed (timed thermostat function). The use of the thermostat requires the installation of the relative app on a mobile device (e.g. a smartphone or tablet).



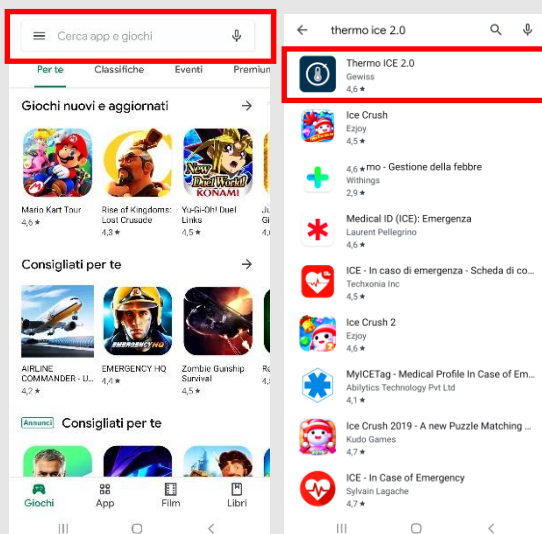
INSTALLING THE APP ON AN ANDROID DEVICE

- Find the "Play Store" application on the chosen mobile device, and open it.



- Enter the name "Thermo Ice 2.0" in the internal search engine (make sure the icon is the one shown below)

Search engine



- Click on the “Thermo Ice 2.0” icon



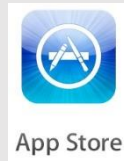
Thermo ICE 2.0
Gewiss
4,6 ★

- Click on the “Install” button

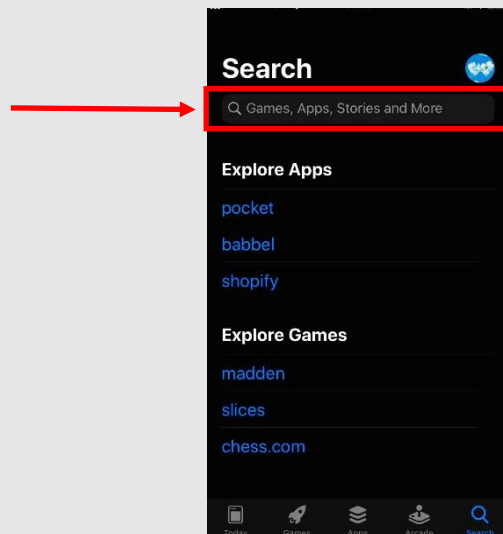


INSTALLING THE APP ON AN IOS DEVICE

- Find the “App Store” application on the chosen mobile device



- Open App Store and enter “Thermo ICE 2.0” in the internal search engine



- When you have found the app, install it

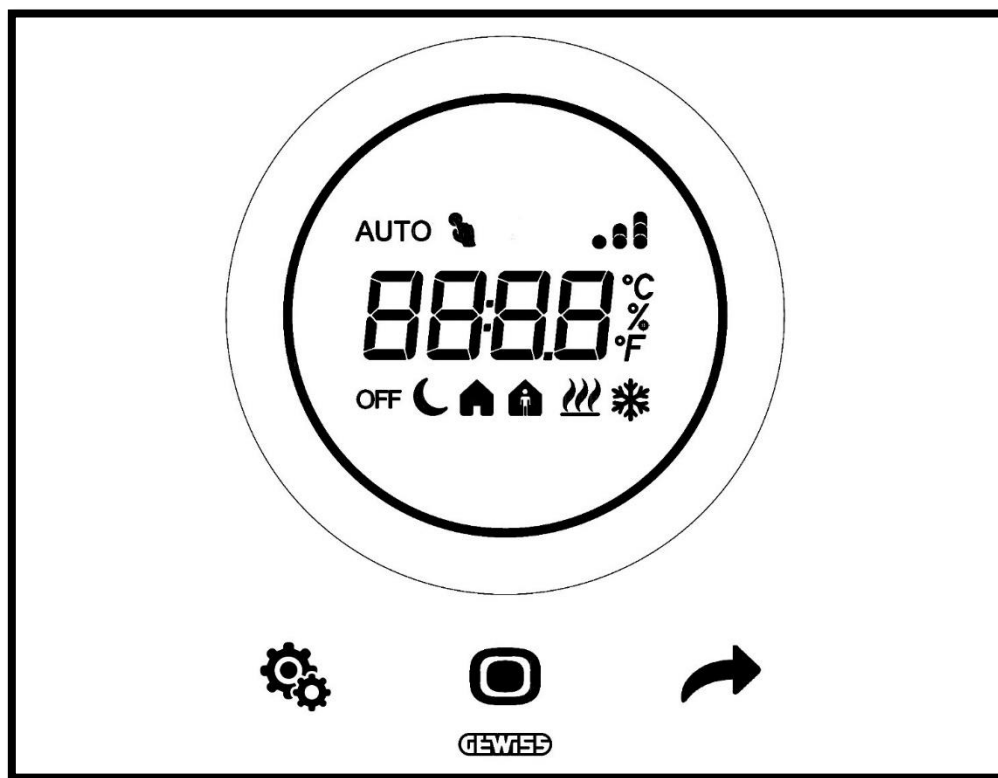
THE THERMOSTAT
















7 The thermostat

The device is made up of two main elements: a base, fixed to the wall or to a 3-gang rectangular box, and a front part coupled with the base and attached to it by means of a screw.

It is a LED backlit touch device.

There are 3 main commands on the screen, plus the circular slider (as shown below).



Logo	NAME	FUNCTIONS
	Mode / Enter	<ul style="list-style-type: none"> • Change active mode • Confirm parameter to be changed
	Next	<ul style="list-style-type: none"> • Display next page • Display next parameter to be changed • Display next parameter value
	Set	SET menu activation: change the device parameters
	Slider	<ul style="list-style-type: none"> • Display the previous or next value of the parameter to be changed • Change the temporary setpoint <p>Circular light guide that illuminates the sliding area, changing colour during the heating (red) and cooling/ humidity management (pink) activation phases</p>
	Display for visualisation	<ul style="list-style-type: none"> • Temperature/Relative humidity/Time • Parameter name and value • Cleaning function countdown
	Temperature range	Unit of measurement: degrees Fahrenheit
	Temperature range	Unit of measurement: degrees Celsius
	Humidity percentage	Unit of measurement: percentage
	WI-FI	Wi-Fi signal level indicator
OFF	Operating mode	OFF mode: thermostat OFF and Building Protection active
		Economy mode active
		Pre-comfort mode active
		Comfort mode active
AUTO		Automatic (hourly profile) mode active
		<ul style="list-style-type: none"> • Manual mode active • Temporary setpoint forcing active
	Type of operation	Heating
	Type of operation	Cooling

CREATING A NEW ACCOUNT AND ASSOCIATING THE THERMOSTAT WITH THE APP

8 Creating an account and associating the Thermo ICE Wi-Fi

Before any detailed explanation of the various functions of this thermostat, a few preliminary observations are needed to ensure a good understanding of the logic structure for controlling the thermostat itself.

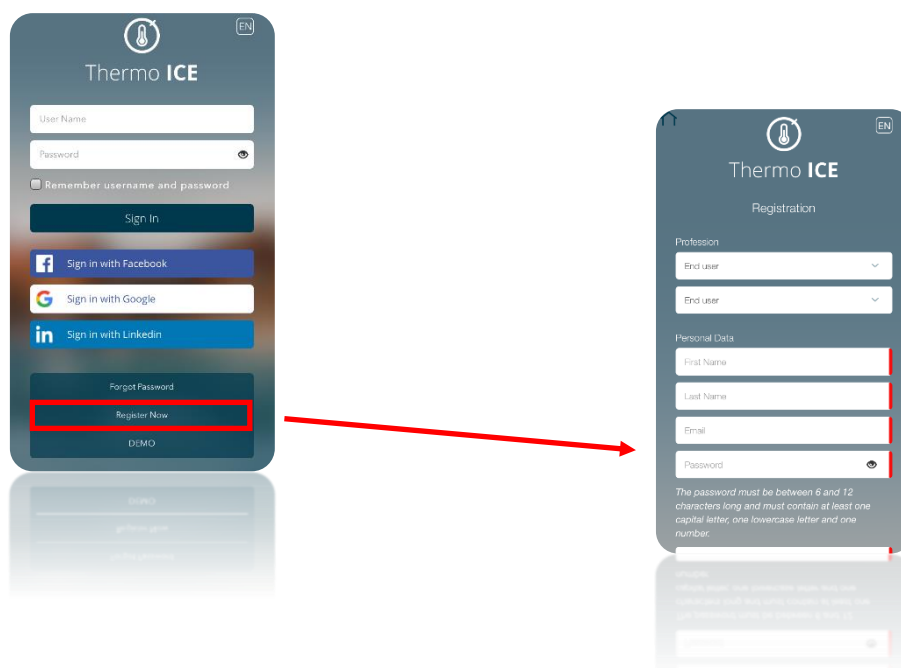
First of all, it's important to clarify that there must be a WI-FI network in the room in order to be able to use the thermostat via the app. Secondly, the specific app must be downloaded onto a mobile device, as explained in chapter 6.

8.1 Creating a new account on the app

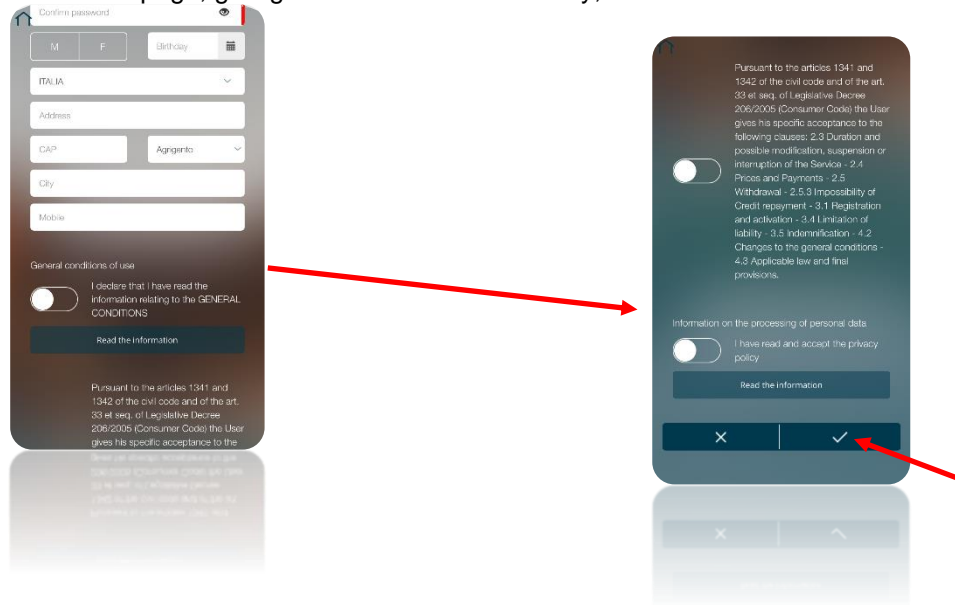
After wiring the thermostat and fixing it to the wall, as explained in the installation manual supplied with the device (also available at www.gewiss.com), access the app (Thermo ICE 2.0) that enables the remote control of the thermostat.

Carry out the following steps:

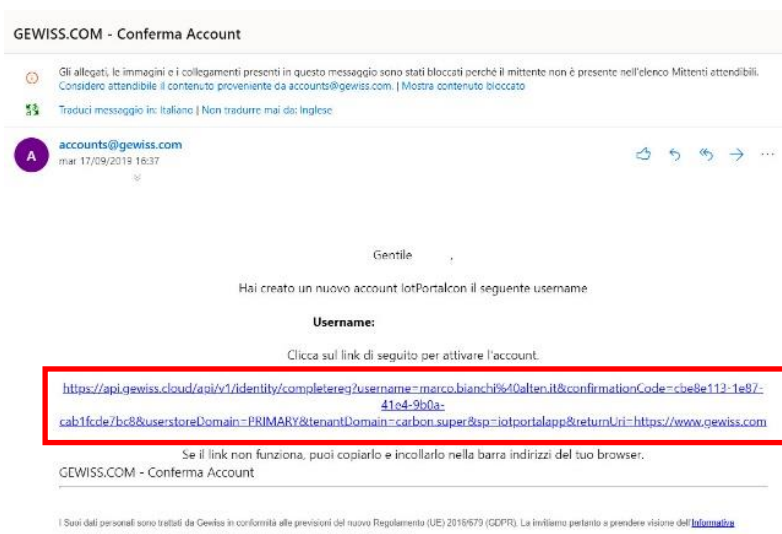
- Download the app from the relative store on the chosen mobile device (e.g. smartphone)
- After installing the app, open it
- Select **“Register now”**
- Fill in the various fields to complete the registration. The fields highlighted with a red line on the right are compulsory.



- Scroll down the page, giving consent where necessary, then click on the tick

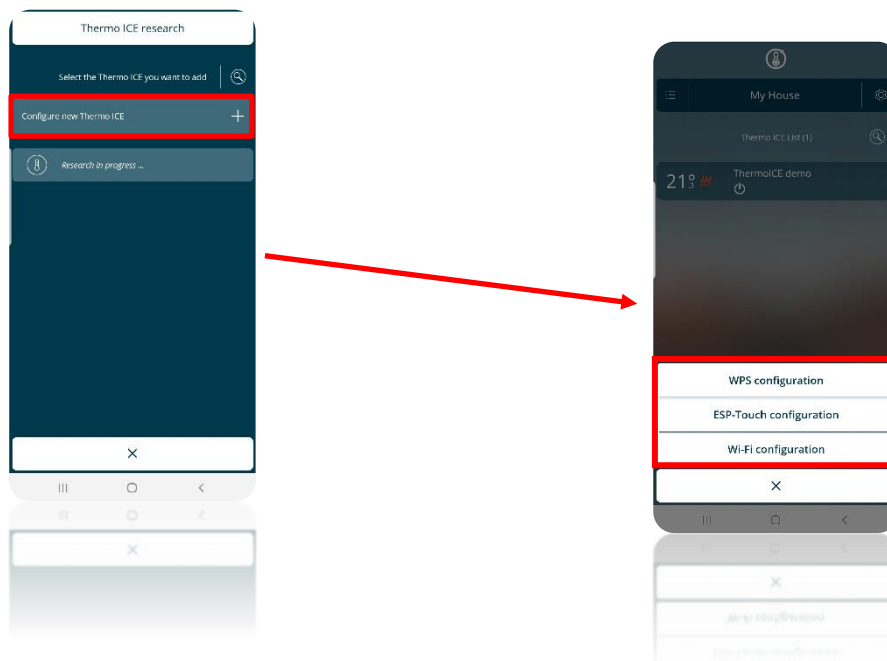


- Open the e-mail address you indicated during the registration phase
- Check the incoming post. There should be an e-mail confirming the registration (if there isn't, check the "Spam" folder)
- Scroll down the text until you reach the link (text underlined in blue) for confirming the registration



8.2 Associating the Thermo ICE Wi-Fi




- In the app, select the “**Configure new Thermo ICE**” option
- Choose which of the three configuration modes you want to use. The three possibilities are:
 - **WPS configuration**
 - **ESP Touch configuration**
 - **Wi-Fi configuration**




The configuration mode recommended by the manufacturer is WIFI, but ESP Touch or WPS can be used if WIFI is not available.

After choosing the configuration mode, prepare the thermostat for configuration with that mode.

Follow these steps:


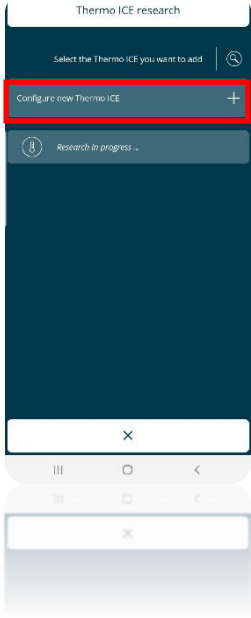
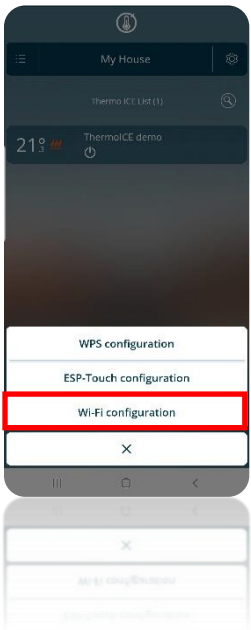
- Activate the thermostat
- Keep the Set button key  pressed for at least 15 seconds. The key will turn green 
- The screen will show “**P 1**”, which stands for “Advanced parameter 1”. This is the procedure for accessing the advanced thermostat parameters
- Use the Next  button key, or the circular slider, to find parameter “**P 21**”

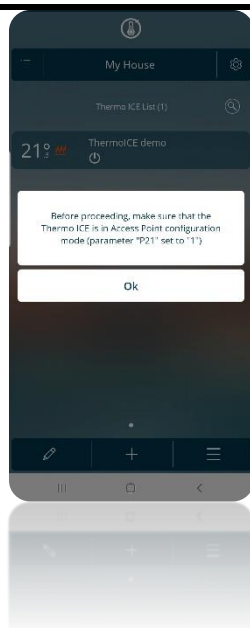
P 21




- Use the Mode  button key to access the parameter menu
- The screen will show the number zero “**0**”, flashing. You can choose from four different parameters:
 - 0
 - 1
 - 2
 - 3

SUMMARY OF VALUES FOR PARAMETER P 21	
0	No configuration
1	Configuration via Wi-Fi
2	Configuration via ESP Touch
3	Configuration via WPS




Select the value corresponding to the required configuration mode.

WI-FI CONFIGURATION	P21
ANDROID PROCEDURE:	1
<ol style="list-style-type: none"> 1. Open the Thermo Ice app 2. Click on the “+” button  3. The “Thermo ICE search” page will open. Click on “Configure new Thermo ICE”  <ol style="list-style-type: none"> 4. A drop-down menu allows you to choose one of the three possible configuration modes. Select “Wi-Fi configuration”  <ol style="list-style-type: none"> 5. An info message will appear on the screen. Click on OK 	



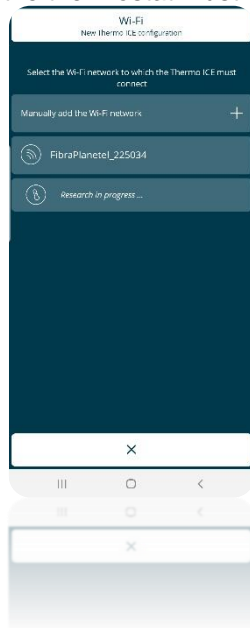
6. Activate the thermostat
7. Keep the Set button key  pressed for at least 15 seconds. The key will turn green 
8. The screen will show “P 1”, which stands for “Advanced parameter 1”. This is the procedure for accessing the advanced thermostat parameters
9. Use the Next  button key, or the circular slider, to find parameter “P 21”

P 21

10. Use the Mode  button key to access the parameter P21 menu
11. Select the value 1 using the Next  button key or the circular slider. Confirm with the Mode  button key
12. The screen will show AP:XX, where XX indicates the last two characters of the name of the Wi-Fi network generated by the thermostat (“25” in the example below)

AP25

13. The “Wi-Fi. New Thermo ICE configuration” page will open on the app
14. Select the Wi-Fi network that the thermostat must connect to



15. You will now see a new page, that needs to be filled in
16. Enter the password to access the selected Wi-Fi network
17. The default code is WPA/WPA2
18. Now click on the tick

NAME OF THE WI-FI NETWORK

WPA/WPA2 IS THE DEFAULT SETTING. USE THE CODE USED BY THE NETWORK SELECTED

PASSWORD OF THE SELECTED NETWORK

Wi-Fi
New Thermo ICE Configuration

Enter the data of the home network to which the Thermo ICE must connect.

20190162-AIT 0371

Password:

WPA / WPA2

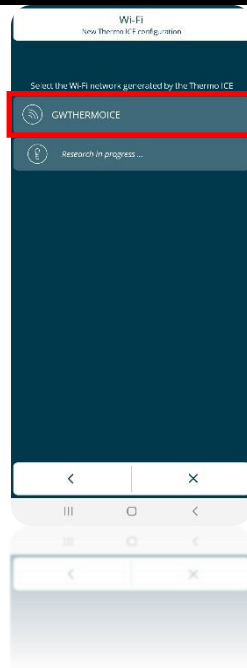
DHCP Manual

19. A new page will appear, where you must write the name you want to give to the thermostat being configured

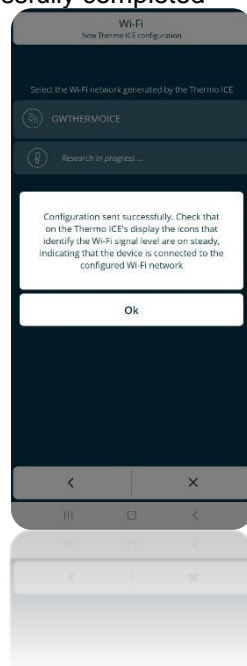
Wi-Fi
New Thermo ICE Configuration

Choose a name for the Thermo ICE

20. A new page will appear, showing the Wi-Fi network generated by the thermostat itself. Click on it




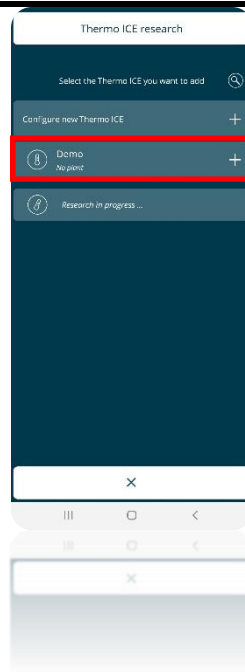
21. At the end of the procedure, an info message will appear on the screen to tell you that the configuration has been successfully completed



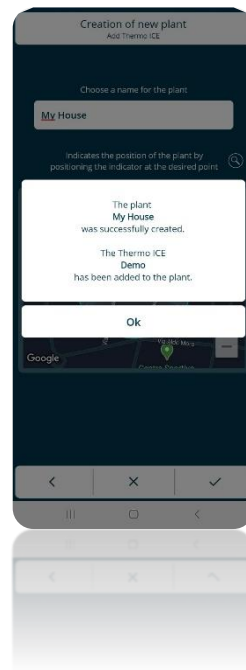
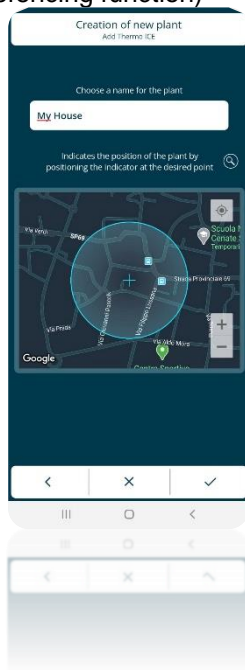
22. Once the association has been completed, the thermostat will show the word “done”

done


23. The thermostat display quits the advanced parameters area and returns to the initial page
24. The signalling LEDs on the display, indicating the power of the Wi-Fi signal , should have a fixed light indicating that the thermostat is connected to the cloud; if this is not the case, check the Internet connection or repeat the configuration
25. The app returns to the “**Thermo ICE search**” page, showing the newly configured thermostat

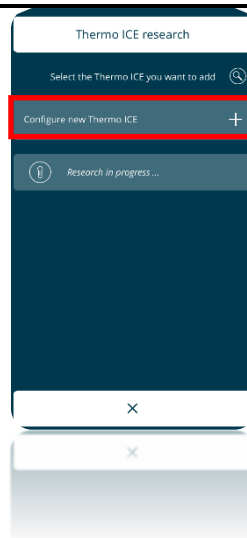


26. Click on the name of the newly configured thermostat. A new page will open
27. This page shows the systems available. Click on the name of the system that you want to associate the thermostat with. If no system has yet been created, click on **“Create new system”**; you will see a new page, where you can assign a name to the system you want to create, and indicate the geographical position where it is located (used for the Geofencing function)

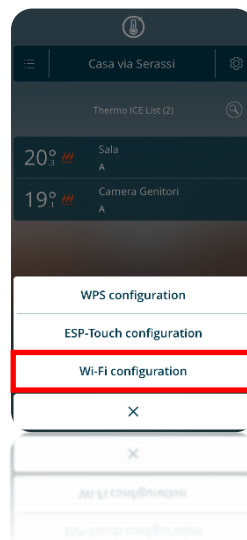


28. On the page that shows the thermostats associated with the app, the newly associated thermostat will appear
29. The configuration procedure is now complete

WI-FI CONFIGURATION		P21
IOS PROCEDURE:		1
<ol style="list-style-type: none"> 1. Open the Thermo Ice app 2. Click on the “+” button  3. The “Thermo ICE search” page will open. Click on “Configure new Thermo ICE” 		






4. A drop-down menu allows you to choose one of the three possible configuration modes. Select **“Wi-Fi configuration”**






5. An info message will appear on the screen. Click on OK



6. Activate the thermostat
7. Keep the Set button key  pressed for at least 15 seconds. The key will turn green 
8. The screen will show **“P 1”**, which stands for “Advanced parameter 1”. This is the procedure for accessing the advanced thermostat parameters

9. Use the Next  button key, or the circular slider, to find parameter “P 21”

P 21

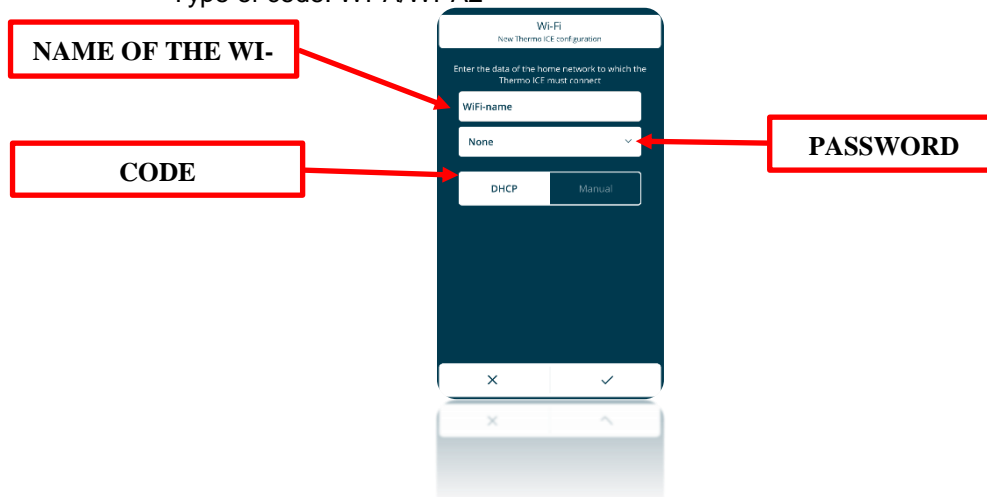
10. Use the Mode  button key to access the parameter P21 menu
11. Select the value 1 using the Next  button key or the circular slider. Confirm with the Mode  button key
12. The screen will show AP:XX, where XX indicates the last two characters of the name of the Wi-Fi network generated by the thermostat (“25” in the example below)

AP25

13. The “**Configure new Thermo ICE**” page will open on the app

14. In the relative fields, enter:

- The name of the Wi-Fi network that the thermostat must connect to
- The password of the Wi-Fi network
- Type of code: WPA/WPA2



NAME OF THE WI-

CODE

PASSWORD

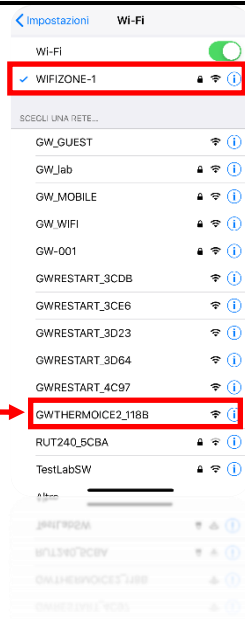
15. Click on the tick

16. Enter the name you want to give the thermostat in the relative field

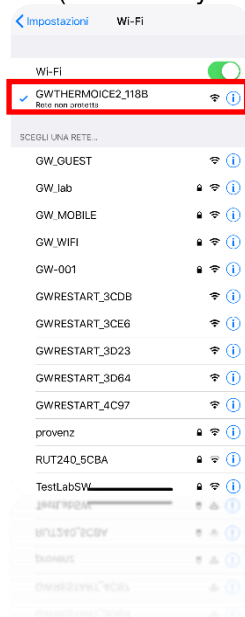


17. A new page will open, with the “**Open list of Wi-Fi networks**” push-button. When you click on this command, the app will direct you to the smartphone settings

18. Select the item “**Wi-Fi**”

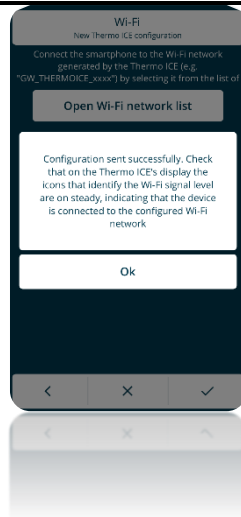


19. You will now see a page showing all the networks that are available. Select the network generated by the thermostat itself (identified by the name “GW THERMOICEX_YYXX”)



20. Quit the “**Settings**” page and return to the app

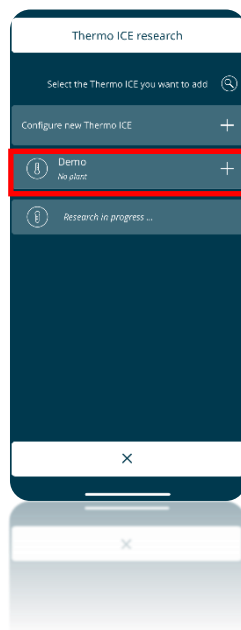
21. An info message will appear, telling you that the configuration has been successfully completed. Click on “OK”



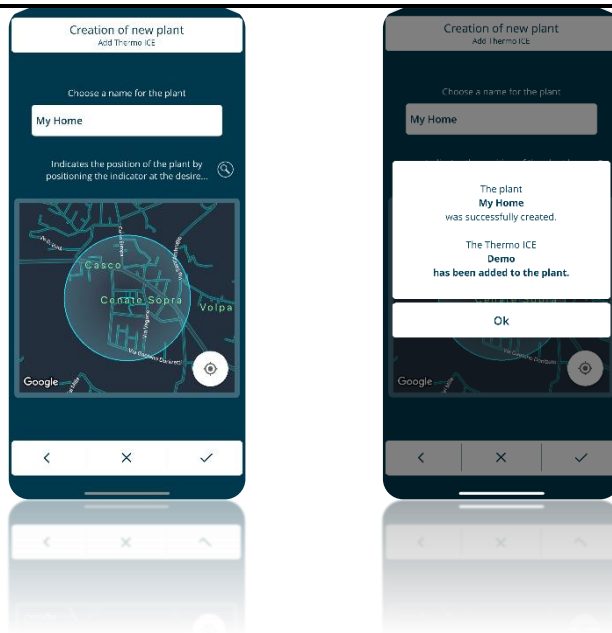
22. Once the association has been completed, the thermostat display will show the word “donE”



23. The thermostat display quits the advanced parameters area and returns to the initial page
 24. The app returns to the “**Thermo ICE search**” page, showing the newly configured thermostat



25. Click on the name of the thermostat to open the page showing the list of systems
26. The page shows the systems available. Click on the name of the system that you want to associate the thermostat with. If no system has yet been created, click on “**Create new system**”; you will see a new page, where you can assign a name to the system you want to create




27. On the page that shows the thermostats associated with the app, the newly associated thermostat will appear
28. The configuration procedure is now complete

ESP TOUCH CONFIGURATION

P21

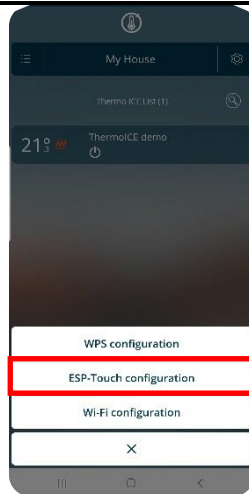
ANDROID PROCEDURE:

2

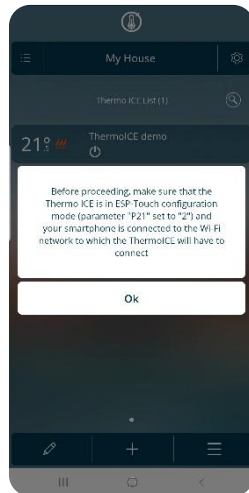
1. Connect your smartphone to the domestic Wi-Fi network that Thermo ICE must connect to
2. Open the Thermo Ice app
3. Click on the “+” button 
4. The “Thermo ICE search” page will open. Click on “**Configure new Thermo ICE**”



5. A drop-down menu allows you to choose one of the three possible configuration modes. Select “**ESP Touch configuration**”






6. An info message will appear on the screen. Click on OK







7. You will now see a page showing the name of the Wi-Fi network that Thermo ICE will connect to (the same one that your smartphone is already connected to); enter the network access password in the relative field



8. Now click on the tick
9. Activate the thermostat
10. Keep the Set button key  pressed for at least 15 seconds. The key will turn green 
11. The screen will show “P 1”, which stands for “Advanced parameter 1”. This is the procedure for accessing the advanced thermostat parameters
12. Use the Next  button key, or the circular slider, to find parameter “P 21”

P 21

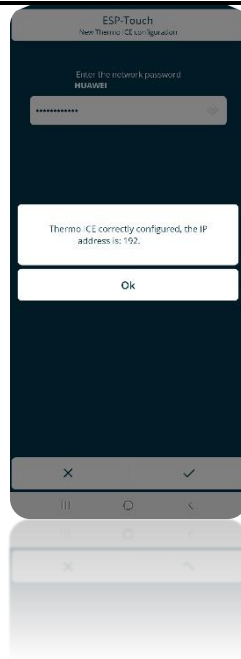
13. Use the Mode  button key to access the parameter P21 menu
14. Select the value 2 using the Next  button key or the circular slider. Confirm with the Mode  button key
15. The message “ESPt” will appear on the screen, and the connection power symbol  will begin flashing

ESPt

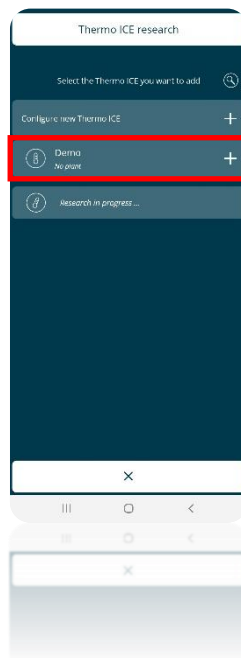
16. On the app, press the tick to launch the configuration. Wait for the configuration procedure to terminate
17. When the procedure has ended, the word “donE” will appear on the thermostat display. The thermostat quits the advanced parameters area

donE

18. A message will appear on the app to tell you that the configuration has been successfully completed



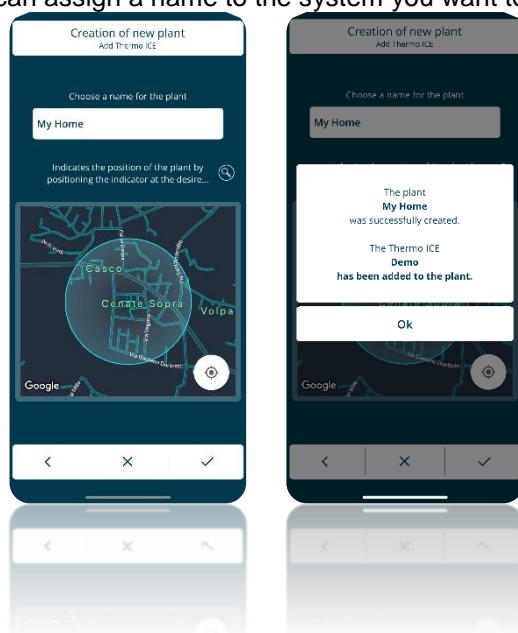
19. The app returns to the “**Thermo ICE search**” page, showing the newly configured thermostat




20. Click on the thermostat to assign it a name. A new page will open. Enter the name you want to give the thermostat in the relative field

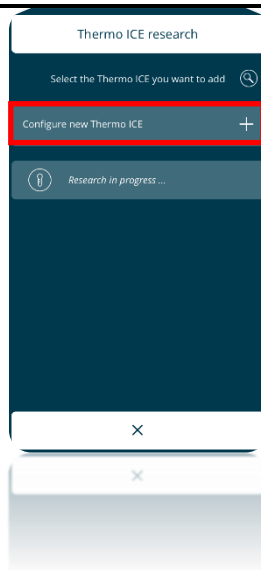


21. Once the name has been assigned, you will see a page showing all the systems that are available. Click on the name of the system that you want to associate the thermostat with. If no system has yet been created, click on **“Create new system”**; you will see a new page, where you can assign a name to the system you want to create

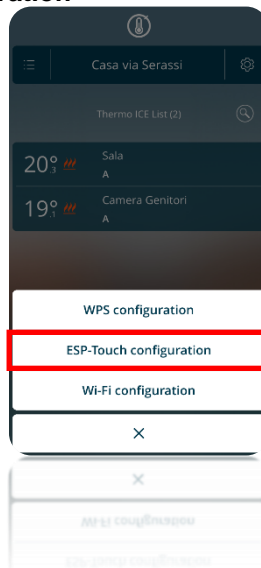


22. The app returns to the initial page, showing the newly configured thermostat
 23. The configuration procedure is now complete

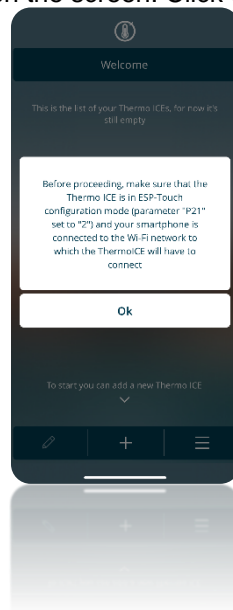
ESP TOUCH CONFIGURATION		P21
IOS PROCEDURE:		2
<ol style="list-style-type: none"> 1. Connect your smartphone to the domestic Wi-Fi network that Thermo ICE must connect to 2. Open the Thermo Ice app 3. Click on the “+” button  4. The “Thermo ICE search” page will open. Click on “Configure new Thermo ICE” 		



5. A drop-down menu allows you to choose one of the three possible configuration modes. Select **“ESP Touch configuration”**






6. An info message will appear on the screen. Click on OK







7. You will now see a page showing the name of the Wi-Fi network that Thermo ICE will connect to (the same one that your smartphone is already connected to); enter the network access password in the relative field



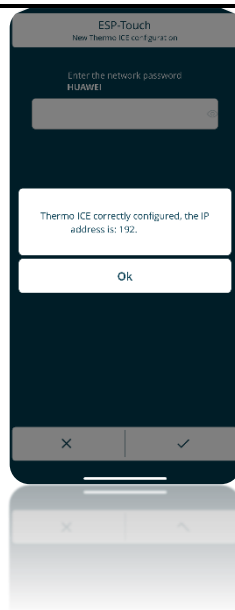
8. Now click on the tick
9. Activate the thermostat
10. Keep the Set button key  pressed for at least 15 seconds. The key will turn green 
11. The screen will show “P 1”, which stands for “Advanced parameter 1”. This is the procedure for accessing the advanced thermostat parameters
12. Use the Next  button key, or the circular slider, to find parameter “P 21”

P 21

13. Use the Mode  button key to access the parameter P21 menu
14. Select the value 2 using the Next  button key or the circular slider. Confirm with the Mode  button key
15. The message “ESPt” will appear on the screen, and the connection power symbol  will begin flashing

ESPt

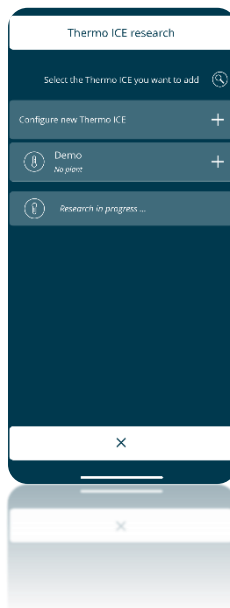
16. On the app, press the tick to launch the configuration. Wait for the configuration procedure to terminate



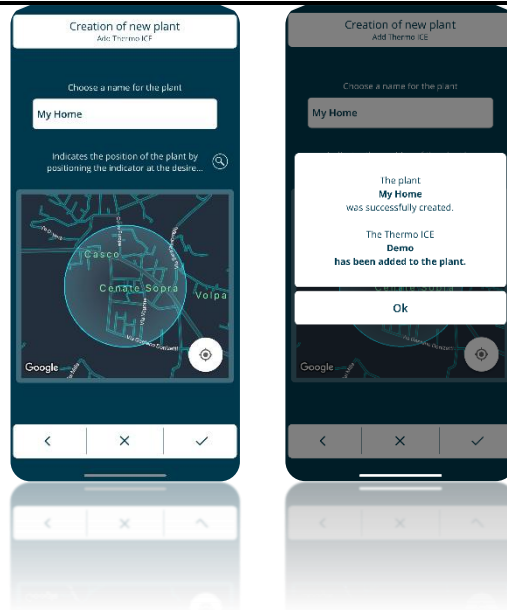
17. When the procedure has ended, the word “donE” will appear on the thermostat display. The thermostat display quits the advanced parameters area and returns to the initial page



18. The app returns to the “Thermo ICE search” page, where you can see the newly configured thermostat



19. Click on the newly configured thermostat to open a page where you can assign a name to the thermostat
20. Click on the name you have just given to the thermostat. You will see a new page showing the systems that are available. Click on the name of the system that you want to associate the thermostat with. If no system has yet been created, click on “**Create new system**”; you will see a new page, where you can assign a name to the system you want to create




21. The app returns to the initial page, showing the newly configured thermostat
22. The configuration procedure is now complete

WPS CONFIGURATION	P21
ANDROID/IOS PROCEDURE:	3

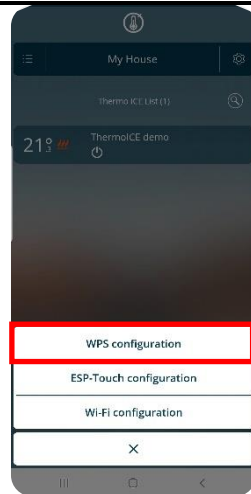
PRE-REQUISITES:

- **YOU WILL NEED A ROUTER THAT OFFERS WPS MODE**
- **WPS MODE MUST ALREADY HAVE BEEN ENABLED BEFORE BEGINNING THIS PROCEDURE**

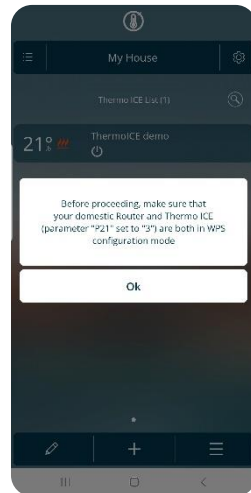
1. Open the Thermo Ice app
2. Click on the “+” button 
3. The “Thermo ICE search” page will open. Click on “**Configure new Thermo ICE**”






4. A drop-down menu allows you to choose one of the three possible configuration modes. Select “**WPS configuration**”






5. An info message will appear on the screen. Click on OK



12. Activate the thermostat
13. Keep the Set button key  pressed for at least 15 seconds. The key will turn green 
14. The screen will show "P 1", which stands for "Advanced parameter 1". This is the procedure for accessing the advanced thermostat parameters
15. Use the Next  button key, or the circular slider, to find parameter "P 21"

P 21

16. Use the Mode  button key to access the parameter P21 menu
17. Select the value 3 using the Next  button key or the circular slider. Confirm with the Mode  button key
18. The message "WPS" will appear on the screen

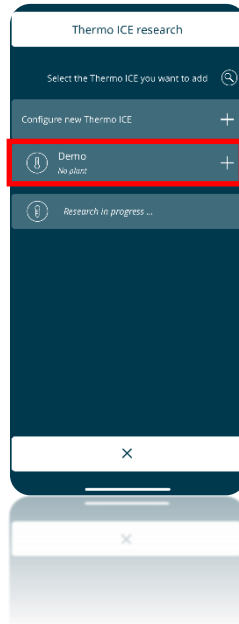
WPS

19. Click on the WPS button on the domestic router (follow the specific WPS activation procedure supplied by the manufacturer of the router)

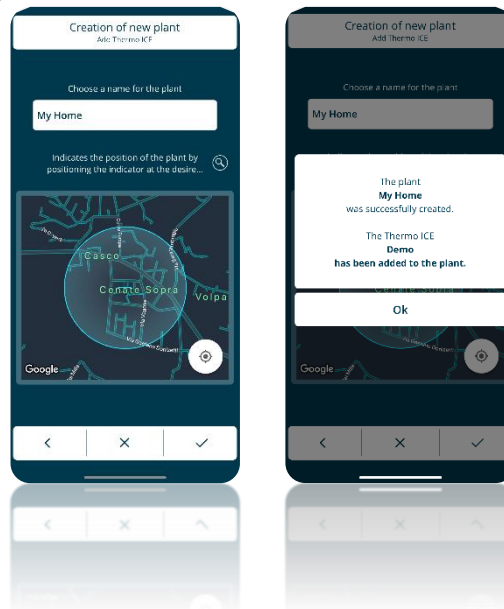
20. Wait for the configuration procedure to terminate
21. When the procedure has ended, the word “donE” will appear on the thermostat display

donE

22. The app returns to the “Thermo ICE search” page, where you can see the newly configured thermostat



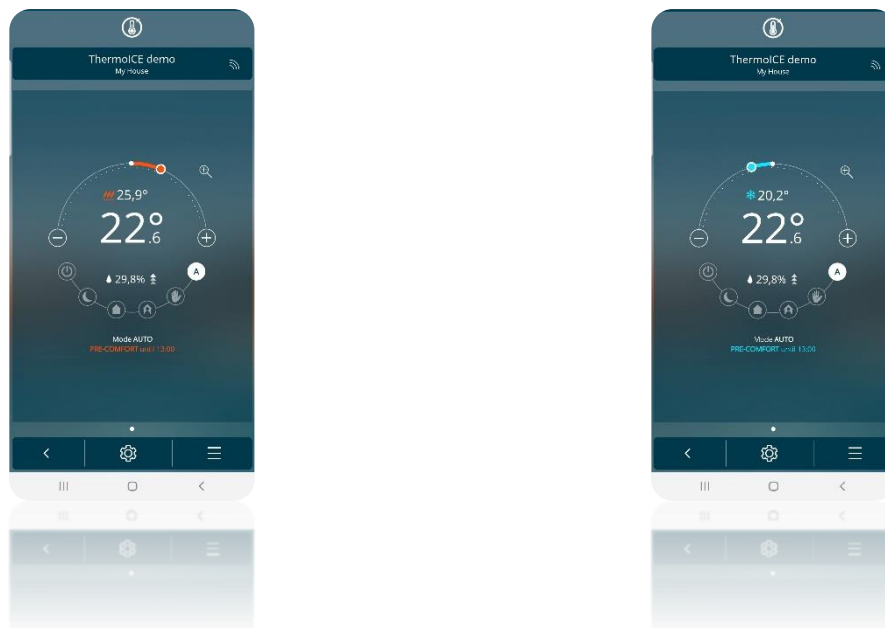
23. Click on the name of the thermostat to assign it a name. On the page that opens, there is a space where you can enter the name of the thermostat
24. Click on the name you have just given to the thermostat. You will see a new page showing the systems that are available. Click on the name of the system that you want to associate the thermostat with. If no system has yet been created, click on “**Create new system**”; you will see a new page, where you can assign a name to the system you want to create



25. Select the system that you want to associate the newly configured thermostat with
26. The app returns to the “Thermo ICE search” page, showing the name of the new thermostat
27. The configuration procedure is now complete

9 Main page of the app, and standard remote commands

Once the app has been installed and associated with the thermostat, this is the homepage that the user sees when the app is opened:



Logo	FUNCTION
	Indicator of the room temperature measured
	Indicator of the setpoint defined
	Indicator of the humidity percentage measured by the thermostat
	Indicator of the type of operation selected: Heating/Cooling
	<p>Temperature regulation curve (temporary setpoint forcing).</p> <p>Scroll to the left or press the minus button key to lower the temperature.</p> <p>Scroll to the right or press the plus button key to raise the temperature.</p> <p>The part of the curve that changes colour (red in Heating and light blue in Cooling) indicates the distance between the current temperature and the new setpoint defined.</p>
	<p>Operating mode selector.</p> <p>The operating mode with the white background is the one selected. By clicking on the others, you can change the operating mode of the thermostat.</p> <p>The following modes can be selected: Auto / OFF / Comfort / Pre-Comfort / Economy / Manual </p>
	<p>Operating mode.</p> <p>The word that appears at the bottom indicates the operating mode selected.</p>

BASIC GUIDE TO USING THE THERMOSTAT AND THE APP

10 Basic guide

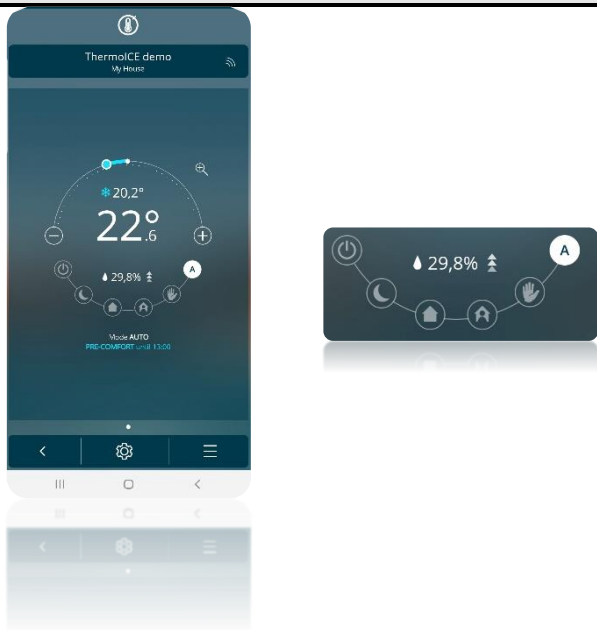


Once the app has been installed and associated with the thermostat, you can command the thermostat itself both locally and from a distance.

10.1 Thermostat operating mode

The thermostat has six different operating modes:

COMFORT	Pre-defined setpoint; the setpoint can be temporarily forced
PRE-COMFORT	
ECONOMY	
AUTOMATIC	
OFF	The setpoint cannot be forced
MANUAL	The setpoint is free

These modes can be selected either via the app or locally (thermostat):

APP	THERMOSTAT
	
<p>From the main page of the app, you can select one of the six operating modes by means of a simple touch; just click on the required mode to select it.</p>	<p>Press the Mode button key  to pass from one operating mode to another. [If the thermostat is set in Slave mode (see 10.2 and 11.1.1.), the user can only pass from the predefined operating mode to OFF mode.]</p>

COMFORT mode is the one that guarantees the highest room temperature in Heating and the lowest one in Cooling. It is usually used when there are people in the room managed by the thermostat.

PRE-COMFORT mode offers a target temperature that is slightly lower in Heating and slightly higher in Cooling. It is usually used when you want to maintain a room temperature slightly lower than the one applied in COMFORT mode.

ECONOMY mode offers a target temperature that is even lower in Heating and even higher in Cooling. It is recommended when there is nobody in the room now, and nobody is expected to use the room in the short term.

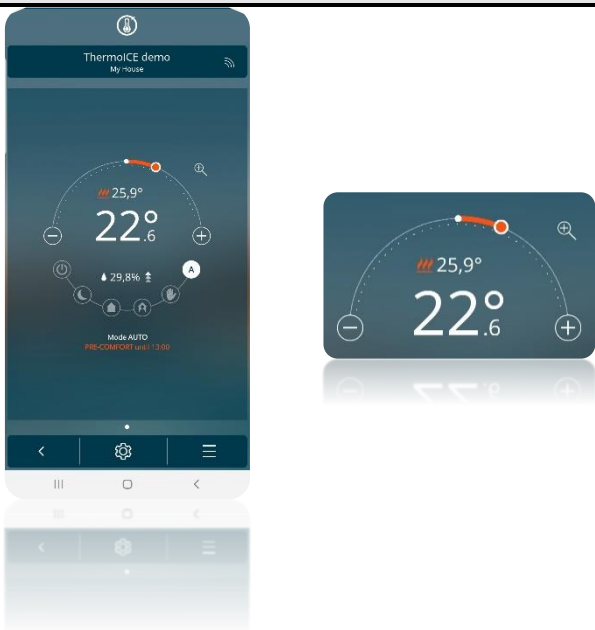




AUTO mode uses weekly and hourly programming (via the app) to offer fully automatic system management.

MANUAL mode allows the required target temperature to be set at any time.

OFF mode only activates the systems when it is necessary to protect them, if the temperature reaches critical levels.

10.2 Manual temperature regulation: temporary forcing

The user can modify the room temperature by temporarily forcing the setpoint (or by regulating the setpoint, if the thermostat is in MANUAL mode).

APP	THERMOSTAT
 <p>From the main page of the app, you can alter the room temperature by means of the temperature regulation curve. Click on  and , or scroll your finger around the curve itself, to temporarily force the target temperature.</p> <p>(In the case of Base Users, this modification is subject to limitations – see 8.2 and 9.1.2.)</p>	 <p>Using the circular slider, you can temporarily force the reference temperature. The fact that temporary forcing has been applied is clear because the  icon lights up in addition to the specific icon of the currently selected operating mode.</p> <p>[If the thermostat is set in Slave control (see 10.2 and 11.1.1.), temporary temperature forcing will be subject to limitations.]</p>

10.3 Stand-Alone control vs. Slave / Super-user vs. Base User

It's vital to understand here that thermostat and app operation varies a great deal according to the settings given to two fundamental variables: the type of user and the type of thermostat control. Knowing which of the following situations you are in is essential in order to understand which commands can or can't be given to the thermostat.

		TYPE OF CONTROL	
		STAND-ALONE	SLAVE
TYPE OF USER	ADMINISTRATOR		
	BASE USER		

The Administrator has full control of the thermostat, whereas the Base User only has limited control over the thermostat via the app.

Stand-Alone control offers unlimited access to the thermostat and the advanced parameters, whereas with Slave type control the commands are only local and there is no access to the advanced parameters.

More specifically:

LOCAL COMMAND (THERMOSTAT)	
STAND-ALONE	SLAVE
<ul style="list-style-type: none"> - The possibility to select all six thermostat operating modes (Comfort/Pre-Comfort/Economy/Auto/Manual/OFF) - Unlimited access to the advanced parameters (if consent has been given via the app) - Unlimited temporary forcing of the temperature 	<ul style="list-style-type: none"> - The choice of operating mode is limited to the predefined one, or OFF - No access to the parameters - Limited temporary forcing of the temperature

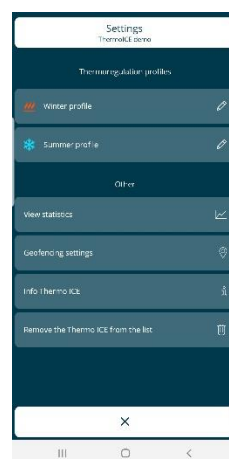
REMOTE COMMAND (APP)	
ADMINISTRATOR	BASE USER
- Add new users and define their role (Administrator or Base User)	- Disabled
- Regulation of local access to the advanced parameters (Disabled/Standard/All)	- Disabled
- Set the temporary forcing regulation interval	- Disabled
- Define the setpoint for Anti-freeze / Eco / Pre-comfort / Comfort / High temperature protection)	- Disabled
- Set the dates for automatic switchover from Heating to Cooling and vice versa	- Disabled
- Timer programming for AUTO mode	- Disabled
- Set the type of algorithm	- Disabled
- Set the auxiliary input	- Disabled
- Advance AUTO activation	- Disabled
- Correction factor regulation	- Disabled
- Geofencing regulation	- Disabled
- Operating mode selection	- Operating mode selection
- Temporary forcing	- Limited temperature forcing

10.4 Switching from Heating to Cooling and vice versa






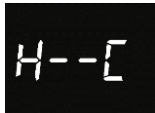







The thermostat can be used in Heating or Cooling mode. The switchover from one to the other can be made manually - both locally (but this option is not available if the thermostat is in Slave) and via the app - or it can be pre-set via the app, thereby allowing automatic switchover (but this option is not available for Base Users).

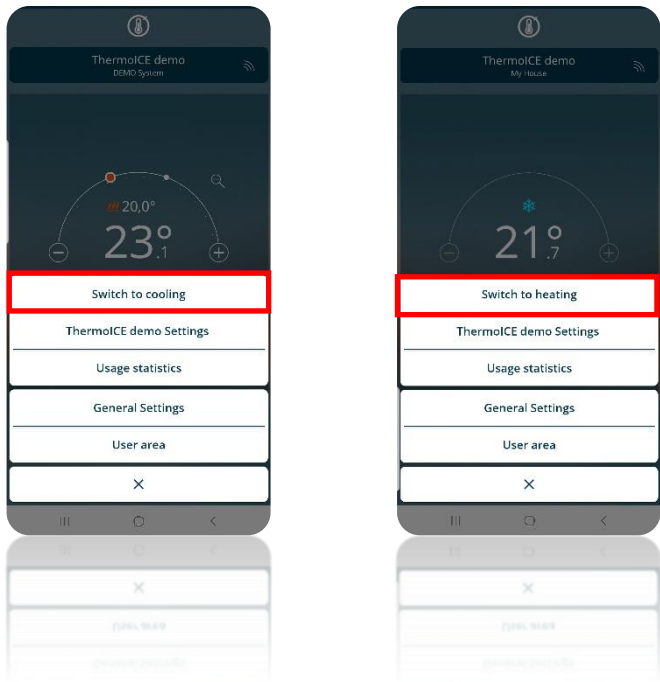

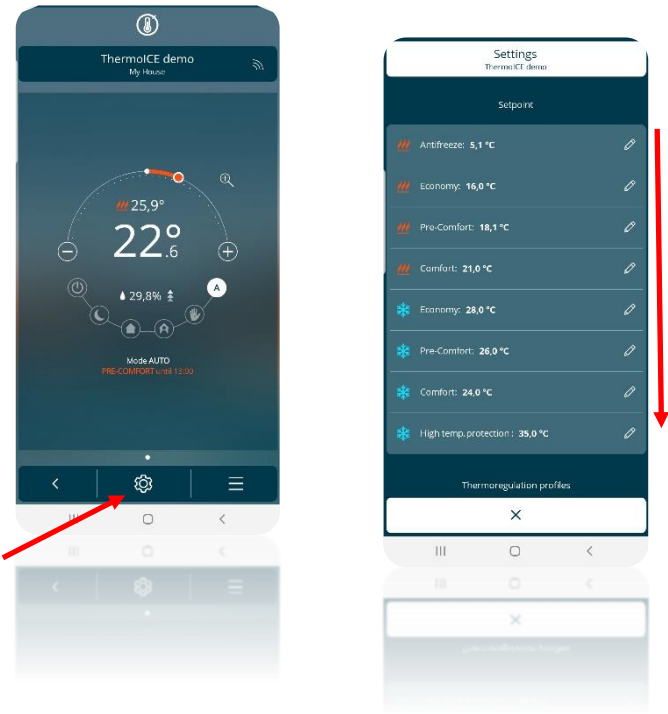


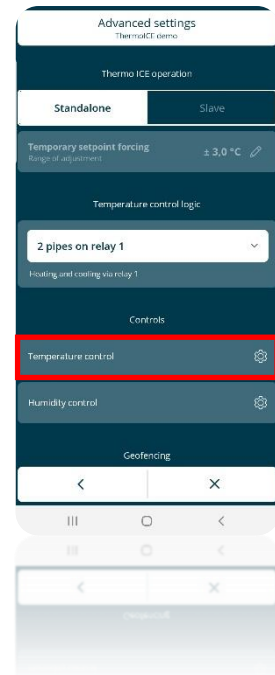
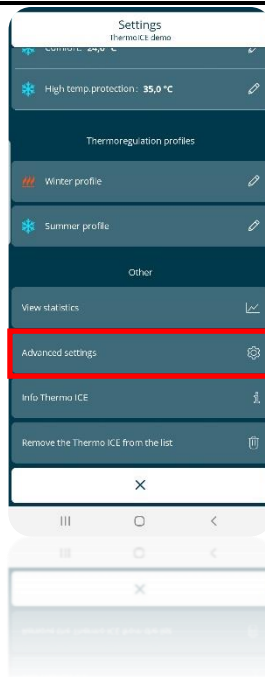
SETTINGS PAGE FOR ADMINISTRATORS



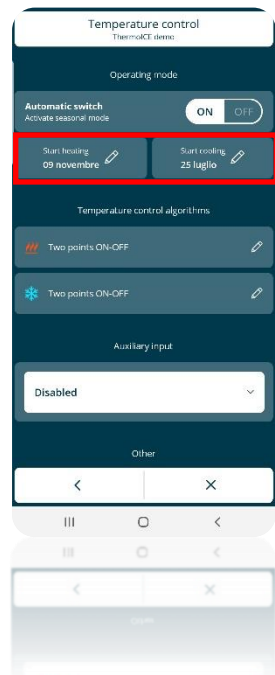
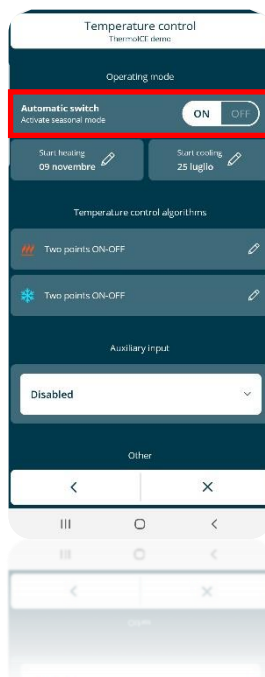
SETTINGS PAGE FOR BASE USERS

MANUAL	Local	<ul style="list-style-type: none"> • Activate the backlighting of the thermostat by bringing your hand close to it • Select the page that shows the temperature, using the Next button key  to move from one page to the next • Press the Set command  • The command will turn green  and the word SetP will appear on the screen <div data-bbox="869 604 1189 716">  </div> <ul style="list-style-type: none"> • Using the Next push-button  or the circular slider, scroll through the various menus until you see the message “H – C” (Heat – Cool) on the screen <div data-bbox="954 873 1109 985">  </div> <ul style="list-style-type: none"> • Click on the Mode button key  • The symbol indicating the set type of operation   will flash on the screen • Use the Next button key  to move from one to the other • Use Mode  to confirm your choice • Click on Set  to quit <p>(This command is only enabled if the thermostat is set on “2 ways on relay 1” or “4 ways on relays 1 and 2” – see 11.1.3.1.)</p>
	App	<ul style="list-style-type: none"> • Open the app on your mobile device • Use the  button key • A drop-down menu will appear. The first item is the alternative mode to the one active in that moment • Click on “Switch to [heating/cooling]”

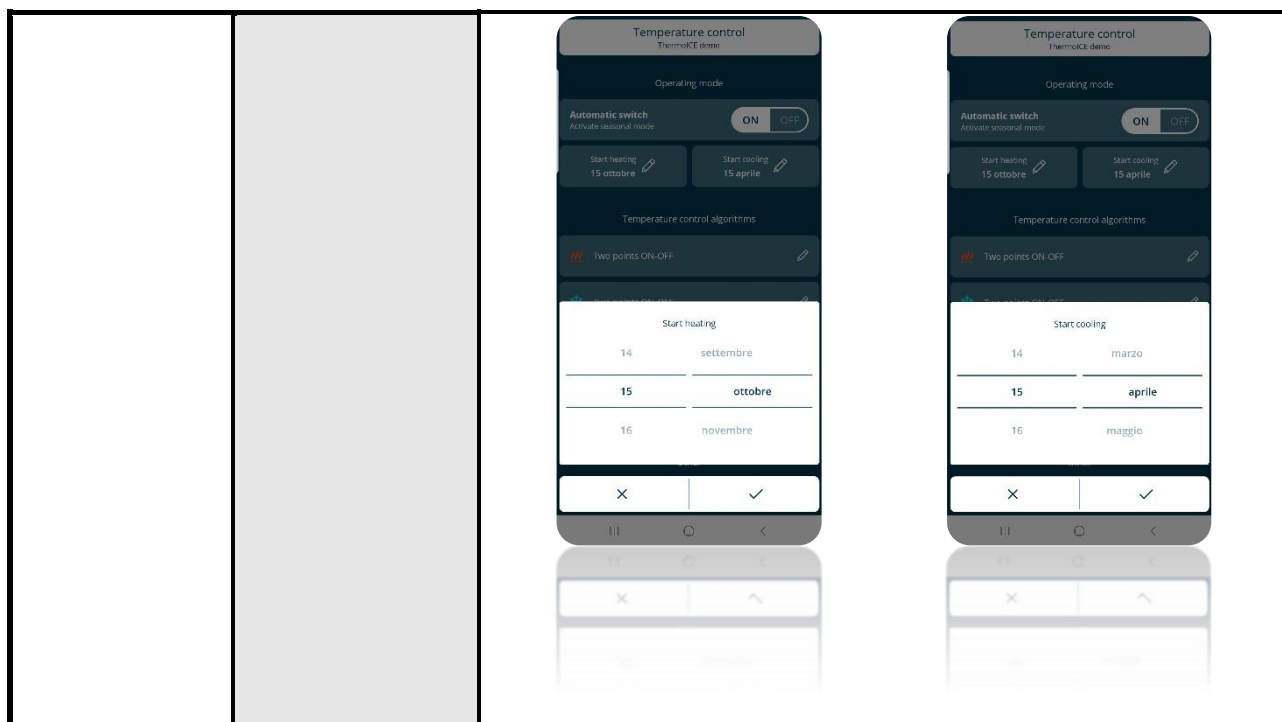
		
AUTOMATIC	App	<ul style="list-style-type: none"> • Open the app on your mobile device • Click on . The “Settings” page will open.  <ul style="list-style-type: none"> • Scroll down the page until you find the item “Advanced settings”. Click on “Advanced settings” • A new page will open. Click on “Temperature control”



- On the page that opens, make sure the “**Automatic switch**” option is activated (the button key must be in the “ON” position). You can now set the dates for switching from type of operation to the other



- Click on “**Start Heating**” and “**Start Cooling**” to open a drop-down window with a calendar. The item on the left contains the days of the month, whereas the one on the right shows the months of the year. Select the required days/months to define when Heating or Cooling operation will be active



For a more detailed explanation of the various commands and functions, read the following chapters.

STRUCTURE, ORGANISATION AND LOGIC

11 Structure and operation

When using and setting the thermostat, it's necessary to choose a series of operating types and modes, along with the role of the various users who can access it.

The settings defined will affect how the user interacts with the thermostat, and the functions made available to him/her.

1

First of all, the thermostat has two types of control:

- Stand-Alone
- Slave

Stand-Alone control offers complete local thermostat control. Slave control is more limited, for hospitality facilities for example.

TYPE OF CONTROL	
STAND-ALONE	SLAVE

2

The first user who associated the thermostat with a system will automatically have an Administrator role. He/She will then have the power to define the other users who can access and use the thermostat, deciding also whether to assign them an Administrator role or Base User role.

TYPE OF USER	
ADMINISTRATOR	BASE USER

3

The thermostat can be used with two different modes:

TYPE OF OPERATION	
HEATING	COOLING

4

The thermostat can be set to work in six different operating modes.

Each mode has different characteristics and operating parameters, set via the app.

OPERATING MODES					
COMFORT	PRE-COMFORT	ECONOMY	AUTO	OFF	MANUAL
PRE-DEFINED SETPOINT					FREE SETPOINT

5

For temperature control, the thermostat can use two different algorithms; the Administrator can define which one to use via the app.

CONTROL ALGORITHMS	
2 POINTS ON-OFF	PROPORTIONAL-INTEGRAL WITH PWM CONTROL

In the following chapters, each of these five variables is discussed and analysed, explaining its function, how to use it and where to set it locally and via the app (if both these options are available).

11.1 Type of control

The thermostat has two different types of control. The choice is made via the “**Thermostat operation**” parameter, which can only be accessed and modified from the app:


- **Stand-Alone**
- **Slave**

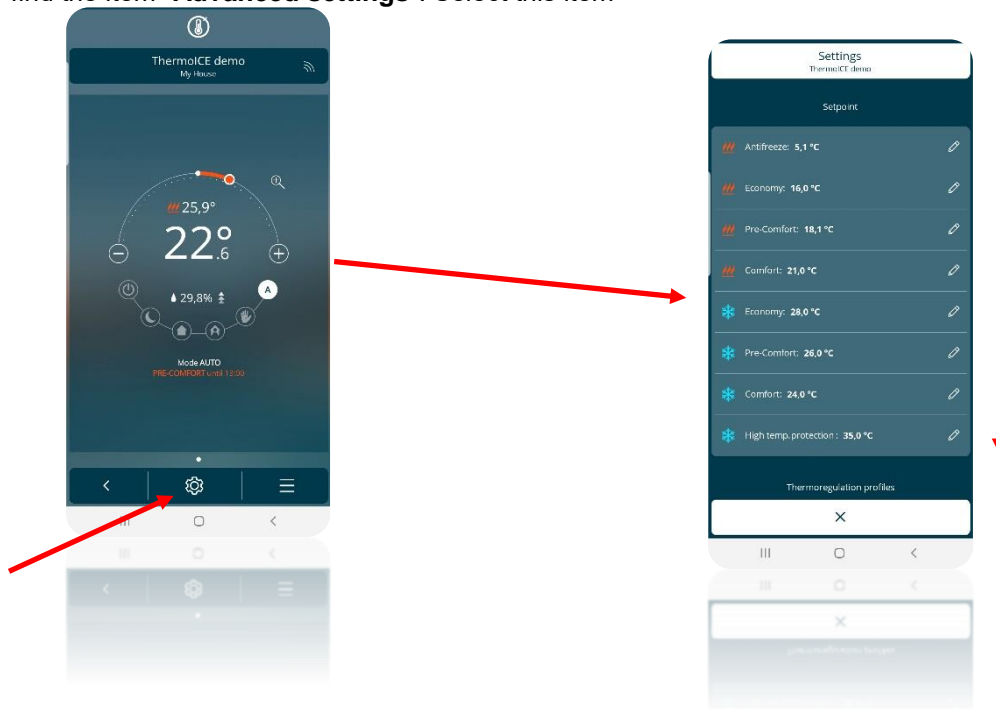
TYPE OF CONTROL	
STAND-ALONE	SLAVE
<p>This mode gives the user complete control of the device and its functions. It determines the behaviour of the device, whether set locally or via the app, in the following way:</p> <ul style="list-style-type: none"> • You can alter the operating parameters and change the modes freely, without limits, directly on the device itself. • The MODE button key allows you to change the operating mode (Auto /Economy /Pre-comfort /Comfort /Manual /Off) of the device. • With the touch circular slider, you can freely alter the setpoint without any limits: <ul style="list-style-type: none"> - In OFF mode, modifications cannot be made with the slider - In ECONOMY/PRE-COMFORT/COMFORT modes, temporary setpoint forcing is applied and maintained until the mode is changed or the mode setpoint is altered via the local menu or the app - In MANUAL mode, the setpoint of this mode is altered directly - In AUTO mode, temporary setpoint forcing is applied and maintained until the next variation of the timer profile (even if the mode set in the profile is MANUAL) or the modification of the setpoint of the active mode via the local menu or the app • The device can receive commands via the app from both Administrators and Base Users. Only Administrators can alter the parameters. Both Administrators and Base Users can access the temperature adjustment profiles, but only the former can modify them. Limit-free humidity management is available to Administrators, whereas Base Users cannot access the parameter modification section. 	<p>This mode gives limited thermostat control.</p> <p>It determines the behaviour of the device, whether set locally or via the app, in the following way:</p> <ul style="list-style-type: none"> • Neither the operating parameters nor the active mode can be altered directly on the device itself; the MODE button key is used to switch the device off (OFF mode) and to reactivate it (with the conditions applied prior to switch-off). • The touch circular slider can be used to alter the setpoint within the limits set by the “Setpoint regulation interval” parameter: <ul style="list-style-type: none"> - In OFF mode, modifications cannot be made with the slider - In ECONOMY/PRE-COMFORT/COMFORT modes, temporary setpoint forcing is applied (within the limits defined) and maintained until the mode is changed or the setpoint of the active mode is altered via the local menu or the app (only by an Administrator) - In MANUAL mode, temporary setpoint forcing is applied (within the limits defined) and maintained until the mode is changed or the setpoint of the active mode is altered via the local menu or the app (only by an Administrator) - In AUTO mode, temporary setpoint forcing is applied and maintained until the next variation of the timer profile (even if the mode set in the profile is MANUAL) or the modification of the setpoint of the active mode via the local menu or the app (only by an Administrator) • The device can receive commands via the app from both Administrators and Base Users, but whereas the former have no limits, the latter have the same limits as for local implementation (only thermostat switch-off and limited setpoint regulation).

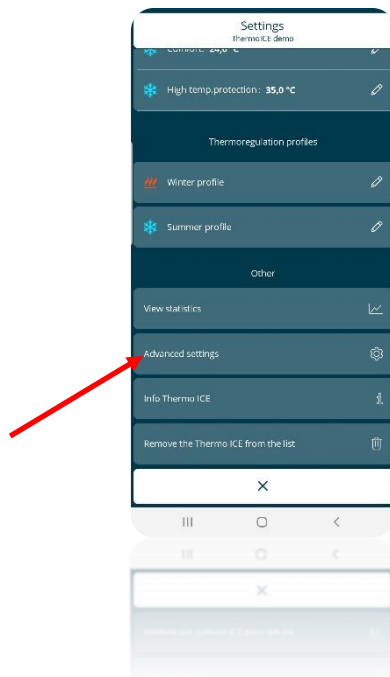
- Only Administrators can alter the parameters.
- Access to the temperature adjustment profiles is permitted for Administrators in read/write mode, but is not permitted for Base Users.
- Limit-free humidity management is available to Administrators, whereas Base Users cannot access the parameter modification section.

11.1.1 WHERE TO SET THE “TYPE OF CONTROL” IN THE APP

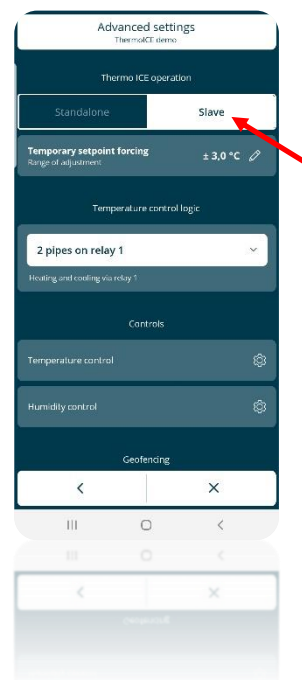
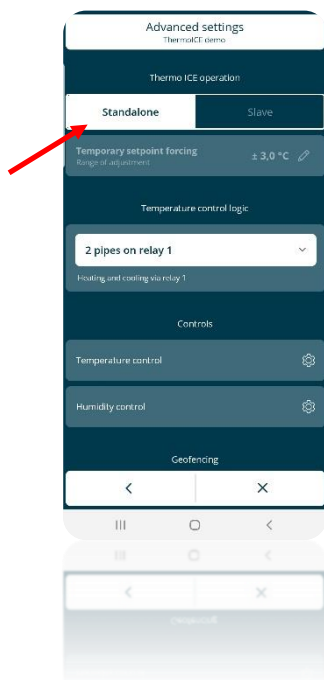
An Administrator can define which type of control to apply to the associated thermostat. To do this, follow the instructions below:

- Open the app on your mobile device
- Click on  on the homepage. The “**Settings**” page will open. Scroll down the page until you find the item “**Advanced settings**”. Select this item





- You will now see a page where you can choose whether to set the thermostat in “**Standalone**” or “**Slave**” mode



11.2 Type of user

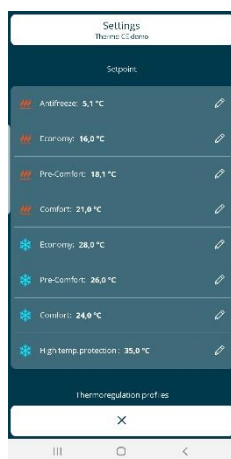
Two different types of user can be set:

- **Administrator**
- **Base User**

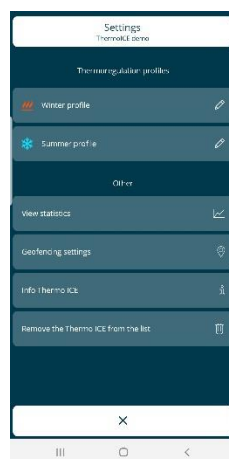
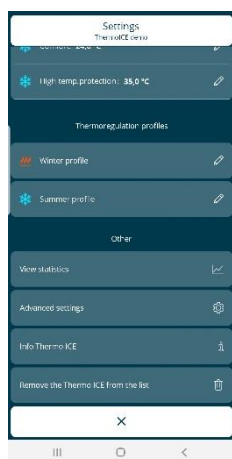
Each type has a different command scope and functions.

In general, the Administrator has full access to all the thermostat functions and regulations via the app. In addition, he/she has the power to register new users and define which role to assign to them (new Administrator or new Base User).

The Base User, on the other hand, has more limited control of the thermostat. These limits regard the functions and regulations available on his/her app.



SETTINGS PAGE FOR ADMINISTRATOR





SETTINGS PAGE FOR BASE USERS

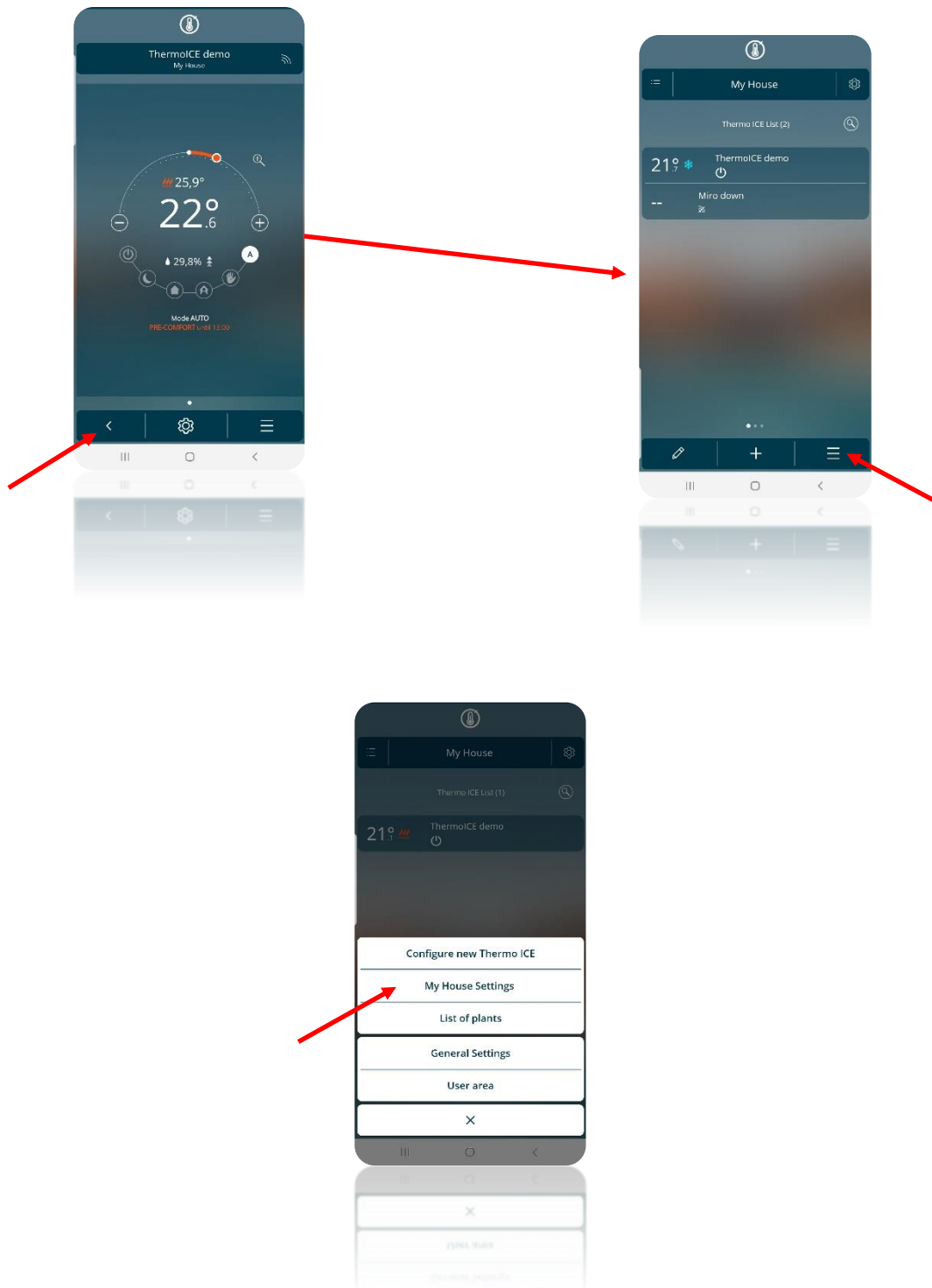
As you can see, the “Settings” menu for the Administrator contains far more items and commands than that of the Base User.

11.2.1 WHERE TO SET THE “TYPE OF USER” IN THE APP

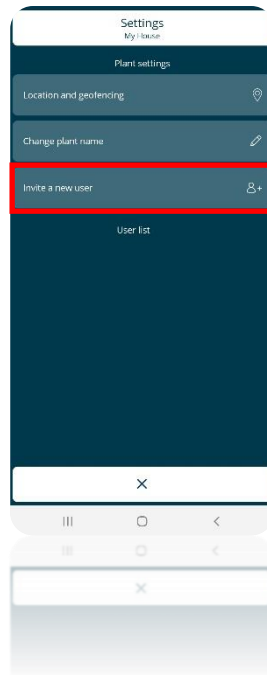
In every system, there may be several thermostats and several Administrators and Base Users. Using the app, the first Administrator (the person who first associated the specific thermostat with the new system) can add other users, giving them the possibility to use the thermostat.

When the first Administrator adds other users, he/she can also define whether they will have an Administrator or Base User role.

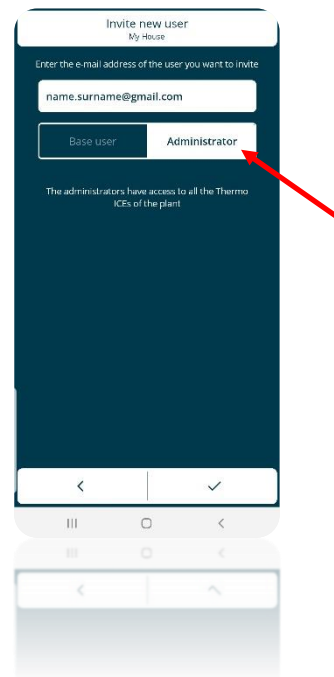
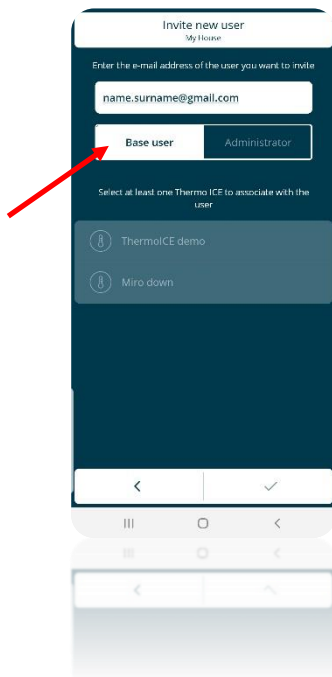
- Open the app on your mobile device
- Click on the arrow at the bottom left ; this will open a page listing all the thermostats associated with the app
- Select the thermostat that you want to add a new user for, then click on the icon at the bottom left . A drop-down menu will appear. Select the “[Thermostat name] Settings” item



- In the menu that appears, select **“Invite a new user”**. The **“Invite a new user”** page will open. Enter the e-mail address of the user you are inviting in the relative space



- After entering the e-mail, you can decide whether to make this user a **Base User** or an **Administrator**



- The user will receive an e-mail at the address indicated, as notice of the procedure; if he/she is not already registered, this must be done before accessing the app
- The thermostat will automatically be added to the list of thermostats on the app installed on the mobile device of the new user

11.3 Type of operation

The thermostat can be used with two different functions:

- Heating
- Cooling

The Heating function is usually used in winter, and the Cooling function in summer.

The type of function (Heating/Cooling) can be set locally or from a distance. Locally, it's managed via the local navigation menu, using the **Heat/Cool** parameter that allows you to switch between the two types. The same switchover can be made via the app, in the relative section (but only by Administrators). The app allows you to set an activation date for Heating and one for Cooling, so that the system can switch from one to the other automatically.


11.3.1 HOW TO SET THE "TYPE OF OPERATION" LOCALLY

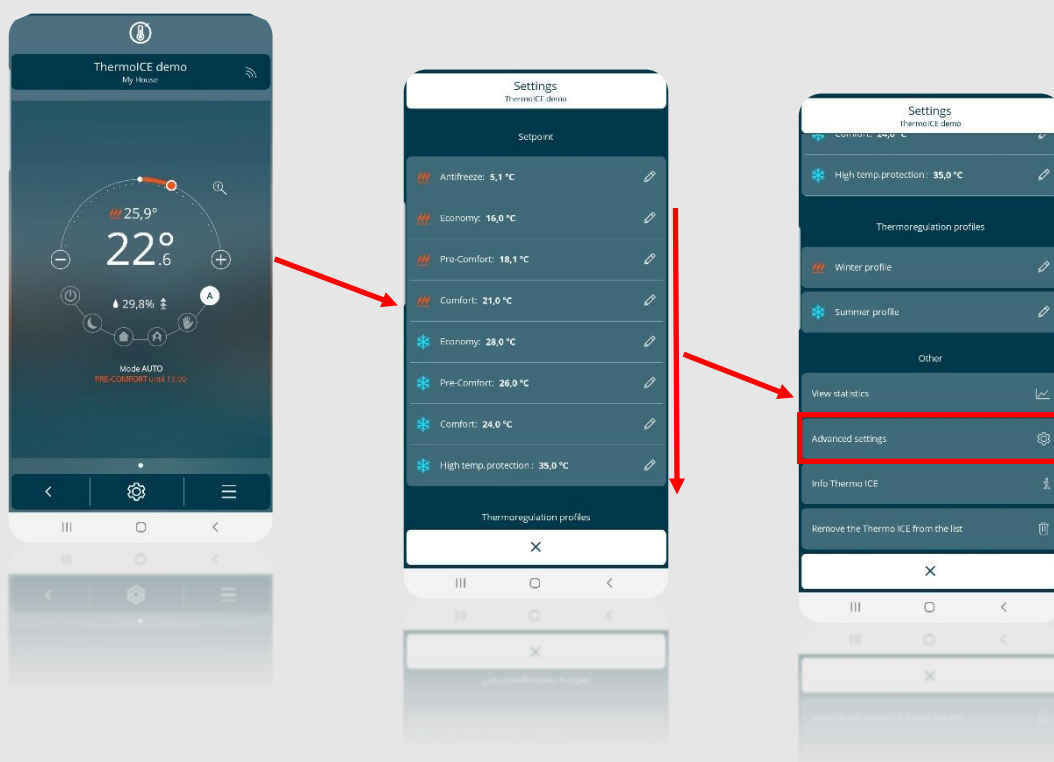
The type of operation (Heating / Cooling) can be set directly on the thermostat.

NB: in order to switch from Heating to Cooling or vice versa, the **"Temperature control logic"** on the app must be set on **"2 pipes on relay 1"** or **"4 pipes on relays 1 and 2"**.

(To set the control logic via the app, refer to the paragraph below. For more information about the various control logics and the associated advanced parameter, see ch. 20.2.4. dedicated to parameter P3.)

WHERE YOU CAN FIND "TEMPERATURE ADJUSTMENT CONTROL LOGIC" IN THE APP

1. Open the app on your mobile device
2. Click on the  command. The **"Settings"** page will open. Scroll down the page until you find the item **"Advanced settings"**

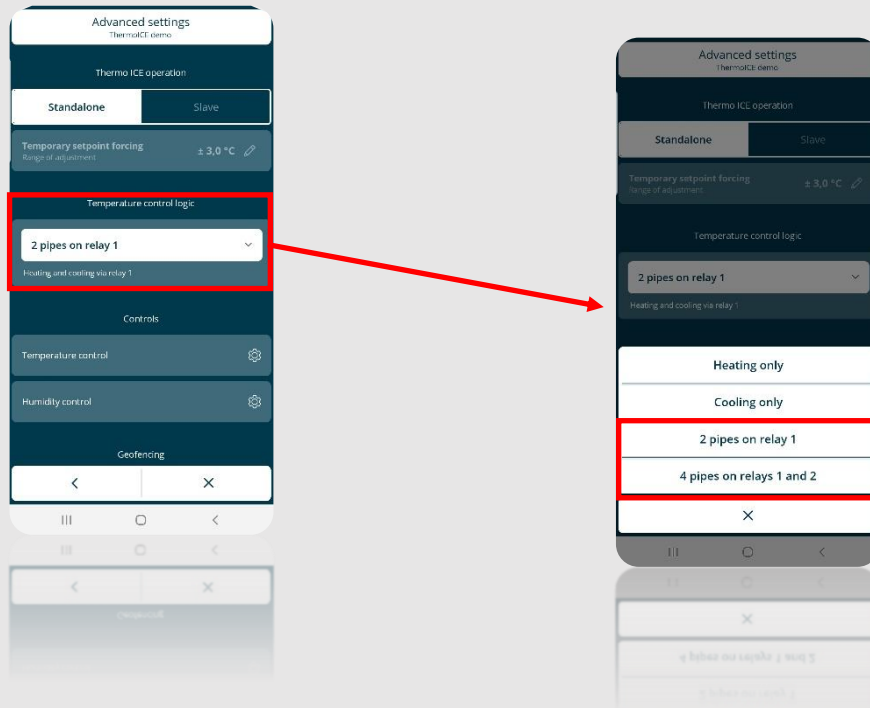


3. Click on **"Advanced settings"**. The **"Advanced settings"** page will open

4. Find the **“Temperature control logic”** item; click on it to open a drop-down menu containing four items:



- Heating only
- Cooling only
- **2 pipes on relay 1**
- **4 pipes on relays 1 and 2**

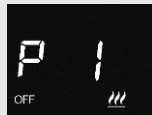
The thermostat must be set on one of the last two items:




WHERE TO SET THE TEMPERATURE ADJUSTMENT CONTROL LOGIC LOCALLY


(In order to set the control logic locally, advanced parameter access must be enabled via the app and the thermostat must be set as Stand-Alone.)

1. Activate the backlighting of the thermostat by bringing your hand close to it
2. Use the Next button key  to select the page showing the temperature
3. Press and hold the Set button key  until advanced parameter P1 appears on the screen






4. Using the circular slider or the Next button key , scroll through the various advanced parameters until you find parameter P3



5. Select this parameter by pressing Mode 
6. The screen will show a flashing number between 0 and 3. Each of these numbers corresponds to a specific type of control logic, as summed up below:




SUMMARY OF VALUES FOR PARAMETER P3	
0	Heating only, on relay 1
1	Cooling only, on relay 1
2	Heating + Cooling, 2 pipes on relay 1
3	Heating + Cooling, 4 pipes on relay 1- heating / relay 2 - cooling

- Using the circular slider or the Next button key , choose the value corresponding to the required configuration
- Click on the Mode button key  to confirm your choice
- Click on Set  to quit the advanced parameters area


This advanced parameter can only be accessed if the thermostat is set as Stand-Alone and the basic parameters have been enabled via the app (see. ch. 20)

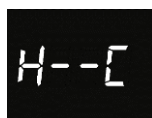
(Selection of the type of operation locally, using the relative basic parameter)







Follow the instructions below:

- Activate the touchscreen panel of the thermostat by bringing your hand close to it
- Select the page showing the temperature, moving from one page to another by means of the Next button key 
- Press the Set command 
- The command will turn green  and the word SetP will appear on the screen



- Using the Next push-button  or the circular slider, scroll through the various menus until you see the message "H - C" (Heat - Cool) on the screen




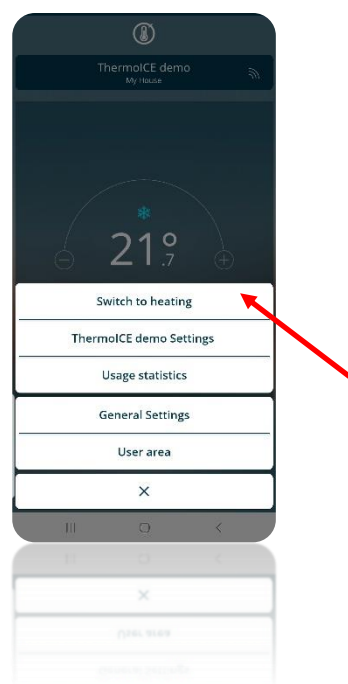
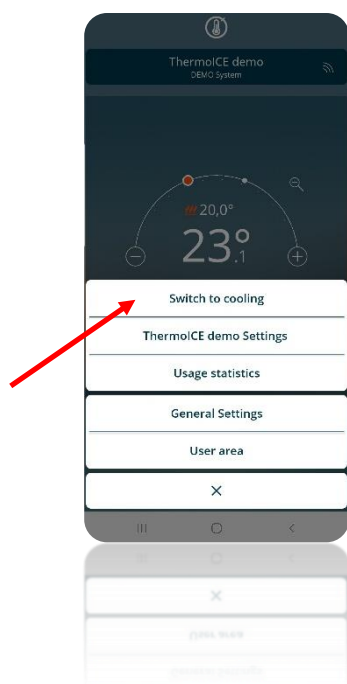
- Click on the Mode button key 
- The symbol indicating the set type of operation   will flash on the screen
- Use the Next button key  to move from one to the other
- Use Mode  to confirm your choice
- Click on Set  to quit

11.3.2 WHERE TO SET THE "TYPE OF OPERATION" IN THE APP

You can set the type of thermostat operation via the app too, if you are an Administrator.

Follow this procedure:

- Open the app on your mobile device
- Click on 
- A drop-down menu will appear. The first item is the alternative mode to the one active in that moment
- Click on **"Switch to cooling"** / **"Switch to heating"** if you want to change the type of thermostat operation




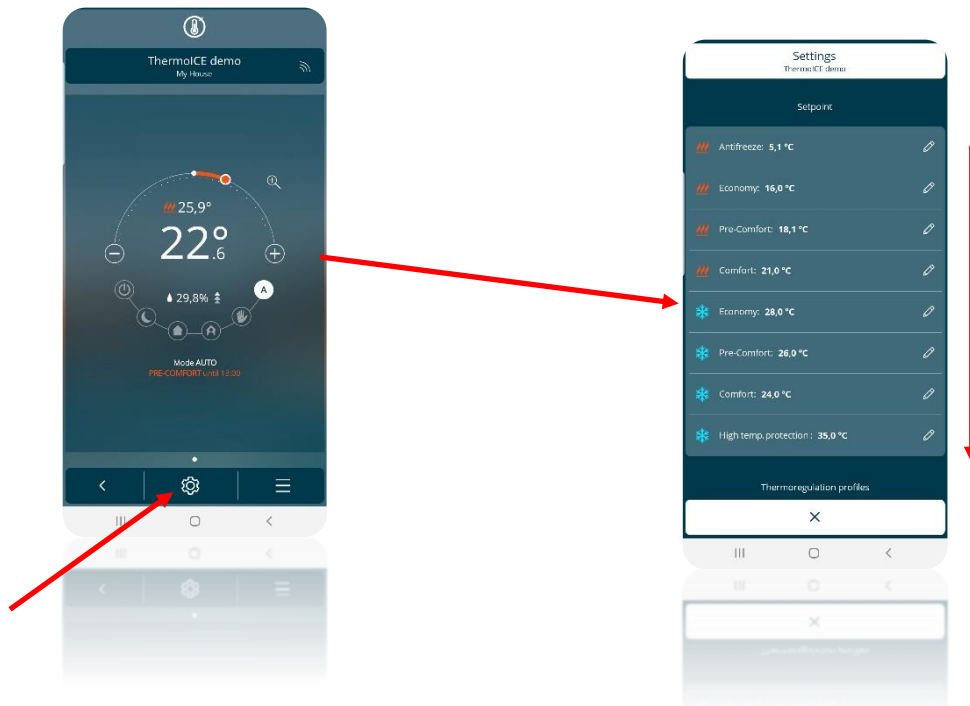
11.3.3 SET THE DATES FOR AUTOMATIC HEATING/COOLING SWITCHOVER VIA THE APP

If you are an Administrator, you can pre-set the activation dates for the two types of operation via the app so that the thermostat can switch from one to the other automatically. In order for this to happen, the operating mode must be AUTOMATIC.

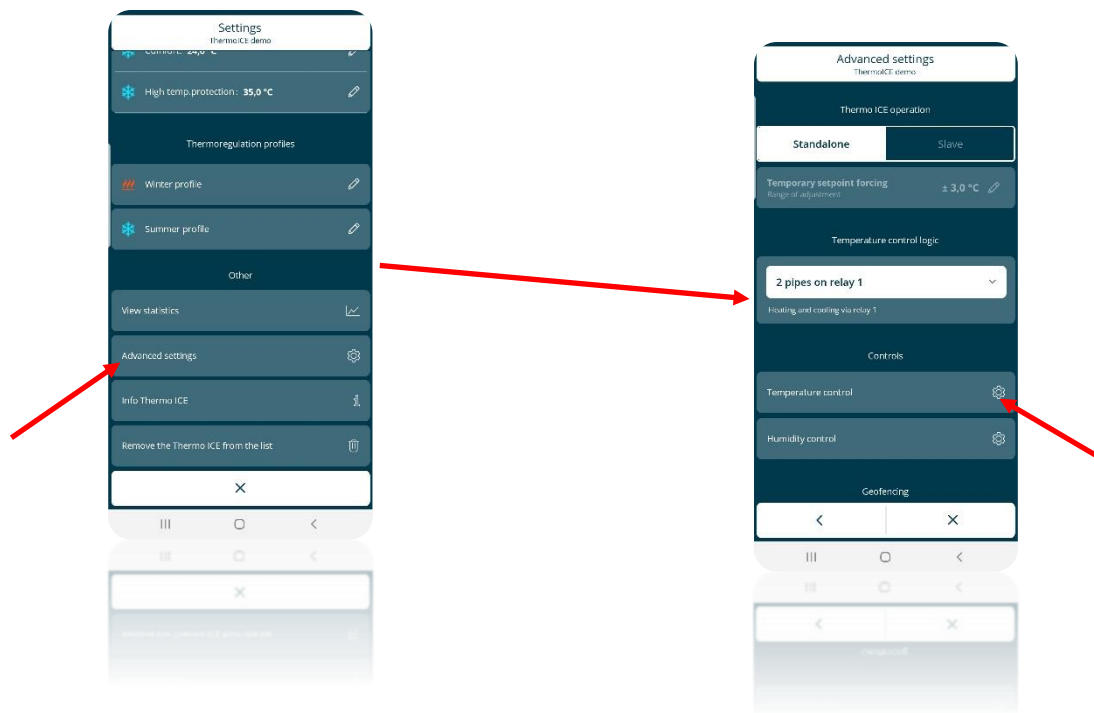
Attention: the dates are not stored by the thermostat but only in the cloud, which handles the change in the type of operation on the predefined days.

To set the dates for switching from one type of operation to the other, proceed as follows:

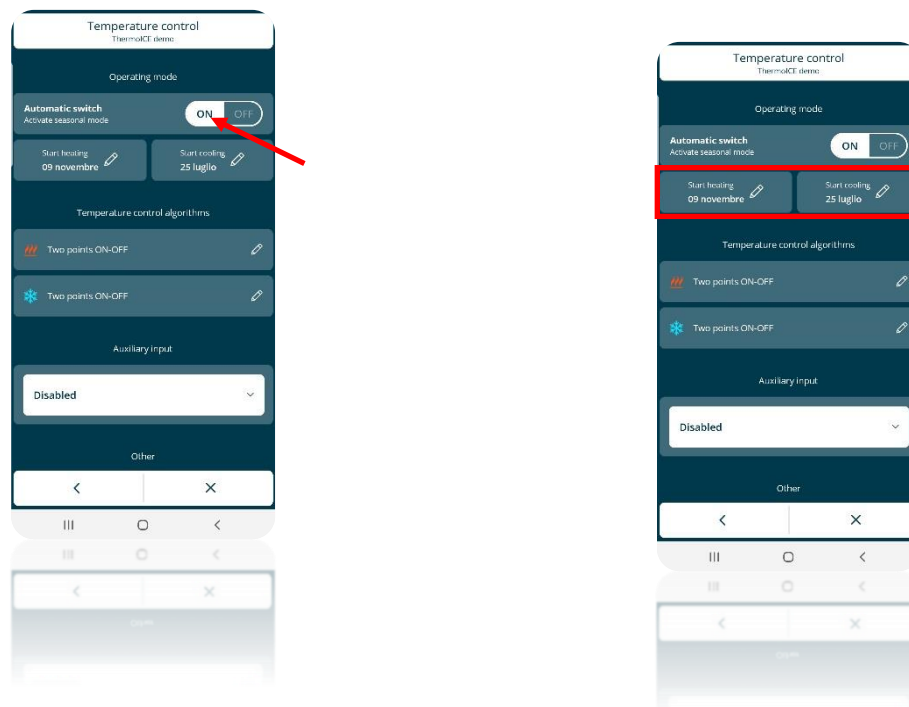
- Open the app on your mobile device
- Click on . The “Settings” page will open



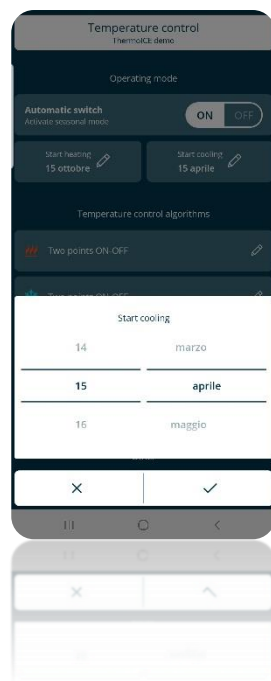
- Scroll down the page until you find the item “**Advanced settings**”. Click on “**Advanced settings**”
- A new page will open. Click on “**Temperature control**”



- On the page that opens, make sure the “**Automatic switch**” option is activated (the button key must be in the “ON” position). You can now set the dates for switching from type of operation to the other



- Click on “**Start Heating**” and “**Start Cooling**” to open a drop-down window with a calendar. The item on the left contains the days of the month, whereas the one on the right shows the months of the year. Select the required days/months to define when Heating or Cooling operation will be active



11.4 Operating modes

The thermostat has six different operating modes:

COMFORT	Pre-defined setpoint; the setpoint can be temporarily forced
PRE-COMFORT	
ECONOMY	
AUTOMATIC	
OFF	The setpoint cannot be forced
MANUAL	Free setpoint

Each mode has different operating parameters and functions.

COMFORT mode is used when there are people in the room where the thermostat is installed. It is therefore the one that offers the most comfortable temperature levels possible: in Heating, the highest temperature of all those envisaged in the five operating modes with a predefined setpoint, and in Cooling the exact opposite.

PRE-COMFORT mode is activated when people are expected to be in the room in the coming hours (e.g. in the hour prior to coming home from work or school). The task of PRE-COMFORT mode is to bring the room temperature close to that of COMFORT so that the COMFORT temperature can be reached more quickly.

ECONOMY mode makes minimum use of the systems so as to reduce energy waste. This mode should be used when there is nobody in the room where the thermostat is installed, and nobody is expected to enter in the short term. It can also be used at night-time.

With AUTOMATIC mode, the thermostat regulates the use of the systems on the basis of the programming pre-set by the Administrator via the app. The Administrator can:

- Define the period of the year for using the system in Heating mode or in Cooling mode
- Set hourly/weekly programming, defining which operating mode must be used by the thermostat day by day and hour by hour


The programming defined via the app is then saved on the cloud. At regular intervals, the thermostat asks the cloud for information about the type of operation and the operating mode that must be implemented.

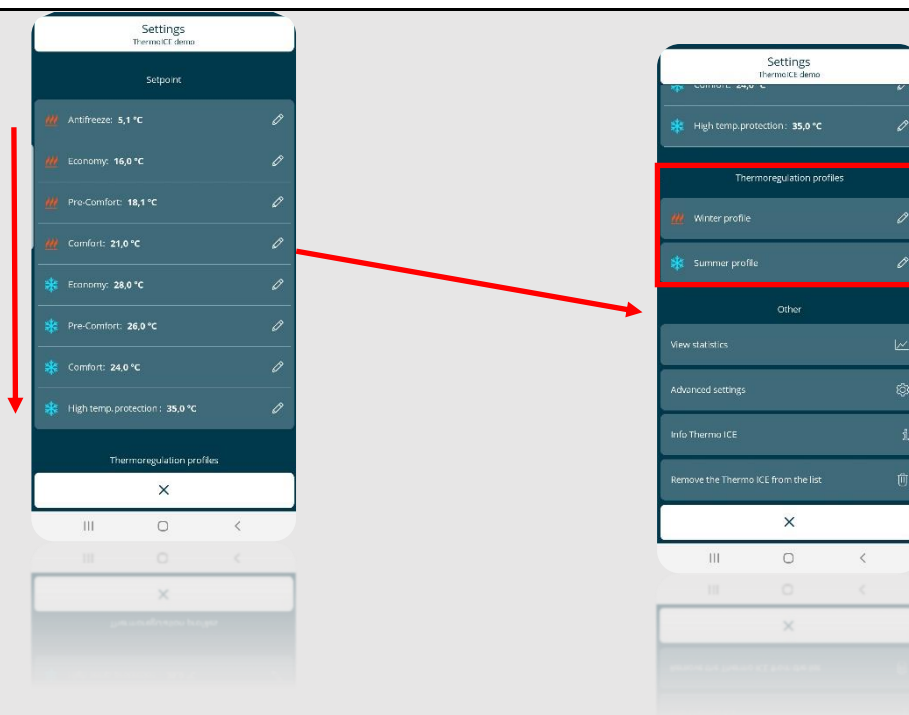
The setpoint predefined by the programming can be altered locally, using the circular slider (temporary setpoint forcing).

REGULATION OF THE TEMPERATURE ADJUSTMENT PROFILES

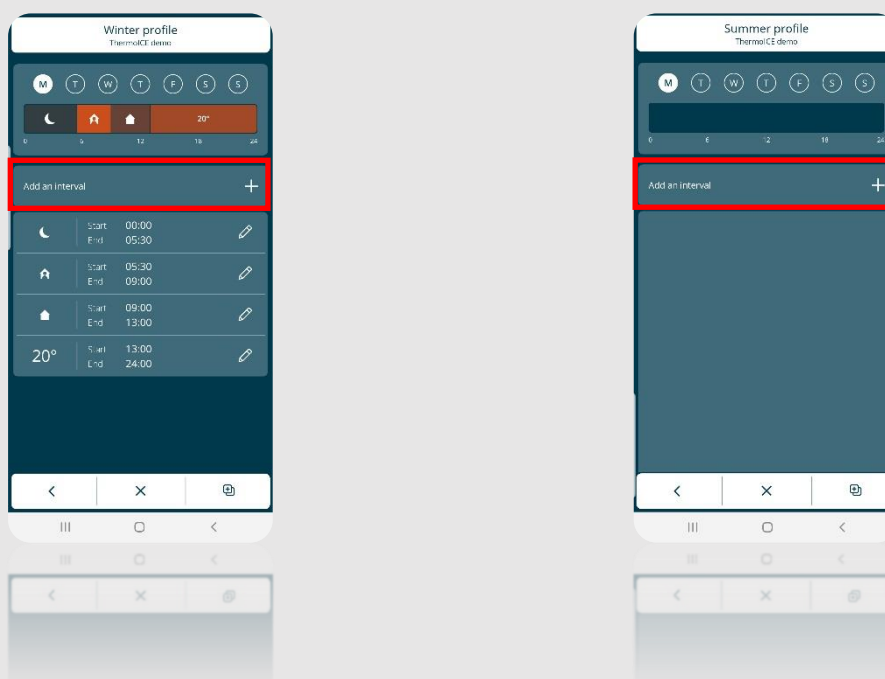
The temperature adjustment profiles can only be modified by an Administrator, via the app.

Follow the instructions below:


- Open the app on your mobile device
- Click on the  icon
- The “**Settings**” page will open
- Scroll down the page until you find the item “**Thermoregulation profiles**”

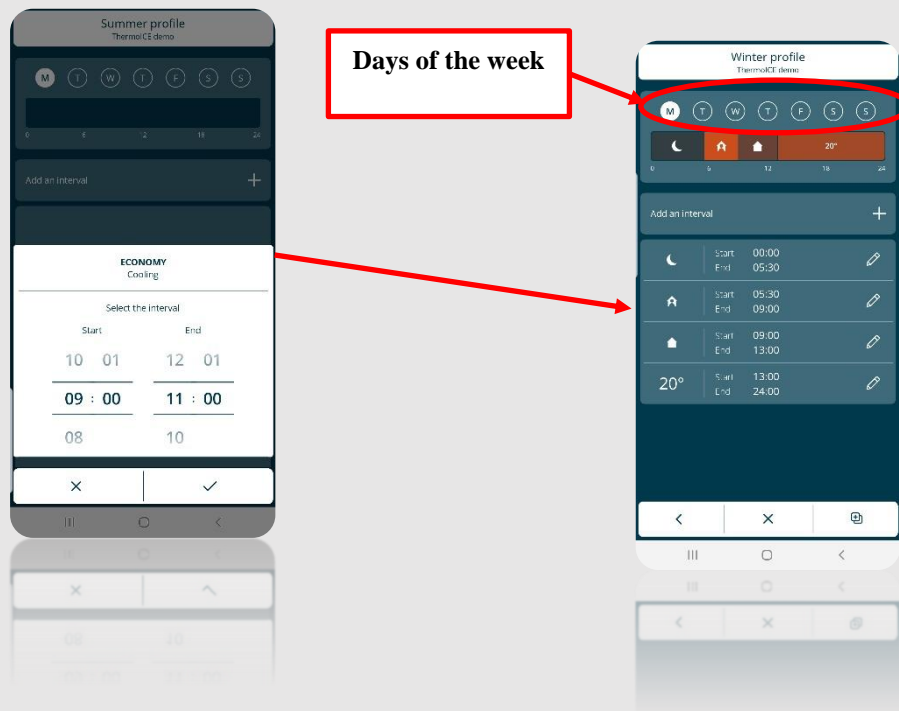



- The temperature adjustment profiles are divided into “**Winter profile**” and “**Summer profile**”. The activation of one or the other depends on the dates set on the “**Temperature control**” page (see ch. 11.1.3.1)
- Click on one of the two items to open a page where the Administrator can set the temperature adjustment profiles for each day of the week.

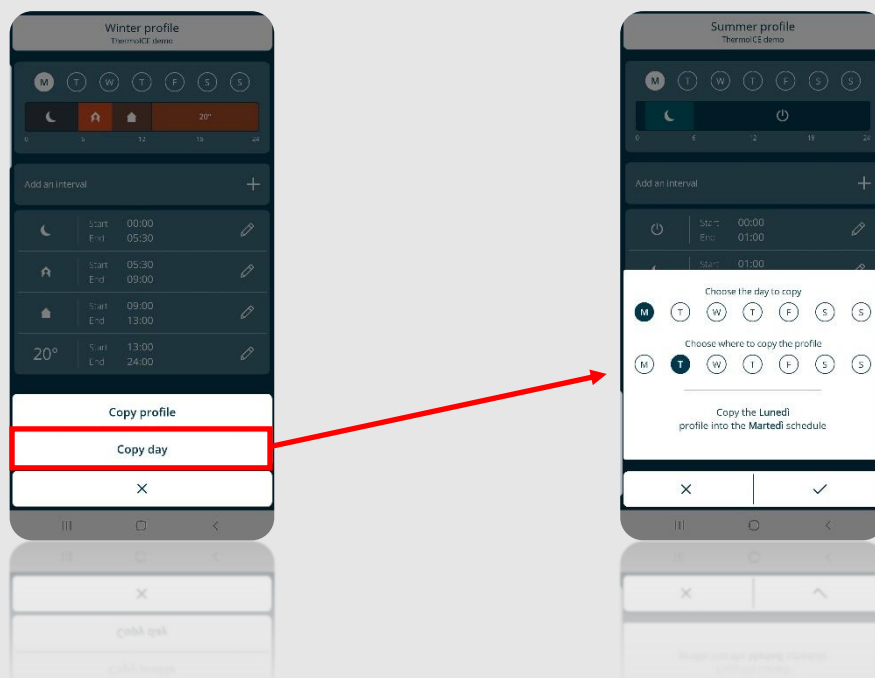



- Click on “**Add an interval**” to open a file where you can choose one of the six different thermostat operating modes
- After choosing the required operating mode, click on the tick ☐. A drop-down menu will appear, where you can set the time interval within which the chosen mode will be used

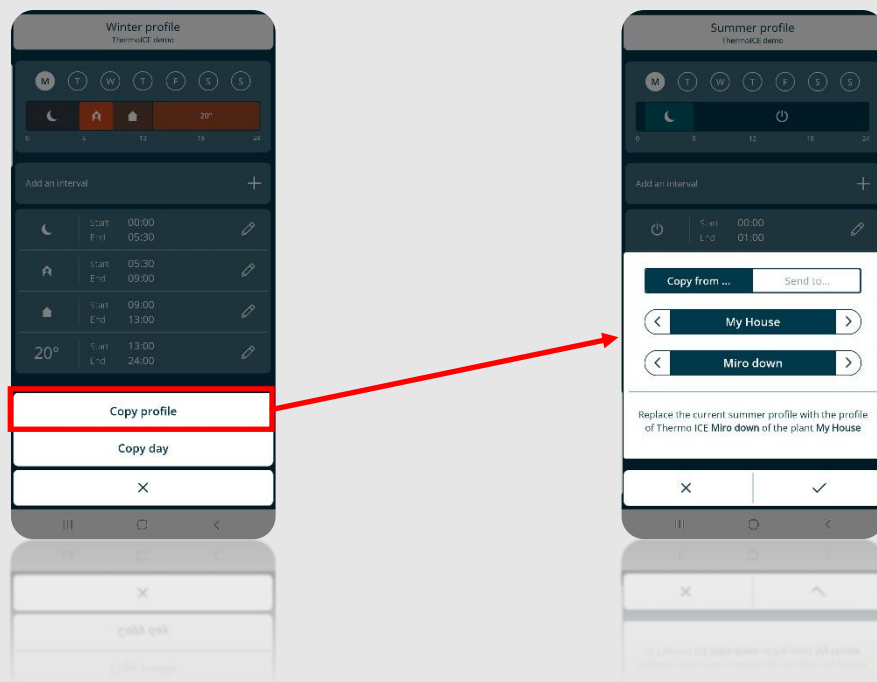
- This tool allows you to enter up to 8 different intervals for each day of the week
- Use the pencil  to alter or remove an unwanted interval



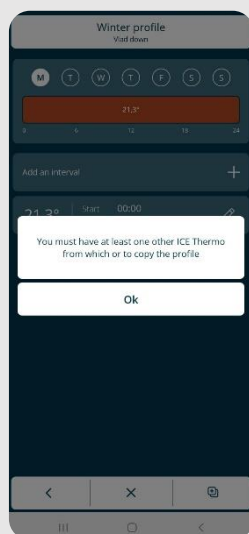
- To copy the hourly programming of one day of the week onto another day, select the  icon in the lower bar and then the **Copy day** item; select the days on which you want to repeat the programming



- To copy the hourly programming of one thermostat onto another thermostat, select the  icon in the lower bar and then the **Copy profile** item; select **"Copy from..."** to copy the programming from a thermostat listed below, or **"Send to..."** to send the programming to the thermostat selected below





Attention: the profiles can only be copied if the user is associated with at least two systems. Otherwise, when you press on “Copy profile” the following warning will appear on the screen:





The last HVAC mode is OFF. This only purpose of this mode is to safeguard the systems from any possible damage caused by extreme temperatures. In fact, there are two parameters whose role is to protect the domestic systems from excessively high or low temperatures. This mode is designed to be used if the home is going to be left empty for a long time. In this case, the thermostat only intervenes to activate the systems if the temperature reaches one of the two critical thresholds. These two thresholds can be regulated by the Administrator via the app, or locally if the thermostat is set as Stand-Alone.

Finally, MANUAL mode is the one that gives the user (both Administrator and Base User) the possibility to regulate the target setpoint (required temperature) as he/she prefers. This regulation can be made either locally (using the circular slider) or via the app (using the relative command on the homepage).

In MANUAL mode, the setpoint can only be regulated within a precise temperature range:

	Operating mode: Manual
 HEATING /  COOLING	$10^{\circ}\text{C} \leq T_{\text{manual}} \leq 35^{\circ}\text{C}$

and it must respect these rules:

	Operating mode: MANUAL
 HEATING	$T_{\text{building protection}} \leq T_{\text{operation}}$
 COOLING	$T_{\text{operation}} \leq T_{\text{building protection}}$



In heating mode, the setpoint cannot be lowered as far as the setpoint defined to protect the building from low temperatures ($T_{\text{building protection}}$). In cooling mode, the setpoint cannot be raised as far as the setpoint defined to protect the building from high temperatures ($T_{\text{building protection}}$).

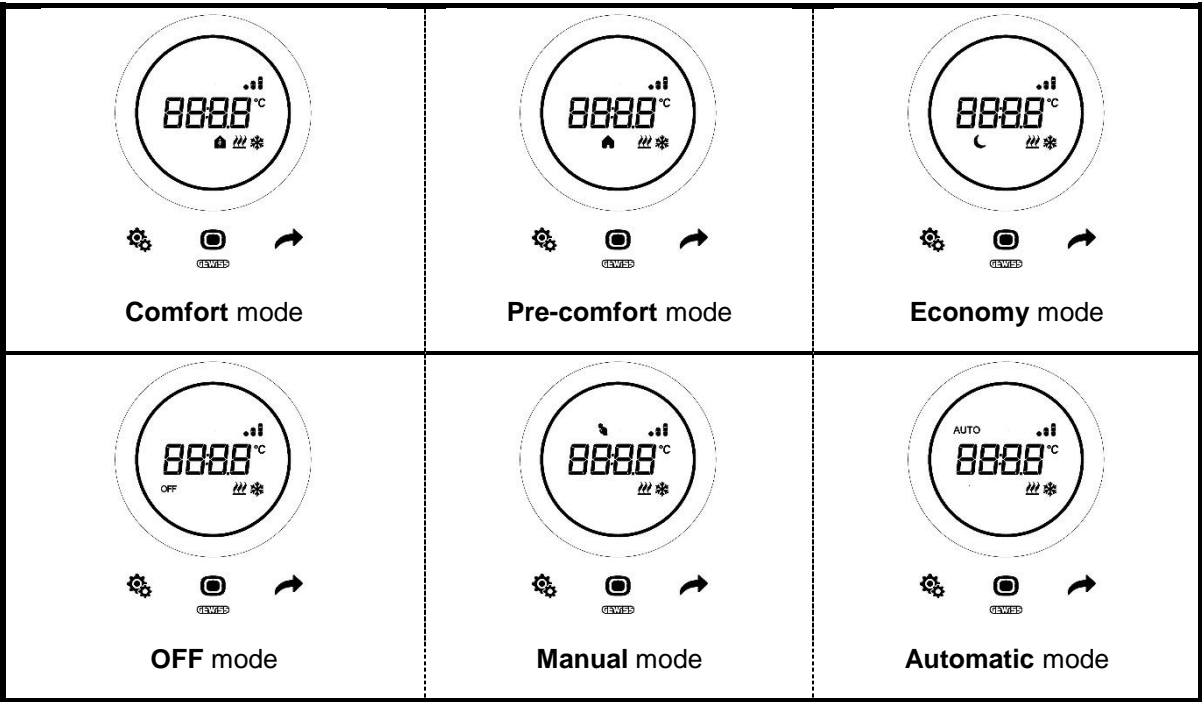
The setpoint regulation range is further limited if the thermostat is set in Slave control mode. The Administrator can make changes to this temperature range (see ch. 11.1.4.3.).

11.4.1 SETTING THE OPERATING MODES LOCALLY

If the thermostat is used in Stand-Alone control mode, the user (both Administrator and Base User) can always select the various operating modes directly on the thermostat.

Follow this procedure:

- Activate the backlighting of the thermostat by bringing your hand close to it
- Use the Next button key  to select the page showing the room temperature
- Press the Mode button key 
- Each time the button key is pressed, a different icon of the six possible operating modes will light up

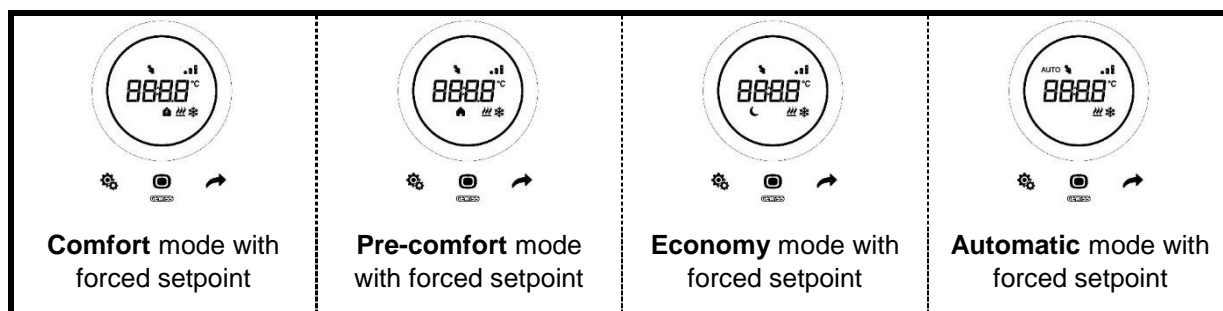


If, on the other hand, the thermostat is set to Slave control, the individual operating modes can only be selected if they have already been set. The user can only change the operating mode by choosing between OFF or the mode already set.

	STAND-ALONE	SLAVE
OPERATING MODE SET LOCALLY	All the modes can be selected, using the Mode button key	OFF / pre-set mode

The user can always temporarily force the setpoint, whatever the operating mode; the exceptions are OFF mode and MANUAL mode. In the first case, the setpoints cannot be modified as only anti-freeze and high temperature protection are active. In the second case, the required setpoint is defined directly by the user, via the circular slider.

The user can temporarily force the setpoint via the circular slider. When the setpoint is temporarily forced, the thermostat screen will show not only the specific icon of the operating mode that is active, but also the MANUAL mode icon.



Temporary setpoint forcing fails when:

- the operating mode changes
- the hourly profile changes (in AUTO mode)
- there is a new local modification to the setpoint
- the setpoint is modified via the app (by Administrators only)

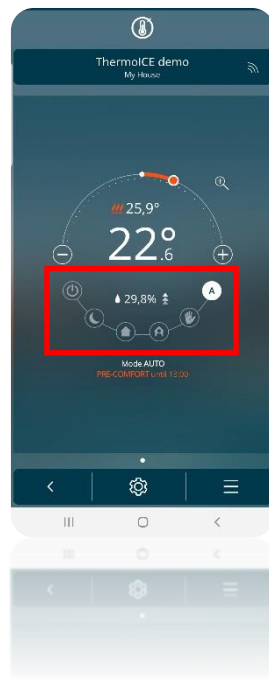
If the thermostat is set in **Slave** control, setpoint forcing may vary within a limited range. The Administrator can regulate this range to make it narrower, but it must always remain within the interval [0.5°; 5°] (see ch. 11.1.4.3).

11.4.2 WHERE TO SELECT THE OPERATING MODE IN THE APP

The thermostat operating mode can also be set via the app.

Follow the instructions below:

- Open the app on your mobile device
- The homepage contains a list of the operating modes that can be selected
- Click on the icon corresponding to the required operating mode



AUTOMATIC MODE



MANUAL MODE



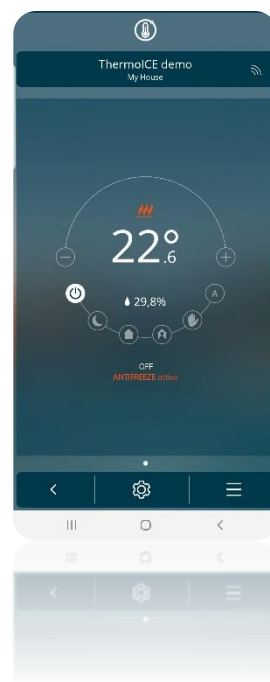
COMFORT MODE



PRE-COMFORT MODE



ECONOMY MODE




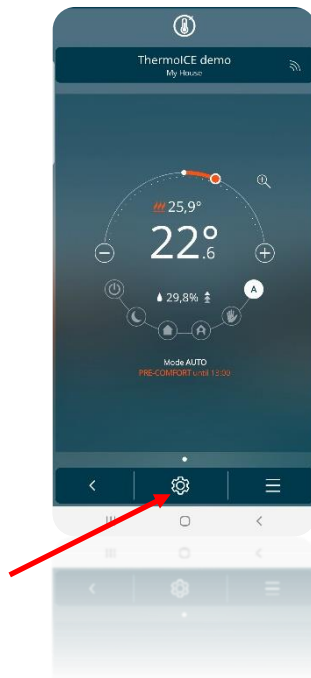
OFF MODE

11.4.3 HOW TO CHANGE THE SETPOINT REGULATION INTERVAL FOR MANUAL, ECONOMY, PRE-COMFORT AND COMFORT MODES WITH SLAVE CONTROL

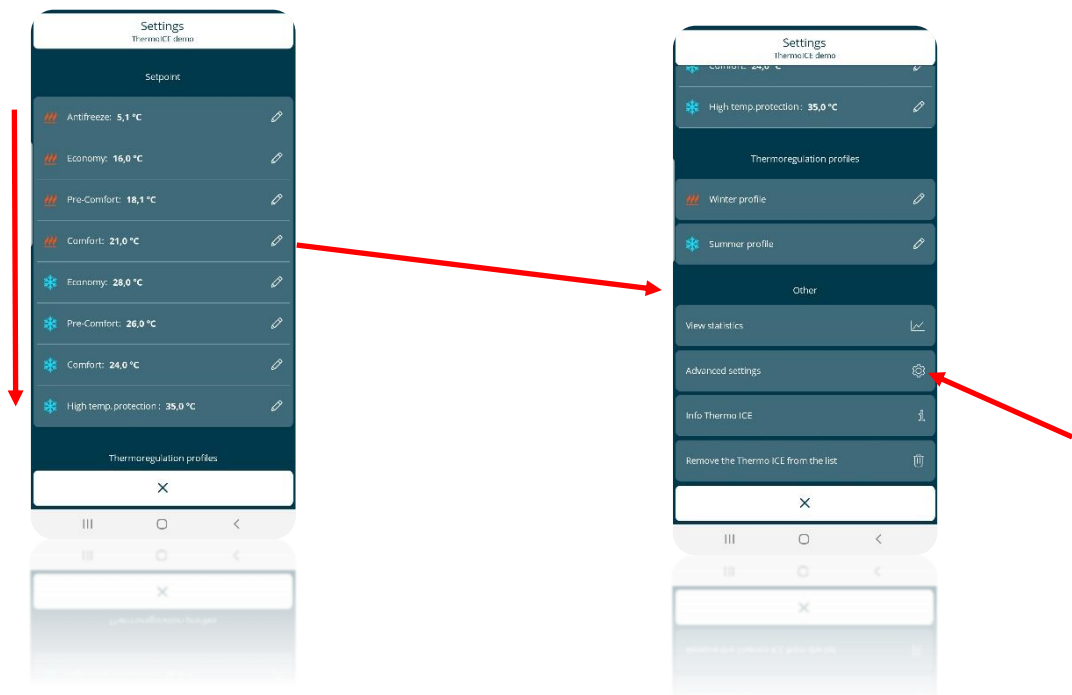
The **Administrator** can use the app to alter the setpoint regulation interval for the ECONOMY, PRE-COMFORT, COMFORT (temporary setpoint forcing) and MANUAL operating modes when the thermostat is set on **Slave** control.

Follow these steps:

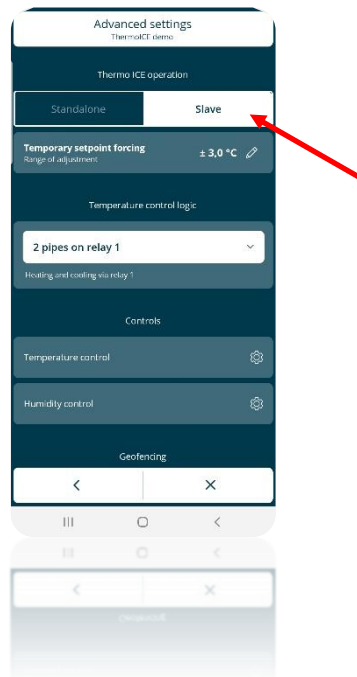
- Open the app on your mobile device
- Click on . The “**Settings**” page will open




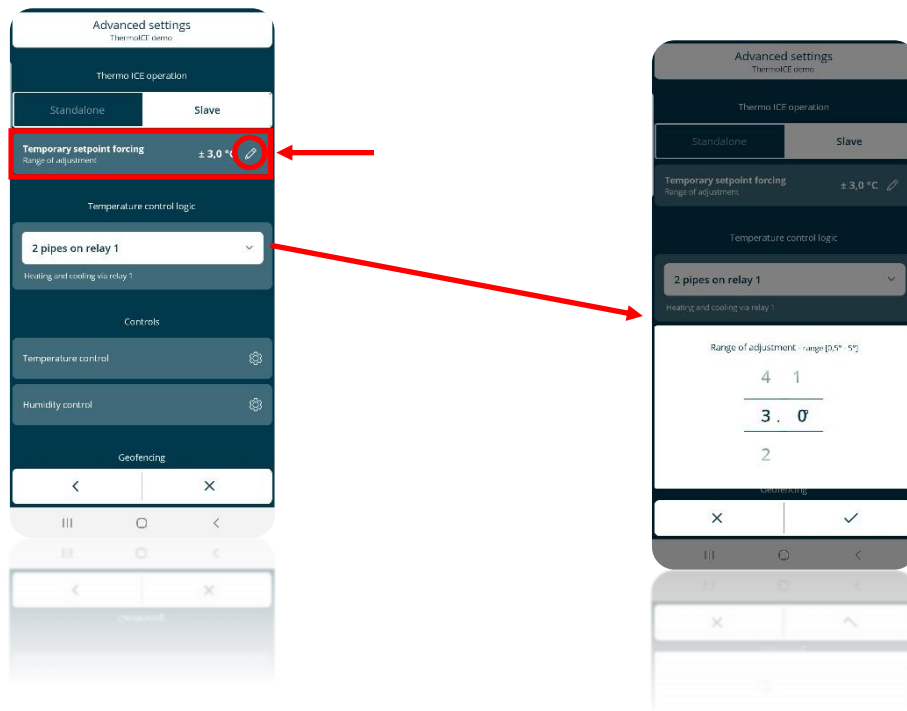
- Scroll down the list until you find the item “**Advanced settings**”. Click on it.



- The control type must be set as **“Slave”**



- In the item **“Temporary setpoint forcing – Range of adjustment”**, click on the pencil 
- A menu will open, where you can regulate the **manual setpoint regulation interval** within a range from 0.5° to 5.0°







11.4.4 REGULATION OF THE HVAC MODE SETPOINTS VIA APP

A different setpoint is associated with the COMFORT, PRE-COMFORT, ECONOMY and OFF operating modes.

The Administrator can regulate them as he/she prefers, but respecting some general rules that govern these regulations

In particular:

Operating mode: Comfort/Pre-comfort/Economy/OFF	
 HEATING	$T_{\text{anti-freeze}} \leq T_{\text{economy}} \leq T_{\text{pre-comfort}} \leq T_{\text{comfort}}$
 COOLING	$T_{\text{comfort}} \leq T_{\text{pre-comfort}} \leq T_{\text{economy}} \leq T_{\text{high temperature protection}}$


Operating mode: Comfort/Pre-comfort/Economy	
 HEATING	$10^{\circ}\text{C} \leq T_{\text{economy}} \leq T_{\text{pre-comfort}} \leq T_{\text{comfort}} \leq 35^{\circ}\text{C}$
 COOLING	$10^{\circ}\text{C} \leq T_{\text{comfort}} \leq T_{\text{pre-comfort}} \leq T_{\text{economy}} \leq 35^{\circ}\text{C}$

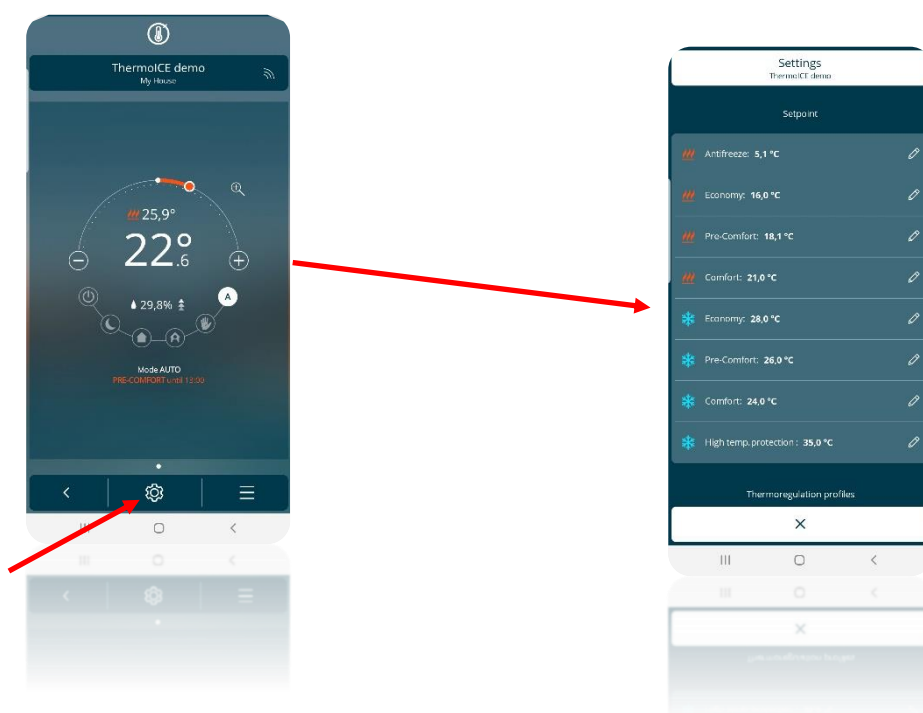
* “T” indicates the general value of the setpoint of that mode

The various setpoints must always respect the order shown above. The setpoint of one of the operating modes cannot therefore change position compared with the predefined order. The Administrator can therefore modify the setpoints, but only within this order.

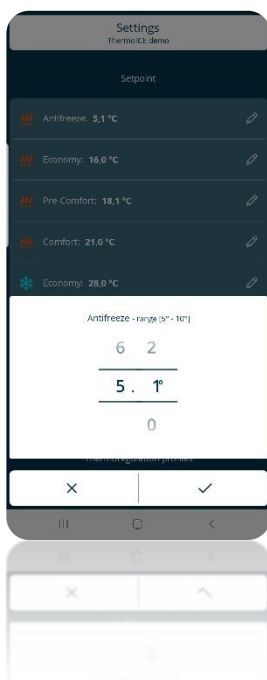
The $T_{\text{anti-freeze}}$ and $T_{\text{high temperature protection}}$ parameters are the ones that protect the domestic systems when the thermostat is set to OFF mode. If one of the two critical temperatures is reached in the room, the thermostat will activate the system to prevent it from suffering any damage.

To alter the setpoints, proceed as follows:

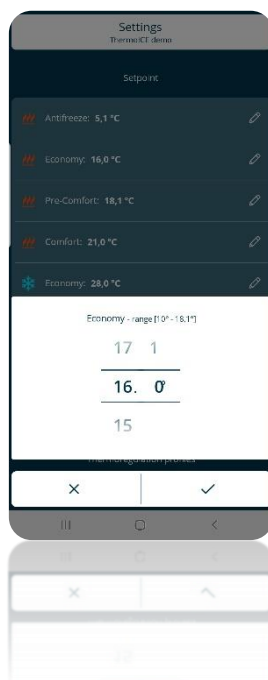
- Open the app on your mobile device
- Click on 
- The “**Settings**” page will open. At the top, there is the “**Setpoint**” section showing the setpoints for the ECONOMY, PRE-COMFORT and COMFORT operating modes, along with anti-freeze and high temperature protection.



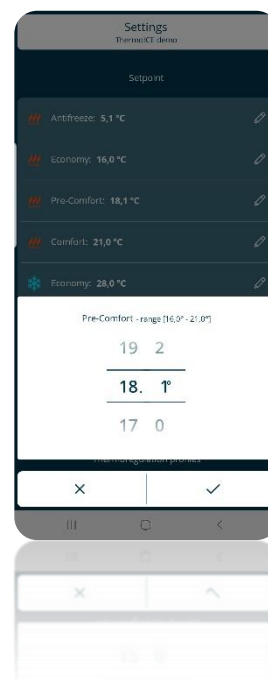
- The setpoints are divided into two groups: for Heating 🔥 and for Cooling ❄️. Click on each item to open a drop-down menu where you can regulate (within the permitted interval) the setpoint for each operating mode and protection threshold.



HEATING - ANTI-FREEZE



HEATING - ECONOMY



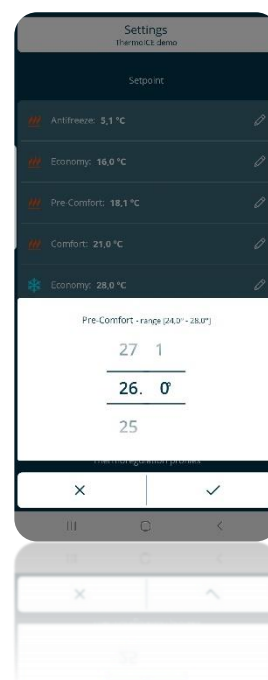
HEATING - PRE-COMFORT



HEATING - COMFORT



COOLING - ECONOMY



COOLING - PRE-COMFORT



COOLING - COMFORT



COOLING - HIGH TEMPERATURE PROTECTION

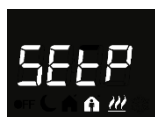
Note that an interval is associated with each setpoint (e.g. Protezione temp. elevate - intervallo [35° - 40°]). This indicates the temperature range within which the setpoint can be regulated. The interval start and end points are determined by the need to respect the hierarchical order mentioned previously.

11.4.5 LOCAL REGULATION OF THE COMFORT, PRE-COMFORT AND ECONOMY MODE SETPOINTS

The setpoints of the COMFORT, PRE-COMFORT and ECONOMY operating modes can also be modified locally if access to the basic parameters (or the advanced ones) has been enabled via the app.

(Regulation of the Comfort, Pre-Comfort and Economy mode setpoints locally, using the relative basic parameter)




- Activate the backlighting of the thermostat
- Select the page that shows the temperature, using the Next button key to move from one page to the next ➡
- Press Set ⚙️: the button key will turn green ⚙️ and the word "SEtP" will appear on the screen





- Use the circular slider or the Next button key ➡ to select COMFORT, PRE-COMFORT or ECONOMY mode, as required
- Use Mode ⏻ to confirm your choice
- The value of the setpoint for the selected operating mode will flash on the screen
- This value can be altered using the circular slider
- The Mode button key ⏻ will begin flashing
- Click on Mode ⏻ to confirm the new setpoint value entered
- Use the Set button key ⚙️ to quit the basic parameters area

11.4.6 LOCAL REGULATION OF THE BUILDING PROTECTION SETPOINTS

The building protection setpoints can also be modified locally if access to the advanced parameters has been enabled via the app and the thermostat status is Stand-Alone.

- Activate the backlighting of the thermostat
- Select the page that shows the temperature, using the Next button key to move from one page to the next 
- Press and hold the Set button key  until the code P1 appears on the screen
- Select advanced parameter P1 using the Mode button key 
- Advanced parameter P1 is used to regulate the anti-freeze setpoint if the thermostat is in Heating mode, or high temperature protection if the thermostat is in Cooling mode

SUMMARY OF VALUES FOR PARAMETER P1		
Heating	5°C << 10°C	41°F << 50°F
Cooling	35°C << 40°C	95°F << 104°F

- After defining the required value for the setpoint, confirm by pressing the Mode button key 
- Click on Set  to quit the advanced parameters area

11.5 Control algorithms

The thermostat can regulate its own operation (and, consequently, system management) on the basis of two different control algorithms stored inside it. These algorithms are:

- **2 points ON-OFF**
- **Proportional-integral with PWM control**

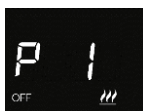
CONTROL ALGORITHM	SUMMARY OF THE CHARACTERISTICS
2 points ON-OFF	<p>This type of control involves the turning on and off of the temperature adjustment system following a hysteresis cycle. This means there isn't a single threshold that discriminates between the turning on and off of the system, but two.</p> <p>To avoid the continuous switching of the solenoid valves, the next ON command after an OFF-ON-OFF sequence can only be implemented after at least 2 minutes.</p>
Proportional-integral with PWM control	<p>The algorithm used to control the temperature adjustment system allows you to drastically reduce the times due to thermal inertia and introduced by the 2-point control, called PWM proportional-integral control.</p> <p>With this type of algorithm, there is no longer a hysteresis cycle on the heating/cooling device, so the inertia times (system heating and cooling times) introduced by the 2-point control are eliminated. This produces energy savings because the system does not remain switched on when it's not needed and, once the required temperature has been reached, it continues to provide a small heat (or cold air) contribution to compensate for the environmental heat (or cooling) dispersion.</p>

11.5.1 HOW TO SET THE CONTROL ALGORITHM LOCALLY

You can choose which of the two algorithms to use directly from the thermostat. This is only possible, however, if the thermostat is set in Stand-Alone control mode; the advanced parameters are not visible if the thermostat is in Slave mode. In addition, access to the advanced parameters must have been enabled via the app.


Proceed as follows:

- Activate the backlighting of the thermostat
- Select the page showing the temperature, moving from one page to another by means of the Next button key ➡
- Press Set ⚙️ for at least 15 seconds. The button key will turn green ⚙️ and parameter P1 will appear on the screen






- Using the circular slider or the Next button key ➡, scroll through the various parameters until you find parameter P4



- Use the Mode button key  to select parameter P4. There are two values, each corresponding to one of the two algorithms:


SUMMARY OF VALUES FOR PARAMETER P4	
0	2 points ON-OFF
1	PWM proportional-integral

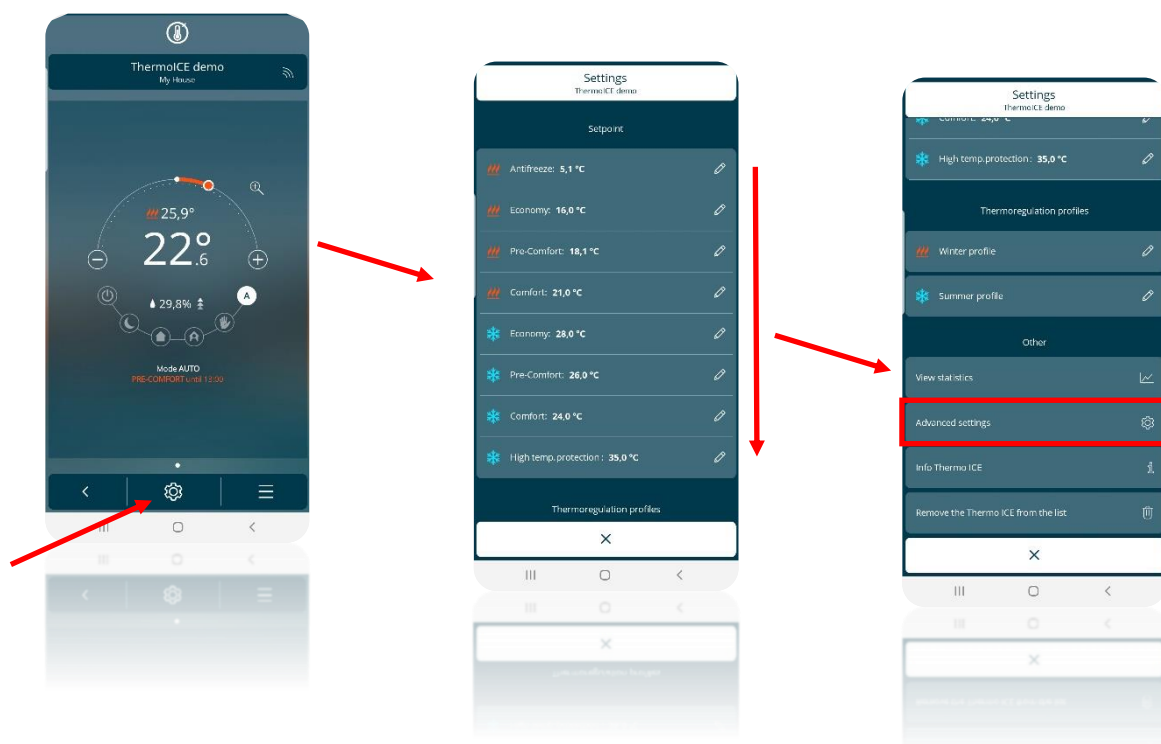
- Use the circular slider or the Next button key  to pass from one value to the other (i.e. to select one algorithm or the other)
- Use Mode  to confirm your choice
- Click on Set  to quit the advanced parameters area

11.5.2 WHERE TO SET THE CONTROL ALGORITHM ON THE APP

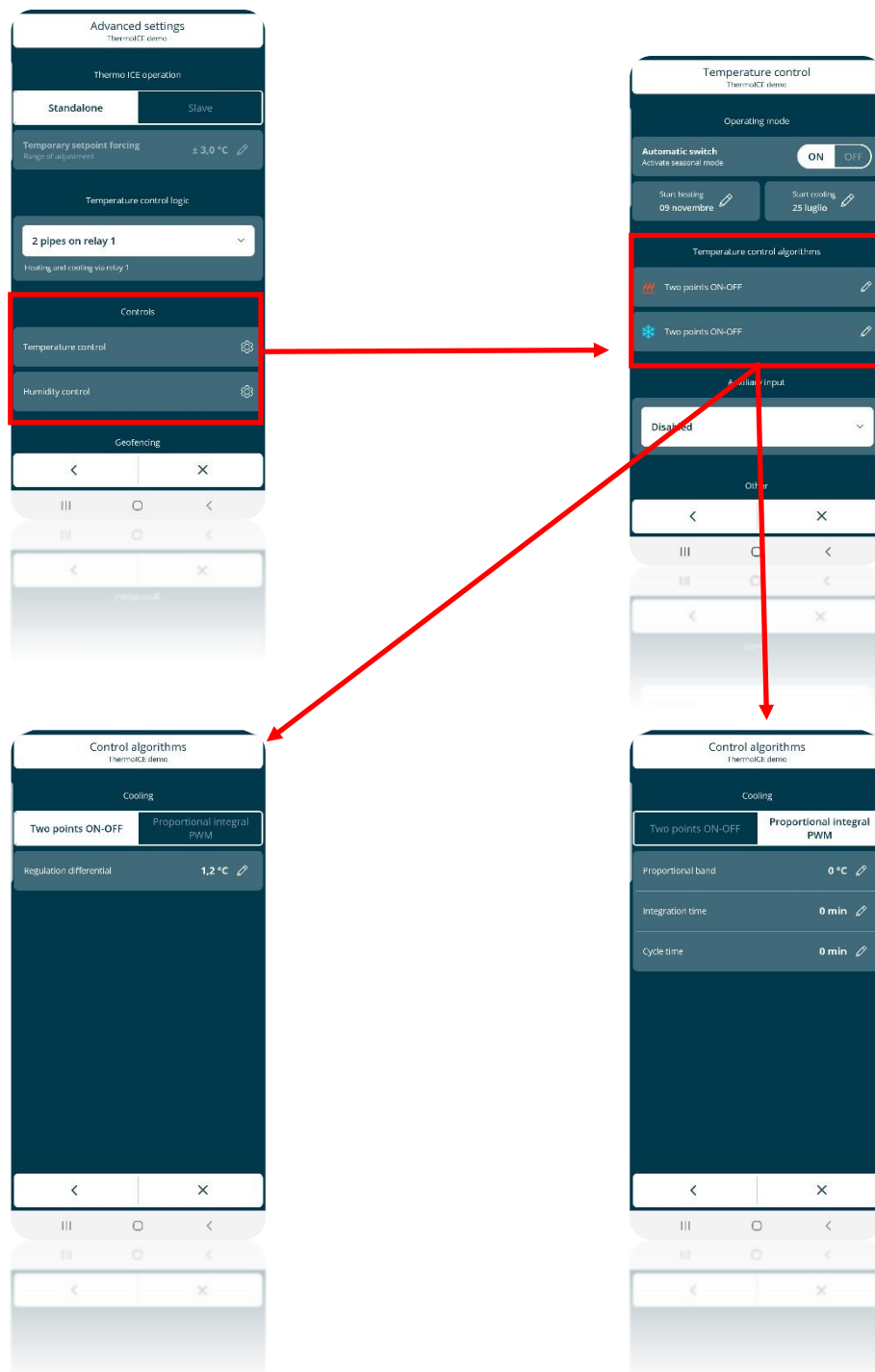
The control algorithm can be set via the app if you are an Administrator.

Carry out the following steps:

- Open the app on your mobile device
- Click on 
- The “**Settings**” page will open. Scroll down the page until you find the item “**Advanced settings**”. Click on it



- The “**Advanced settings**” page will open. In the “**Controls**” section, click on “**Temperature control**”.
- The “**Temperature control**” page will open. In the “**Temperature control algorithms**” section, for each operating type (Heating or Cooling) you can choose which of the two algorithms should be used (Two points ON-OFF or Proportional integral PWM)



GEOFENCING

12 Automatic presence detection - Geofencing

The app allows the user to activate the geofencing function. This function influences the behaviour of the thermostat on the basis of the user's position, programming automatic actions when he/she enters or leaves the home.

A perimeter is defined around the home, and used by the device to understand when the user is at home or in the immediate vicinity, and when he/she is "outside"; this may trigger a change in the thermostat operating mode. The user decides, via the app settings, how the thermostat must behave when his/her position changes.

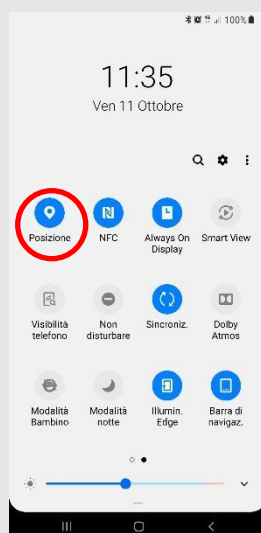
12.1 Necessary preliminary settings

In order to use the geofencing option, the geolocation function must be enabled on the mobile device that the Thermo ICE app is installed on.


ENABLING GEOLOCATION ON ANDROID DEVICES

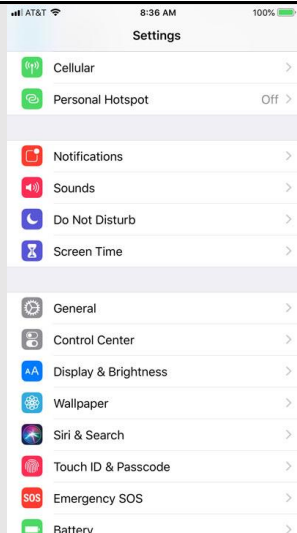
- Scroll down the drop-down menu in the top part of the screen of the mobile device

- Find the geolocation logo
- Make sure it's enabled

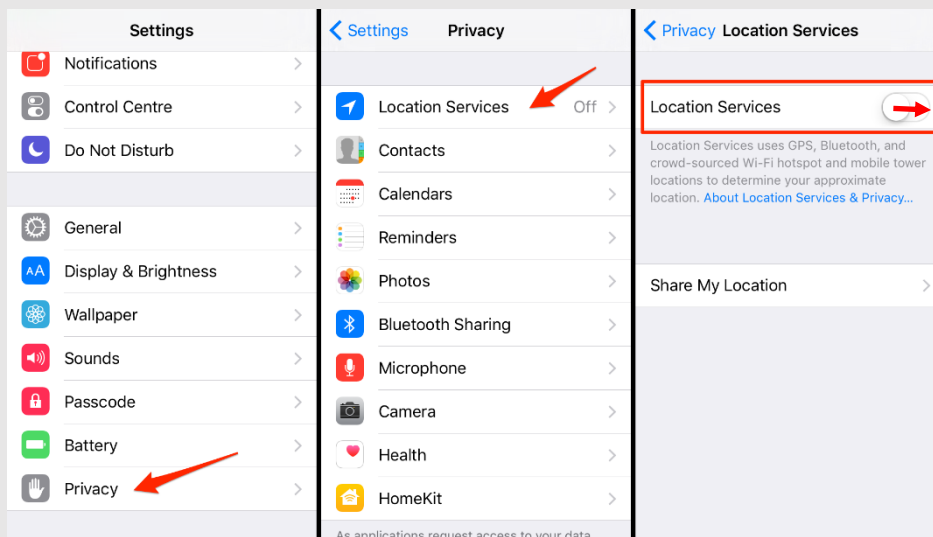


ENABLING GEOLOCATION ON IOS DEVICES

- Click on the **"Settings"** icon 
- The **"Settings"** page will open




- Scroll down the page until you find the item “**Privacy**”. Select this item
- The “**Privacy**” page will open. Select the item “**Location services**”
- The “**Location services**” page will open. Make sure the command is active

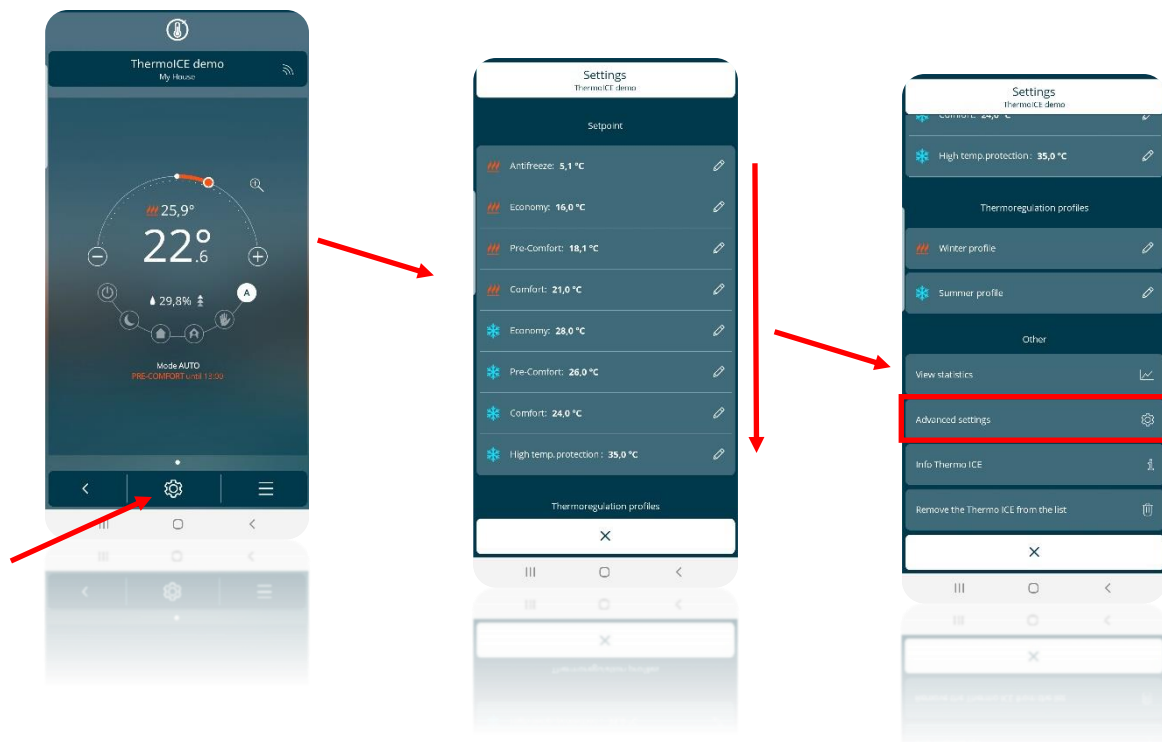


12.2 Enabling Geofencing via the app

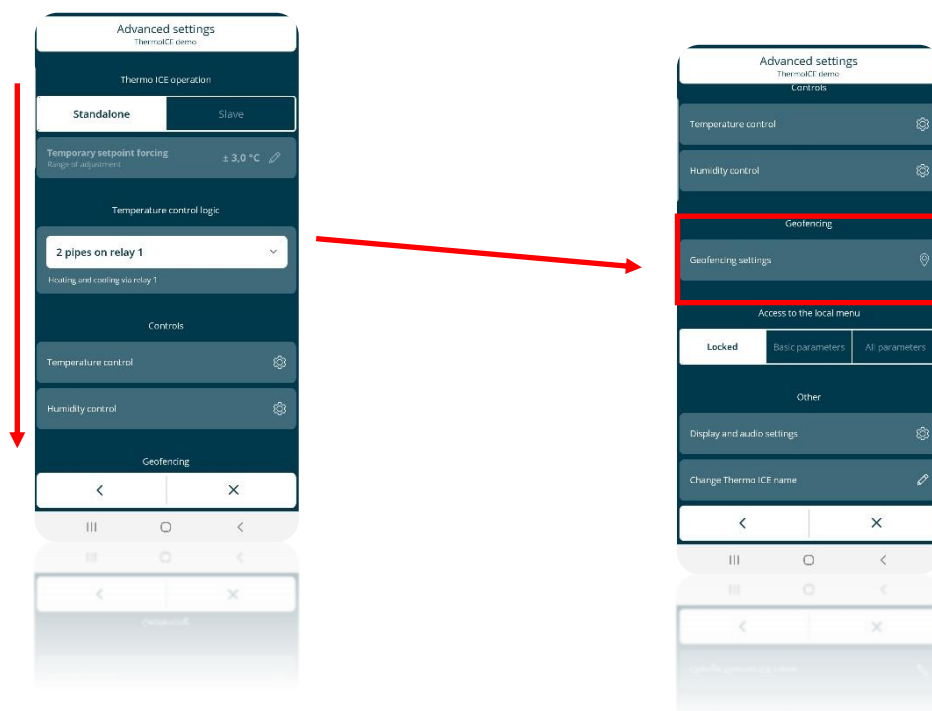
The enabling/disabling and limitation of the Geofencing function can only be done by an Administrator.

Geofencing can only be activated from an app. Follow these steps:

- Open the app on your mobile device
- Select the  button key
- The “**Settings**” page will open. Scroll down the page until you find the item “**Advanced settings**”
- Select “**Advanced settings**”. The “**Advanced settings**” page will open



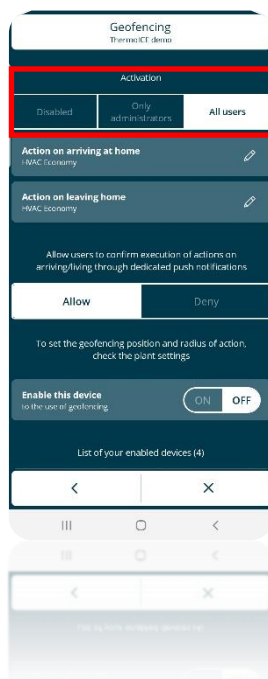
- Scroll down the **“Advanced settings”** page until you find the item **“Geofencing”**



- Select **“Geofencing settings”**. The **“Geofencing”** page will open
- Under the item **“Activation”**, you can choose from three different options:
 - Disabled
 - Administrators only (Administrator)
 - All users

Disabled =	Geofencing disabled
Administrators only =	Geofencing enabled for Administrators only
All users =	Geofencing enabled for all users


- Select the second option if you want to activate geofencing for Administrators only; select the third if you want to enable Base Users as well

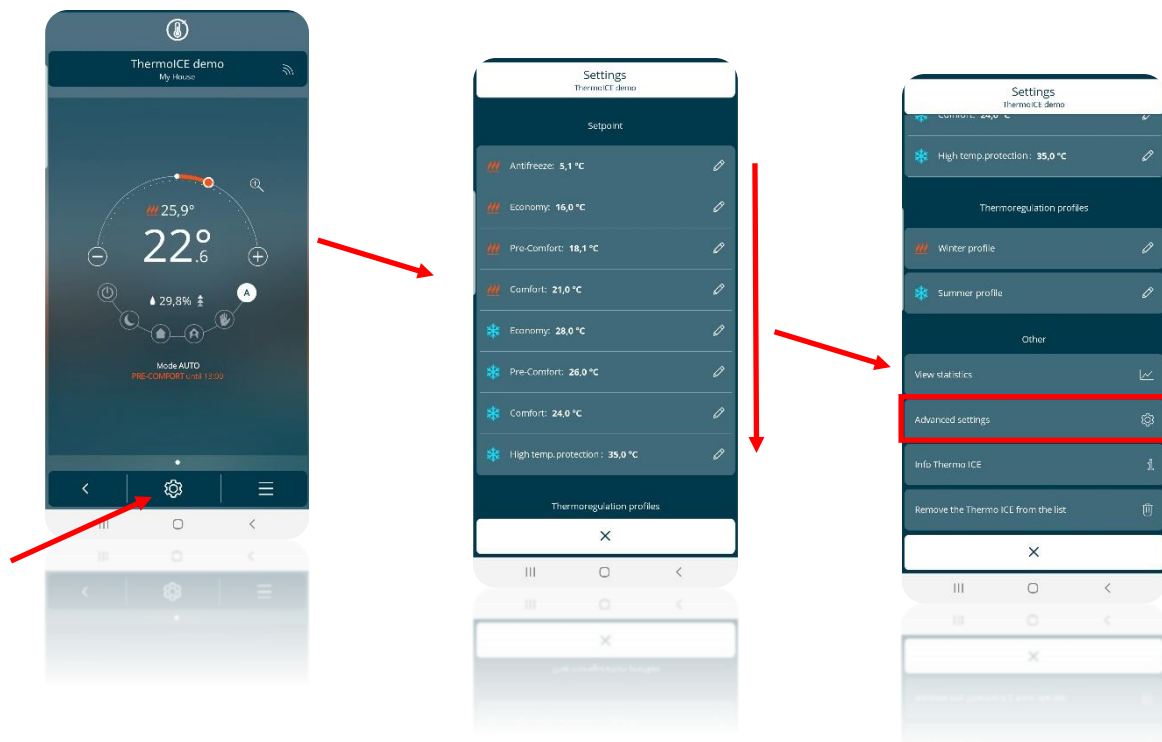


12.3 Activating Geofencing on your account

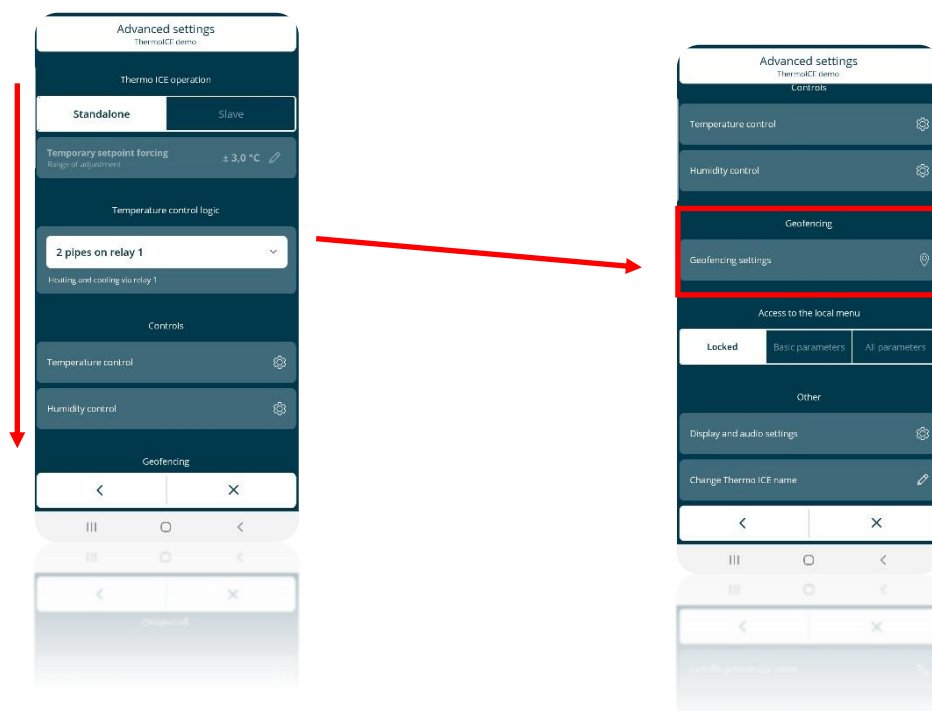
Once geofencing has been enabled, it must be activated on your account before it can be used.

To do this, follow these steps:

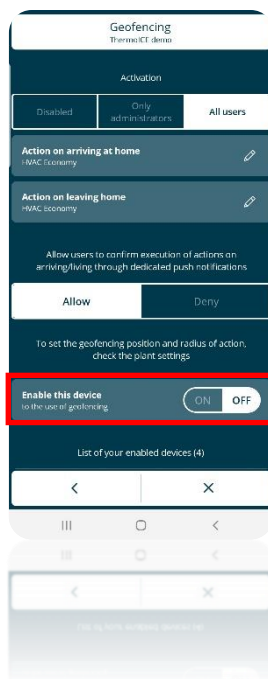
- Open the app on your mobile device
- Select the  button key
- The “**Settings**” page will open. Scroll down the page until you find the item “**Advanced settings**”
- Select “**Advanced settings**”. The “**Advanced settings**” page will open



- Scroll down the **“Advanced settings”** page until you find the item **“Geofencing settings”**



- Select **“Geofencing settings”**. The **“Geofencing”** page will open



- At the bottom of the page you will find the parameter **“Enable this device to the use of geofencing”**. Move the push-button to **“ON”** to activate geofencing on your mobile device

12.4 Setting the actions for entering and leaving the geofencing area


The aim of geofencing is to influence the behaviour of the thermostat on the basis of the user's position, programming automatic actions when he/she enters or leaves the home. The app tells the server whether or not the user is in the “home” area. When the last user leaves the “home” area, the server can automatically alter thermostat operation on the basis of the settings; the same applies when one of the enabled users returns to the home.

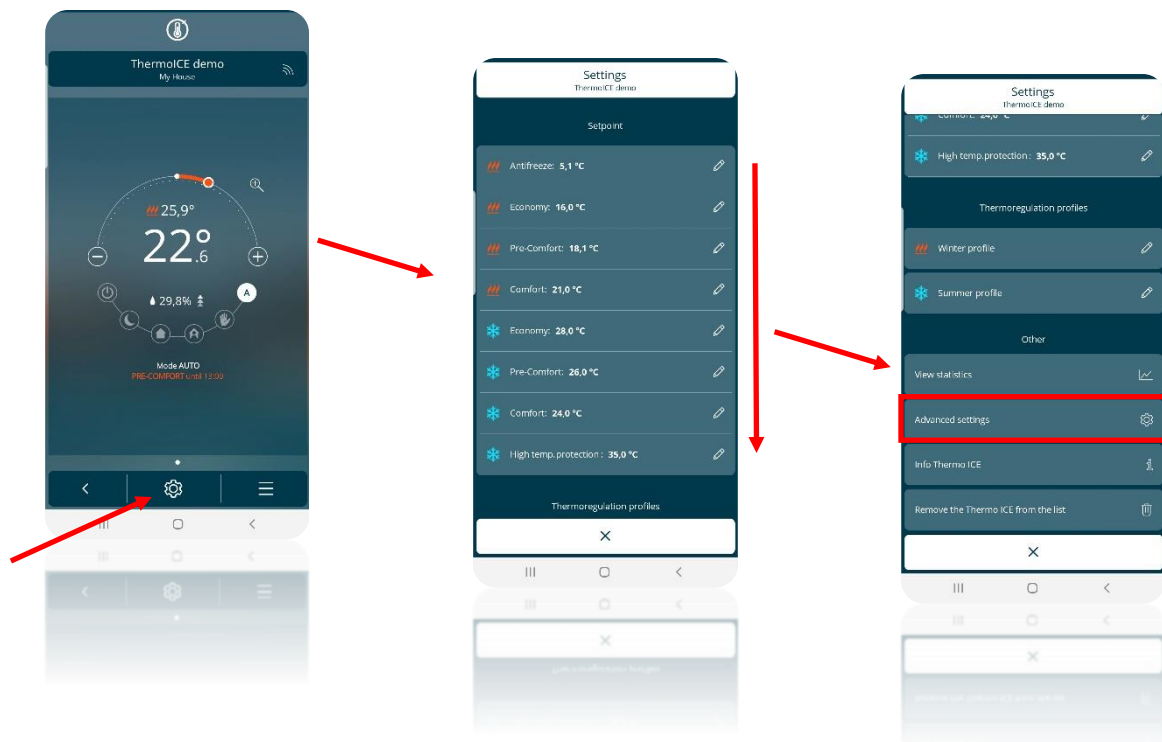
All this can be set by the user via the app. The user can define the action that the thermostat must take when the user enters the geofencing area, or leaves that area.

In both cases, the user must choose between ordering the thermostat to not take any action or to take a specific action. If the user chooses the second option, he/she must choose the required operating mode: AUTO, MANUAL, COMFORT, PRE-COMFORT, ECONOMY or OFF.

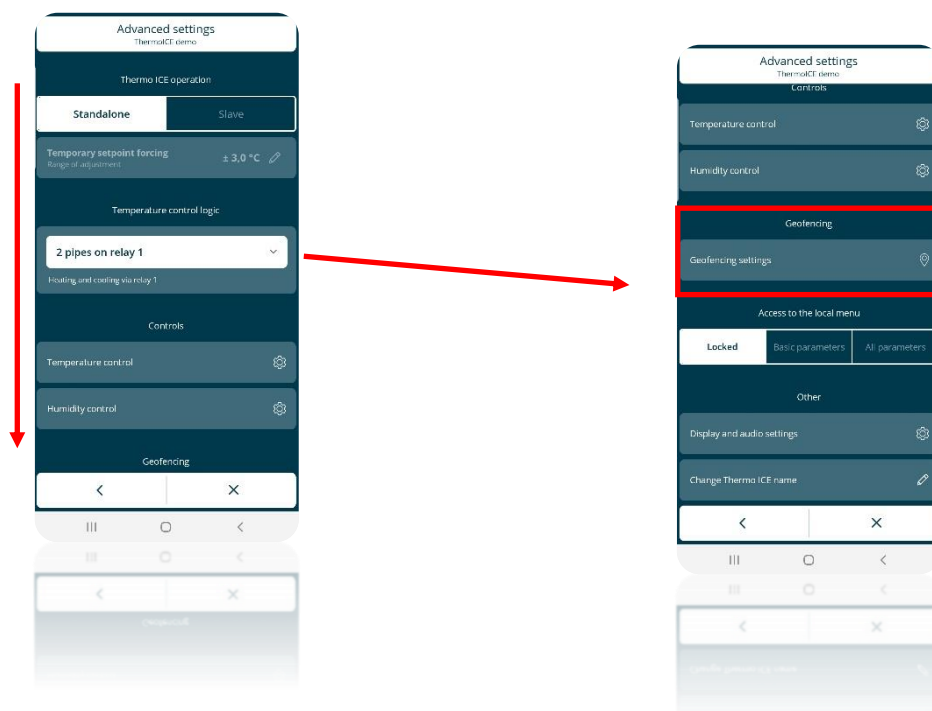
Bear in mind that, if you decide to set an action, the geofencing function will take priority over any timer programming set and used with the thermostat in AUTO mode. The action set upon entering or leaving the geofencing area will take priority over the type of operation set for that time and that day via timer programming.

To set the action when the user enters or leaves the geofencing area, proceed as follows:

- Open the app on your mobile device
- Click on 
- The **“Settings”** page will open. Scroll down the page until you find the item **“Advanced settings”**. Select this item

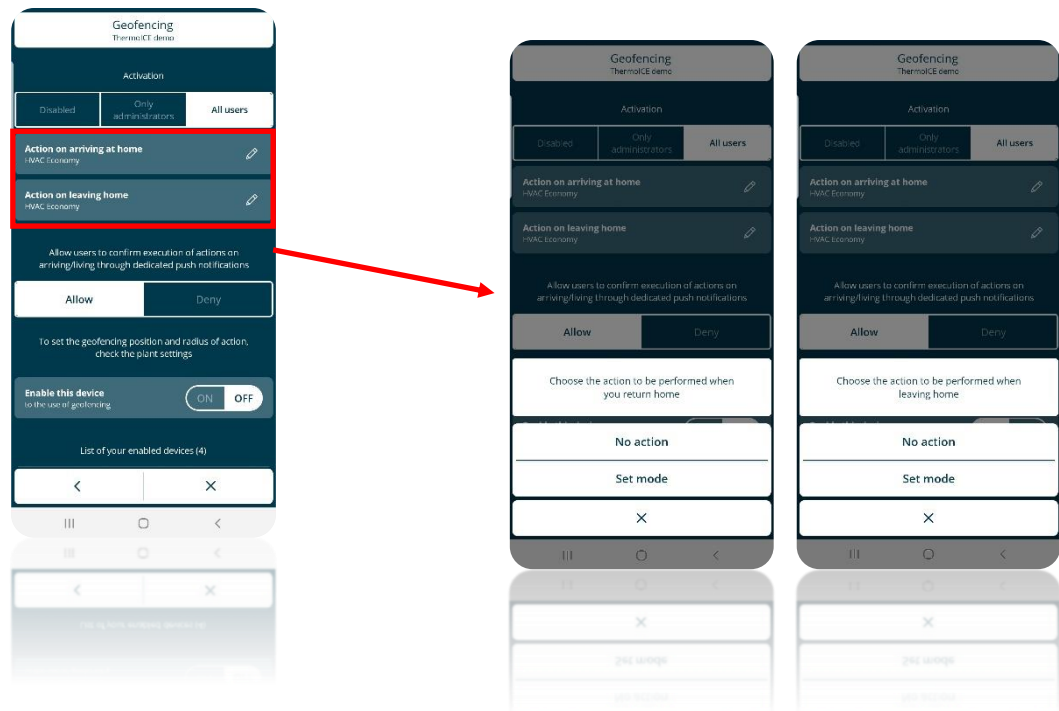


- Scroll down the “Advanced settings” page until you find the item “**Geofencing settings**”

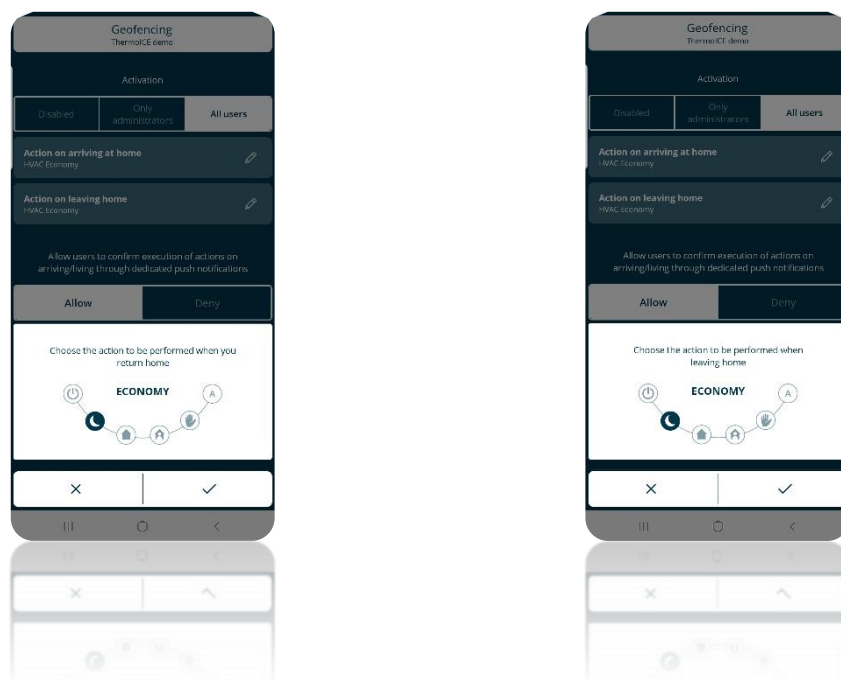


- Select “**Geofencing settings**”. The “**Geofencing**” page will open
- Under the item “**Activation**”, you will find two different commands:
 - “**Action on arriving at home**”
 - “**Action on leaving home**”

Use the first to set the action that you want the thermostat to take when the user enters the geofencing area, and the second for the action when the user leaves the area



The user must first of all choose whether to prevent the thermostat from taking any action on entering and/or leaving, or set an operating mode.



- After defining whether or not the thermostat must take an action, in the second case it's then necessary to decide which operating mode must be set. After doing this, click on the tick. Once you have quit the **"Settings"** menu, you will be asked to confirm the saving of the modifications made



12.5 Setting the Geofencing area radius

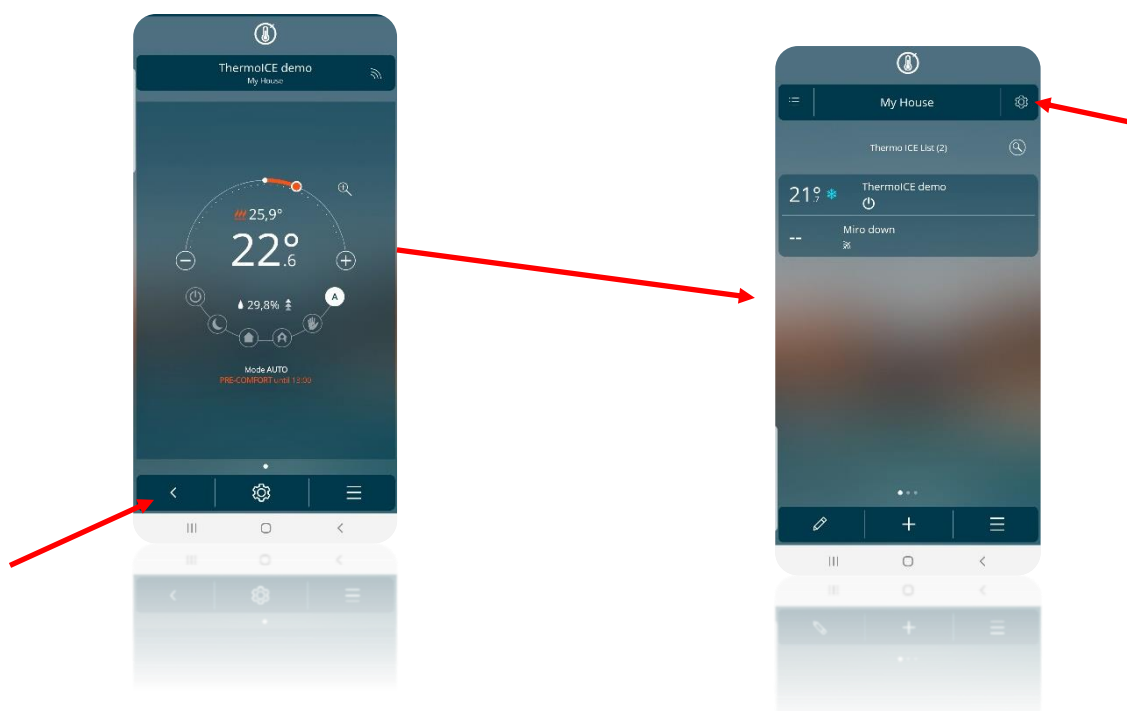
The user can alter the range of the geofencing area. The wider the area, the further he/she can move away from the home without activating the operating mode set for when leaving the area; vice versa, the narrower the geofencing area, the quicker the activation of the set operating mode. In the same way, if the geofencing area is wider, the operating mode set for when entering the area will be activated much

sooner than the physical entry of the user in the home; if the area is narrower, the operating mode will be activated later.

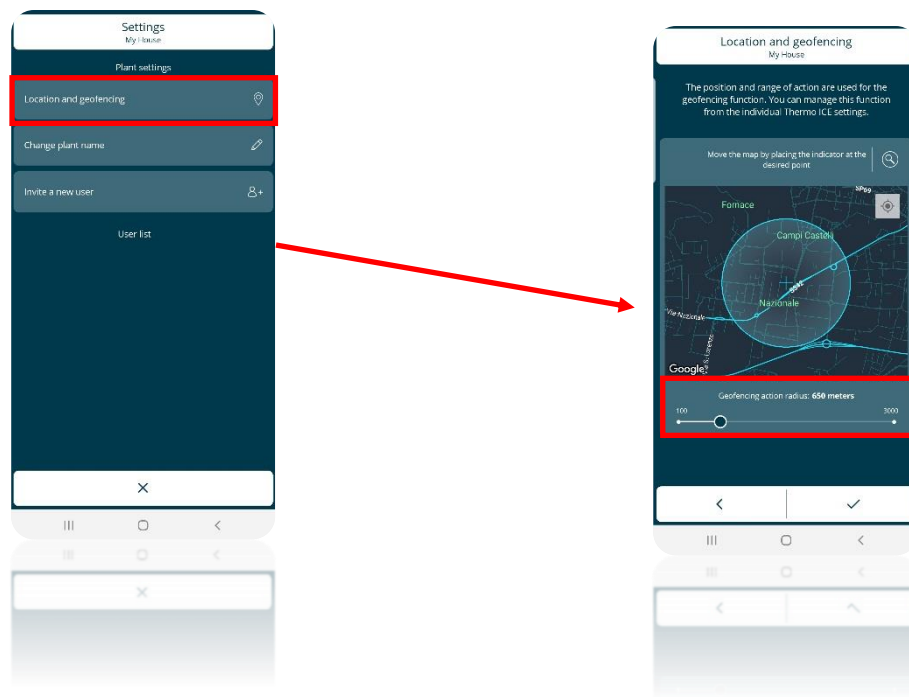
The geofencing area can be altered within an interval from min. 100 metres to max. 3000 metres.

To set the extension of the geofencing area, proceed as follows:

- Open the app on your mobile device
- Go to the “**List of thermostats**” page, using the  button key
- Click on the  button key at the top right



- The “**Settings**” page will open. Under the item “**System settings**”, you will find the “**Location and geofencing**” parameter
- Click on this parameter. The page that opens contains an interactive map. Use the command underneath the map to alter the extension of the geofencing area



- After defining the required extension of the geofencing area, click on the tick

HUMIDITY


13 Humidity

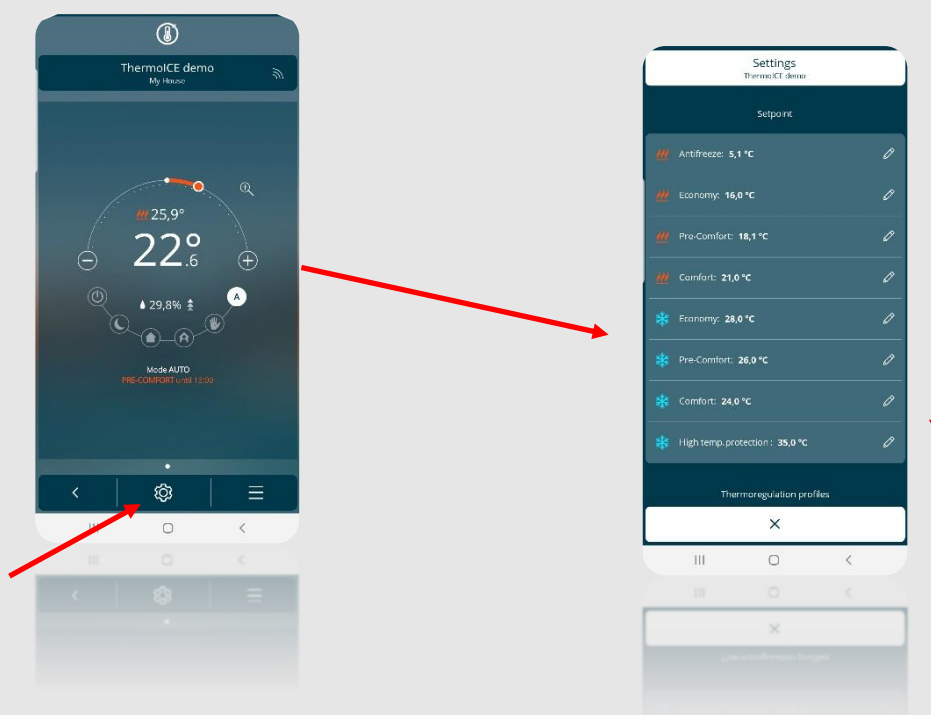
The thermostat is fitted with an internal sensor for measuring the relative humidity in the room. You can control room humidification or dehumidification directly, via relay 2.

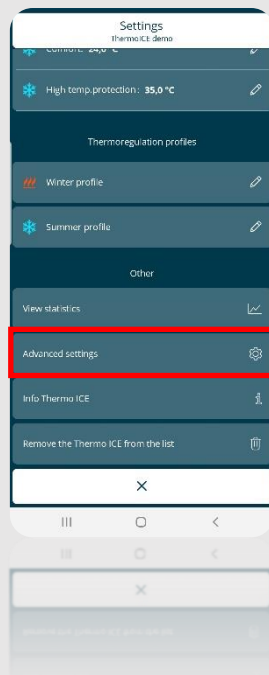
The advanced reference parameter is **P11 – “Humidity management”**. It can be regulated either locally or via the app.

This parameter can only be viewed and set if the **“Temperature adjustment control logic”** is not set on "4 ways"; in this case, it is not possible to manage the humidity level. At the same time, **“Humidity control”** must be set on **“Humidity increase”** or **“Humidity reduction”** via the app in order for the advanced humidity control parameters to be accessible.

SET THE "TEMPERATURE ADJUSTMENT CONTROL LOGIC" VIA THE APP

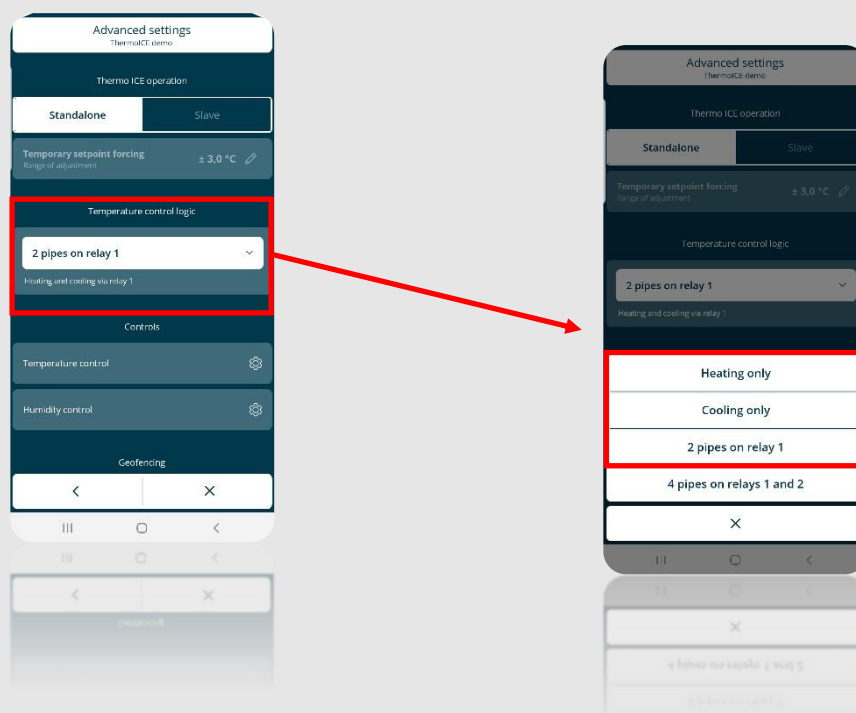
- Open the app on your mobile device
- Click on 
- The **“Settings”** page will open. Scroll down the page until you find the item **“Advanced settings”**. Select this item






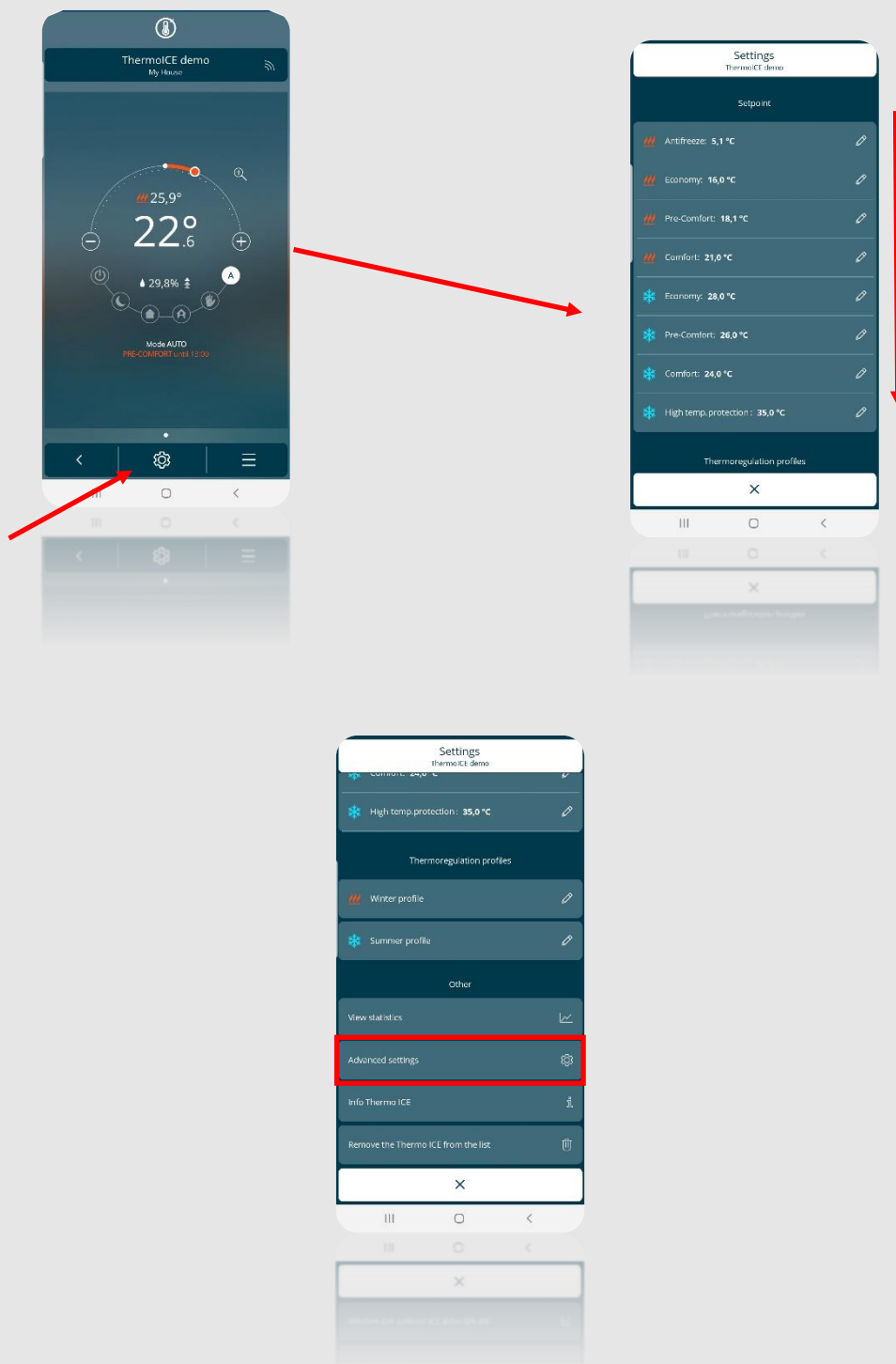
- The “**Advanced settings**” page will open
- Under the item “**Temperature control logic**”, you can choose which configuration to use the relays in. There are four possibilities:
 - **Heating only**
 - **Cooling only**
 - **2 pipes on relay 1**
 - **4 pipes on relays 1 and 2**

The options that allow the control of the advanced humidity parameters are the first three. Advanced humidity parameter control is not possible if the last option (4 pipes on relays 1 and 2) is selected.



SETTING HUMIDITY CONTROL VIA THE APP

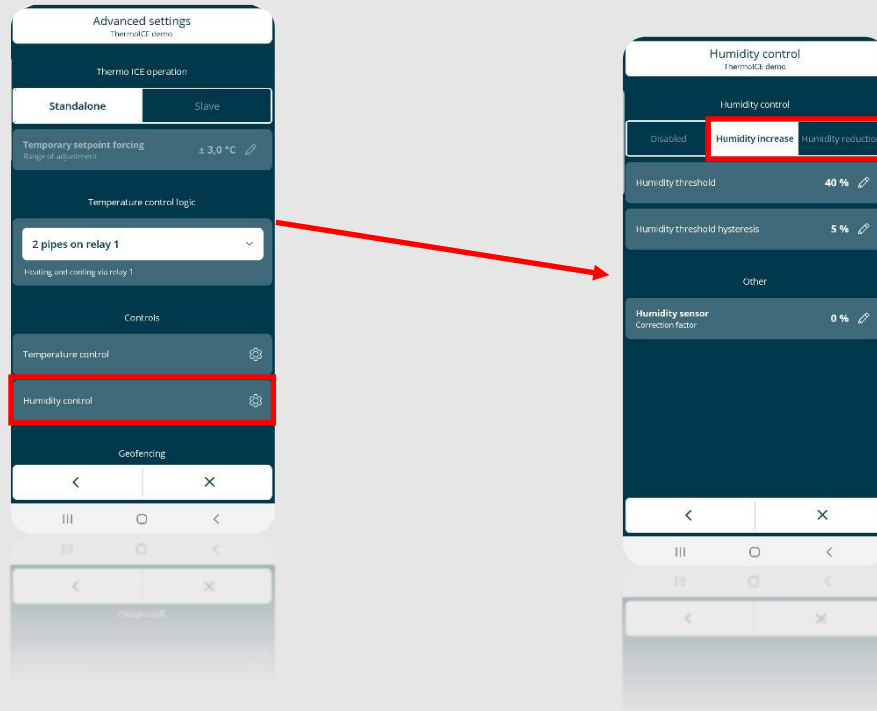
- Open the app on your mobile device
- Click on 
- The “**Settings**” page will open. Scroll down the page until you find the item “**Advanced settings**”. Select this item



- The “**Advanced settings**” page will open
- Under the item “**Controls**”, select “**Humidity control**”

- The “**Humidity control**” page will open. Under the item “**Humidity control**” there are three items:
 - Off
 - Humidity increase
 - Humidity reduction

Select one of the last two items to gain access to the advanced humidity parameters



This advanced parameter can only be accessed if the thermostat is set as Stand-Alone and the advanced parameters have been enabled via the app

Advanced parameter P11 offers three different values, as shown below:



SUMMARY OF VALUES FOR PARAMETER P11	
0	Disabled
1	Humidification
2	Dehumidification

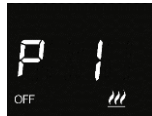
The selection of value 1 or 2 enables local access to the basic parameters “**Humidity threshold**” and “**Humidity threshold hysteresis**”. Humidity control is via a 2-point algorithm. These parameters are used to regulate the humidity threshold (interval permitted: [20%; 80%]) and the algorithm hysteresis (interval permitted: [5%; 20%]).


If it is necessary to correct the value measured by the sensor, use advanced parameter P10. This parameter allows you to make corrections within an interval ranging from a maximum reduction of 10 percentage points to a maximum increase of 10 percentage points of the value measured by the sensor [-10%; +10%]. Parameter P10 can be regulated either locally or via the app.

13.1 How to regulate the advanced humidity parameters locally

This advanced parameter can only be accessed if the thermostat is set as Stand-Alone and the advanced parameters have been enabled via the app




- Activate the backlighting of the thermostat
- Use the Next button key  to select the page showing the relative humidity
- Press and hold the Set button key  until the code P1 appears on the screen




- Using the circular slider or the Next button key , scroll through the various advanced parameters until you find the required one

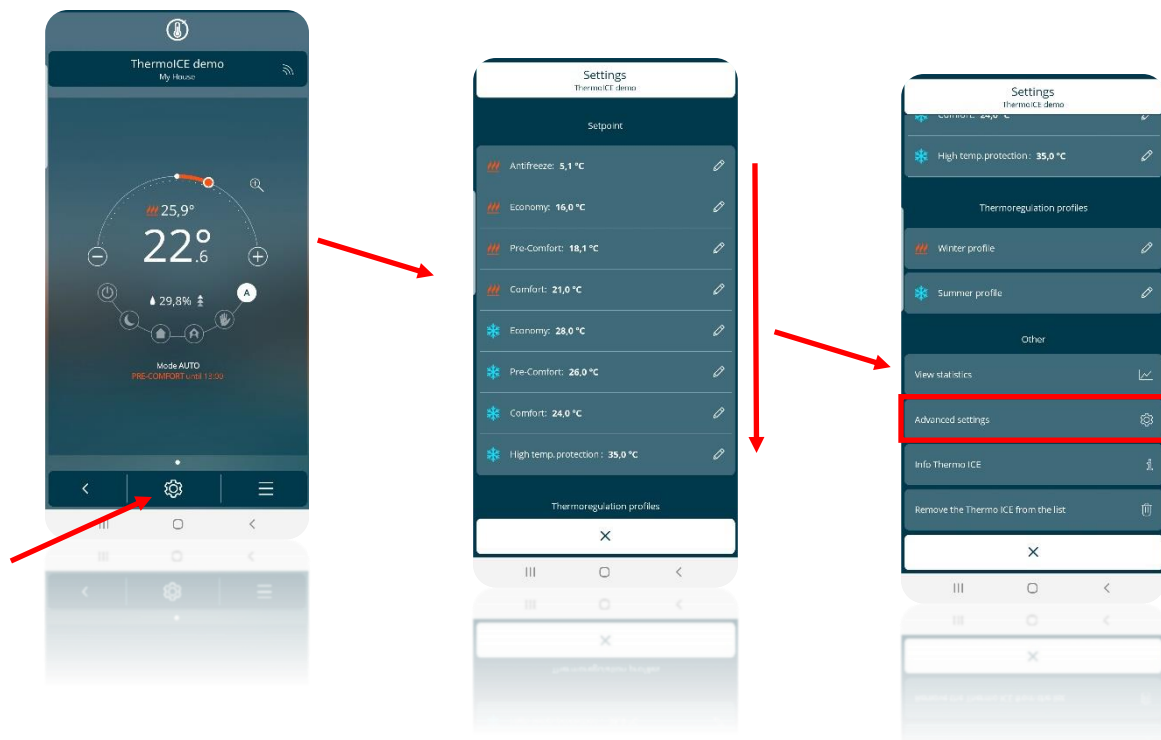
13.1.1 LOCAL REGULATION OF THE “CORRECTION FACTOR FOR THE INTERNAL HUMIDITY SENSOR” (P10)

This advanced parameter can only be accessed if the thermostat is set as Stand-Alone and the advanced parameters have been enabled via the app

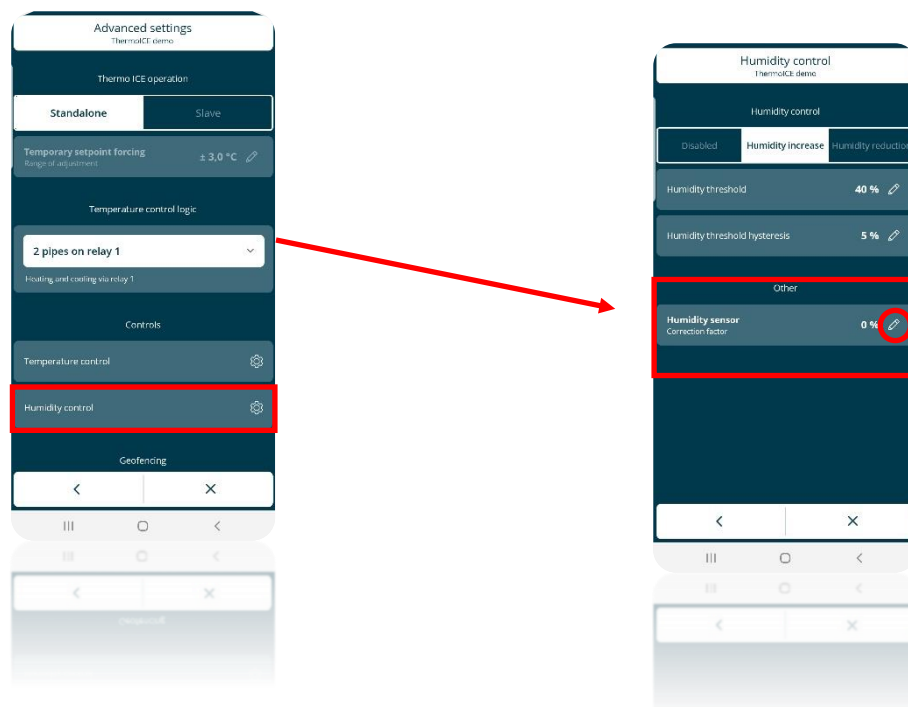
- Select advanced parameter P10 using the Mode button key 
- The screen will show a numerical value followed by the % symbol. The user can choose the correction value within an interval ranging from -10 to +10.
- After defining the correction factor to be applied to the sensor, use the Mode button key  to confirm your choice
- Click on Set  to quit the advanced humidity parameters area

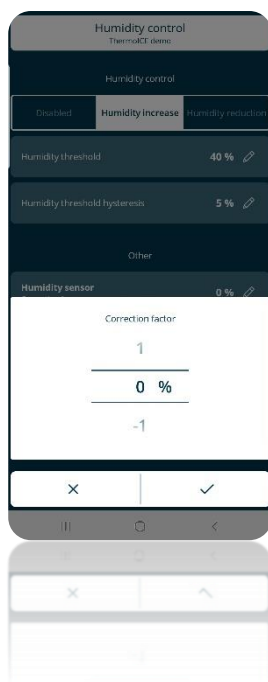
13.2 Regulating the “Correction factor for the internal humidity sensor” via the app

- Open the app on your mobile device
- Click on 
- The “**Settings**” page will open. Scroll down the page until you find the item “**Advanced settings**”. Select this item





- The “**Advanced settings**” page will open
- Under the item “**Controls**”, select “**Humidity control**”
- Under the item “**Other**”, you will find “**Humidity sensor – Correction factor**”. Select this item to see a drop-down menu showing the possible correction values. The interval ranges from -10% to +10%

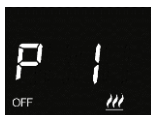




13.3 Local activation/deactivation of humidification/dehumidification


This advanced parameter can only be accessed if the thermostat is set as Stand-Alone and the advanced parameters have been enabled via the app

- Activate the backlighting of the thermostat
- Use the Next button key  to select the page showing the relative humidity
- Press and hold the Set button key  until the code P1 appears on the screen





- Use the circular slider or the Next button key  to find advanced parameter P11



- Select parameter P11 using the Mode button key 
- Parameter P11 offers three possible values. Each of these corresponds to a different function, as you can see below:

SUMMARY OF VALUES FOR PARAMETER P11	
0	Disabled
1	Humidification
2	Dehumidification




- Select value 1 or value 2 to make the basic parameters “**Humidity threshold**” and “**Humidity threshold hysteresis**” accessible
- Select the required value, then confirm your choice with Mode 
- Click on Set  to quit the advanced parameters area

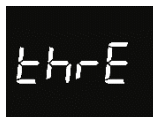
13.4 Activating/deactivating humidification/dehumidification via the app





See “**Setting humidity control via the app**”.

13.5 Local regulation of the humidity threshold

If advanced parameter P11 has been set with a value of 1 or 2, the user can access the basic parameters “**Humidity threshold**” and “**Humidity threshold hysteresis**”.


- Activate the backlighting of the thermostat
- Use the Next button key  to select the page showing the relative humidity
- Select Set . The button key will turn green  and the message “thrE” will appear on the screen

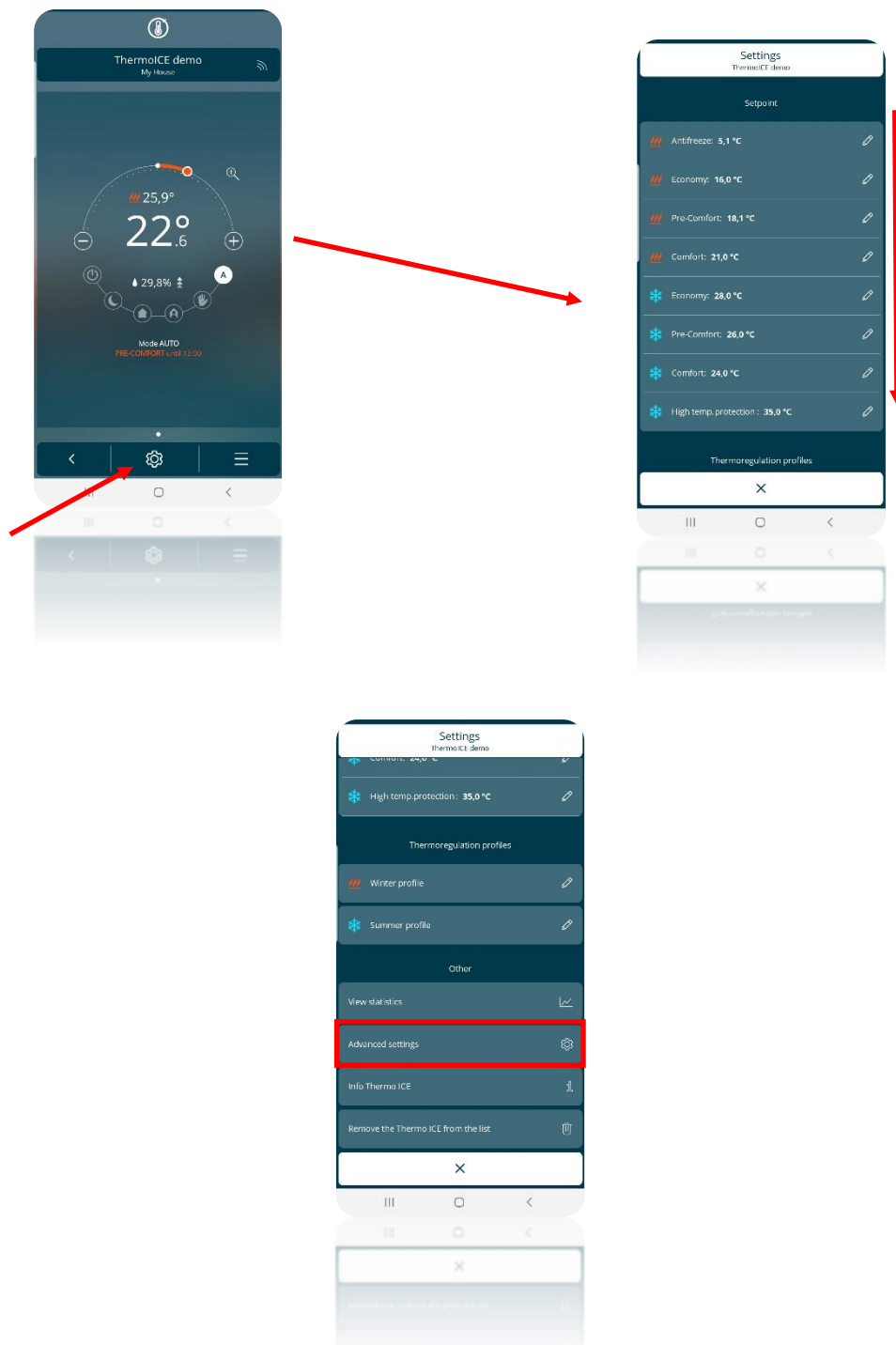


- Use the Mode button key  to access the parameter in question
- You will see a number indicating the level of humidity set in this moment
- Use the circular slider or the Next button key  to modify the humidity threshold set (interval permitted: from 20% to 80%)
- Confirm with the Mode  button key
- Click on Set  to quit the basic humidity parameters area

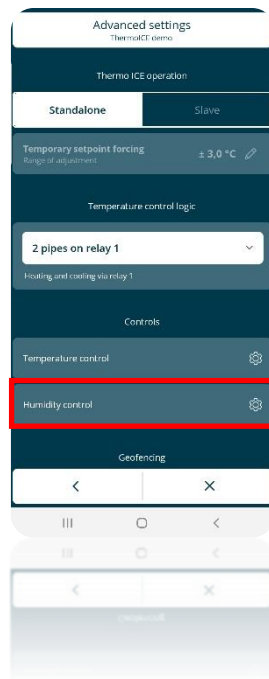
13.6 Regulating the humidity threshold via the app


If advanced parameter P11 has been set with a value of 1 or 2, the user can access the basic parameters “**Humidity threshold**” and “**Humidity threshold hysteresis**”.

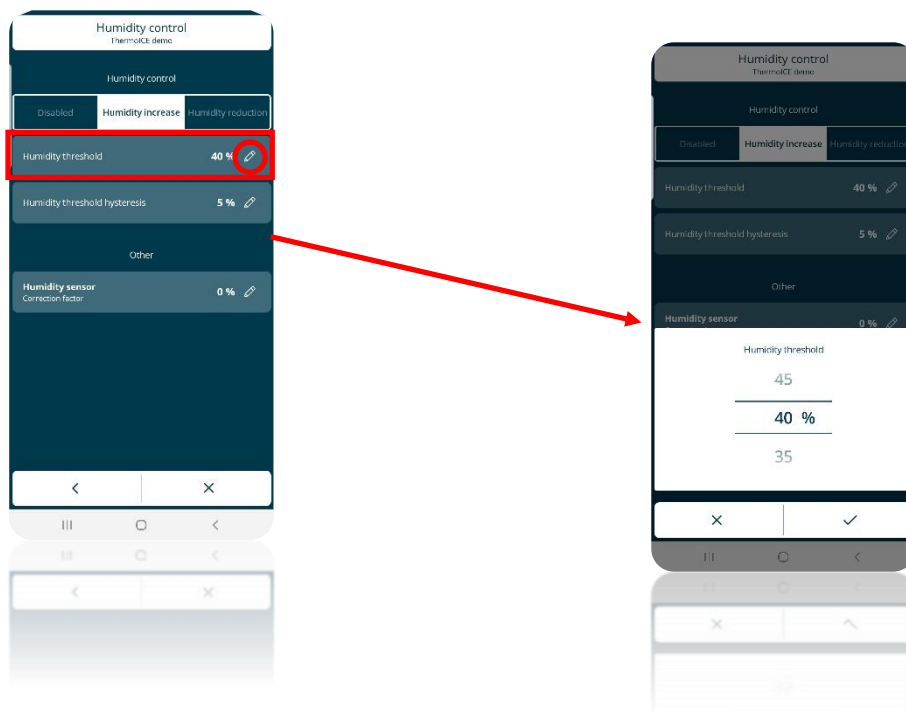
- Open the app on your mobile device
- Click on 
- The “**Settings**” page will open. Scroll down the page until you find the item “**Advanced settings**”. Select this item



- The “**Advanced settings**” page will open
- Under the item “**Controls**”, select “**Humidity control**”
- The “**Humidity control**” page will open. Under the item “**Humidity control**” you will find the option “**Humidity threshold**”, with the currently set value on the right






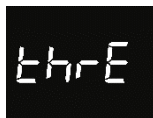
- Select the pencil  on the right-hand side of the option to open a drop-down menu where you can regulate the humidity threshold. You can enter a value within an interval from 20% to 80%. The scale is in 5% steps (i.e. not continuous)




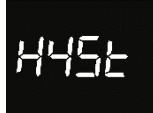
13.7 Local regulation of the humidity threshold hysteresis




If advanced parameter P11 has been set with a value of 1 or 2, the user can access the basic parameters **“Humidity threshold”** and **“Humidity threshold hysteresis”**.

- Activate the backlighting of the thermostat
- Use the Next button key  to select the page showing the relative humidity
- Select Set . The button key will turn green  and the message “thrE” will appear on the screen




- Use the Next button key  to move on to the next page. The message “HYSt” will appear on the screen

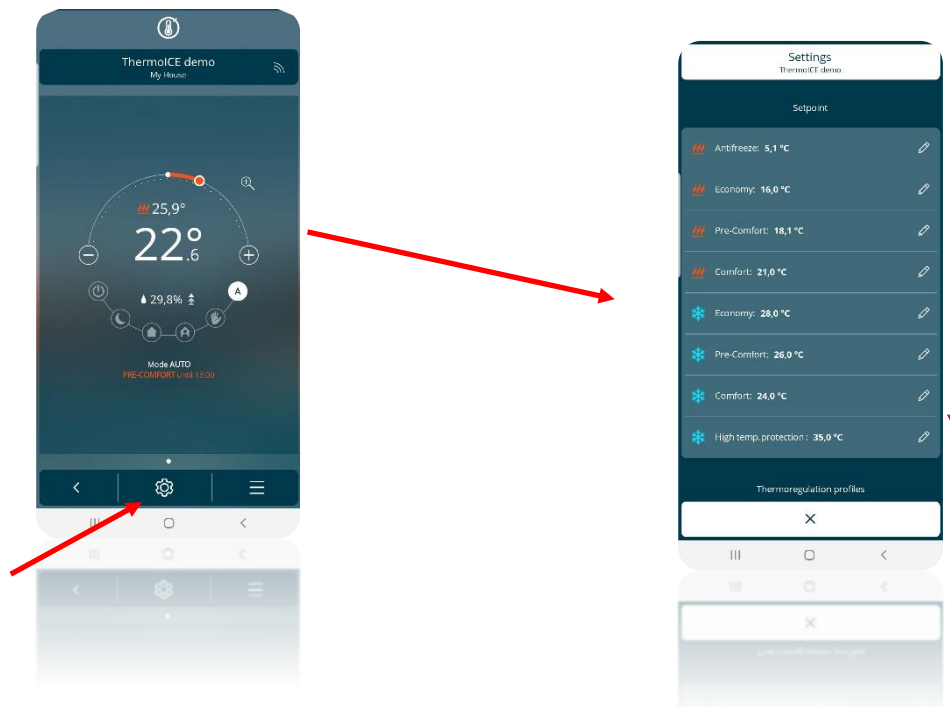


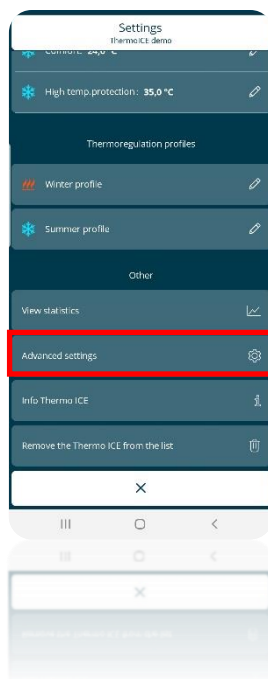
- Use the Mode button key  to access the parameter in question
- The currently active hysteresis value will appear on the screen
- You can set the required hysteresis value here, within a range from 5 to 20.
- After selecting the required value, confirm your choice with Mode 
- Click on Set  to quit the basic humidity parameters area


13.8 Regulating the humidity hysteresis via the app

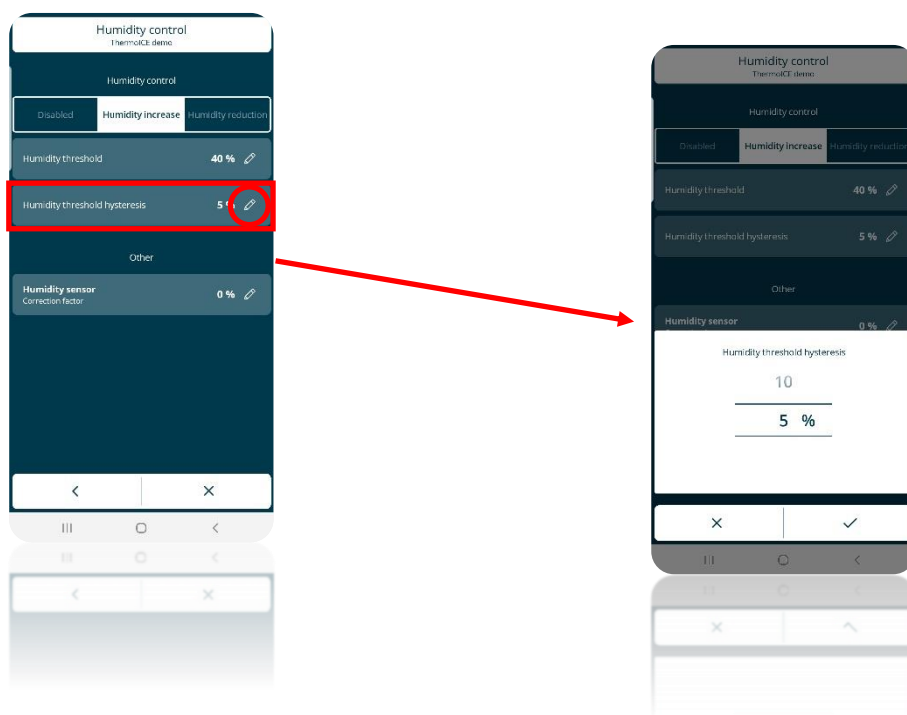
If advanced parameter P11 has been set with a value of 1 or 2, the user can access the basic parameters “Humidity threshold” and “Humidity threshold hysteresis”.

- Open the app on your mobile device
- Click on 
- The “**Settings**” page will open. Scroll down the page until you find the item “**Advanced settings**”. Select this item





- The “**Advanced settings**” page will open
- Under the item “**Controls**”, select “**Humidity control**”
- The “**Humidity control**” page will open. Under the item “**Humidity control**” you will find the option “**Humidity threshold hysteresis**”
- On the right-hand side of this item, you can see the hysteresis value currently active. Next to it, there is a pencil . Click on the pencil to see a drop-down menu where you can set the required hysteresis value. The value can be selected within an interval from 5% to 20%



AUXILIARY TEMPERATURE SENSOR

14 External temperature sensor

The device is fitted with an input contact for connecting an NTC external temperature sensor. Parameter **P18: Enabling of auxiliary input for temperature sensor** is used to configure the input of the auxiliary sensor so that a wired NTC temperature sensor (GW10800) or a flush-mounting one (GW1x900) can be connected to measure the room temperature or the floor-level temperature.

By enabling the "external temperature sensor" function, the measured temperature will be determined not only by the device probe but also by the weighted average between the value measured by the device sensor and the value measured by the NTC auxiliary external sensor. Local parameter **P19: "Auxiliary sensor incidence in measured temp. calculation (%)"** is used to determine the incidence of the value measured by the auxiliary external sensor when calculating the measured temperature, which ranges from a minimum of 10% to a maximum of 100% (external sensor measured value = measured temperature). The complete formula for the temperature calculation is:

$$T_{\text{measured}} = T_{\text{auxiliary external sensor}} \times \text{Incidence}_{\text{auxiliary external sensor}} + T_{\text{device sensor}} \times (100\% - \text{Incidence}_{\text{auxiliary external sensor}})$$

If the external temperature sensor is not working properly, its contribution is excluded from the calculation of the measured temperature (which then depends exclusively on the value measured by the device sensor).

When the auxiliary sensor input for the floor-level temperature probe is enabled, local parameter **P20: Floor temperature alarm threshold** is used to define the limit floor-level temperature above which the device stops heating because the temperature of the conduits is too high and could cause damage (temperature alarm). The floor temperature value is measured using the NTC sensor connected to the device on the contacts of the auxiliary input.

The floor temperature alarm hysteresis threshold that, subtracted from the temperature alarm threshold determines the value under which the heating system is turned on again, is fixed and equal to 2 °C.



If the floor temperature sensor is not working properly, the temperature alarm is activated immediately (it stops when the floor sensor resumes its normal operation). In the event of a floor temperature alarm, the "Heating" icon flashes.

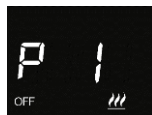
14.1 Local enabling of the auxiliary input (P18)

Used to configure the temperature sensor function of the auxiliary input on the device.

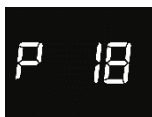
This advanced parameter can only be accessed if the thermostat is set as Stand-Alone and the advanced parameters have been enabled via the app


Proceed as follows:

- Activate the backlighting of the thermostat
- Use the Next button key  to select the page showing the temperature
- Press and hold the Set button key  until the code P1 appears on the screen





- Use the circular slider or the Next button key  to find advanced parameter P18




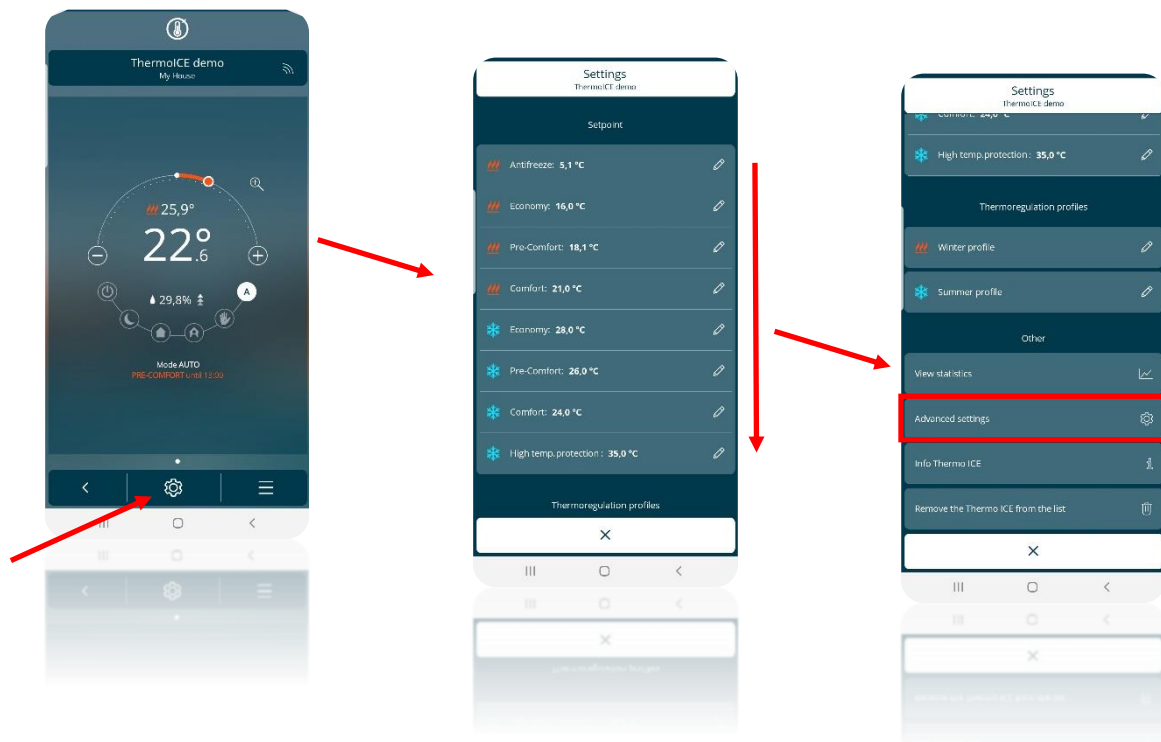
- Select the parameter using the Mode button key 
- Advanced parameter P18 allows you to select from four different numerical values corresponding to four different situations:

SUMMARY OF VALUES FOR PARAMETER P18	
0	Disabled
1	Enabled for GW1x900
2	Enabled for GW10800
3	Enabled for GW10800 (floor)

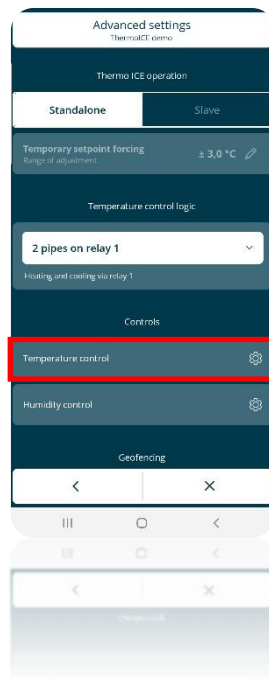
- Select the value corresponding to the external sensor you want to install
- Confirm with the Mode  button key
- Click on Set  to quit the advanced parameters area

14.2 Enabling the auxiliary input via the app

- Open the app on your mobile device
- Click on . The “**Settings**” page will open. Scroll down the page until you find the item “**Advanced settings**”
- Click on “**Advanced settings**”. The “**Advanced settings**” page will open

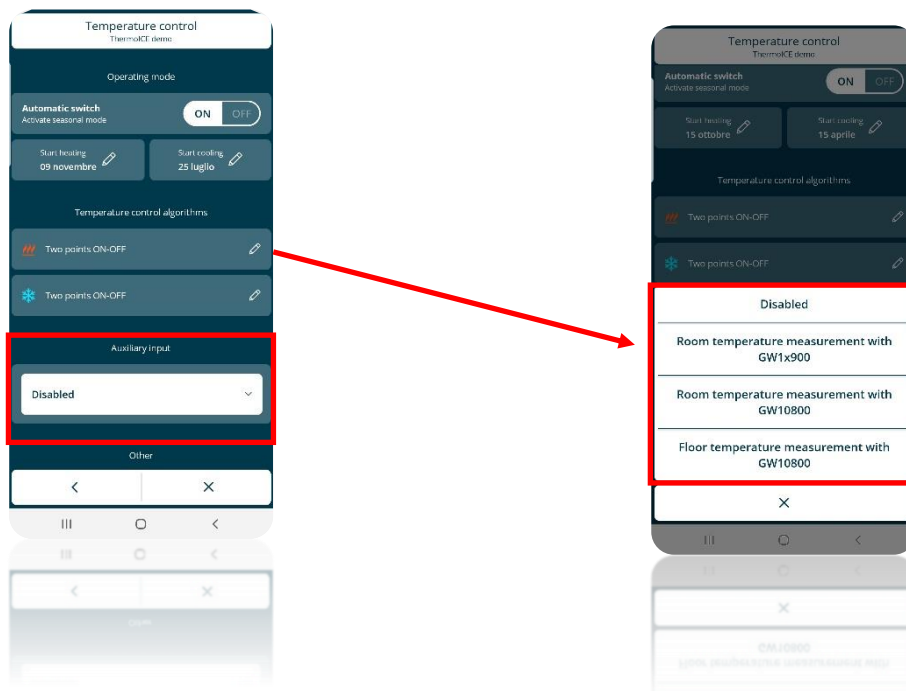


- Scroll down the “**Advanced settings**” page until you find the item “**Temperature control**”



- Click on **“Temperature control”** to open the relative page
- Under the item **“Auxiliary input”** you will find a window showing the current setting for the auxiliary input. Click on it to open a drop-down menu showing the four possible configurations:

AUXILIARY INPUT
Disabled
Room temperature measurement with GW1x900
Room temperature measurement with GW10800
Floor temperature measurement with GW10800





- Select the item corresponding to the type of external sensor you want to install
- Save the changes made

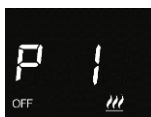
14.3 Local regulation of the incidence of the auxiliary sensor (P19)

This advanced parameter can only be accessed if the thermostat is set as Stand-Alone and the advanced parameters have been enabled via the app. In addition, advanced parameter P18 must be set on **"Room temperature GW1x900"** or **"Room temperature GW10800"** – see ch. 14.1 and 14.2

Used to modify the incidence of the auxiliary temperature sensor in the weighted average made to determine the overall temperature value measured by the device.





Proceed as follows:

- Activate the backlighting of the thermostat
- Use the Next button key  to select the page showing the temperature
- Press and hold the Set button key  until the code P1 appears on the screen



- Use the circular slider or the Next button key  to find advanced parameter P19




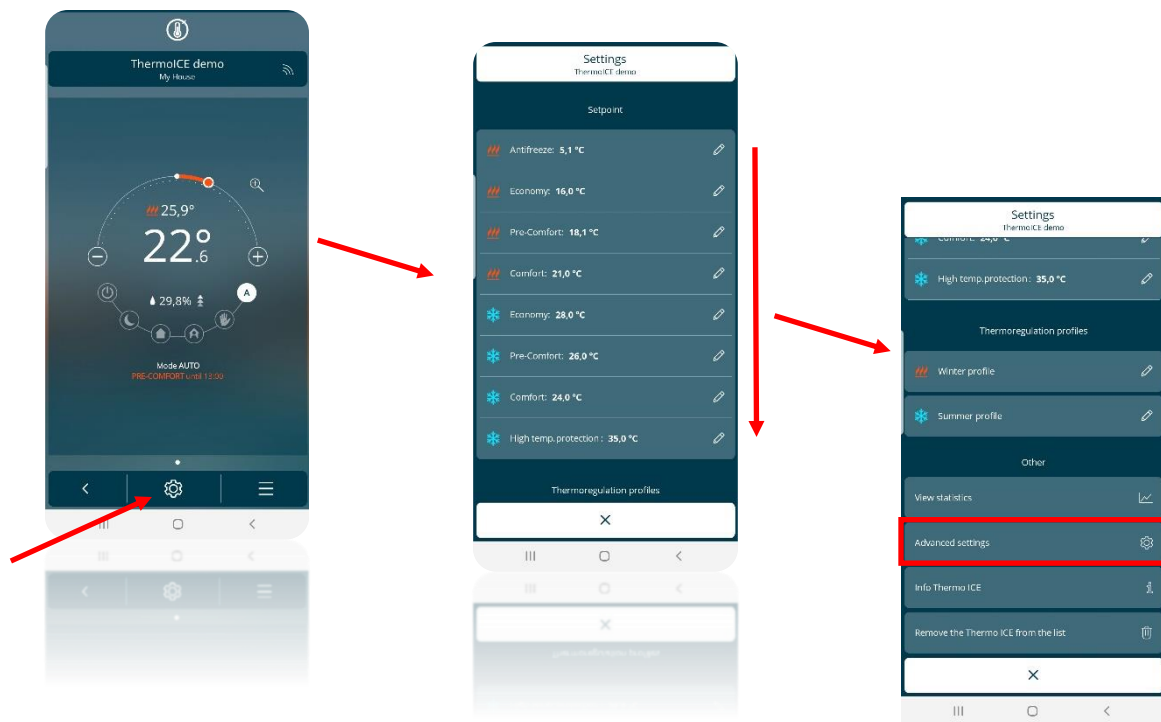
- Select the parameter using the Mode button key 
- The screen will show a numerical value indicating the incidence of the auxiliary temperature sensor in the weighted average made to determine the overall temperature value
- Use the circular slider or the Next button key  to alter this value. The value can be selected within an interval from 10% to 100%
- Use Mode  to confirm your choice
- Click on Set  to quit the advanced parameters area

14.4 Regulating the incidence of the auxiliary sensor via the app

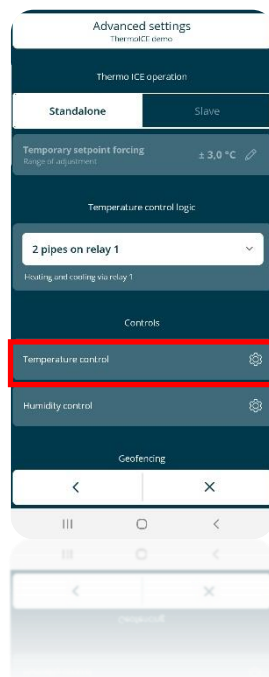
To do this, you must be an Administrator.

Used to modify the incidence of the auxiliary temperature sensor in the weighted average made to determine the overall temperature value measured by the device.

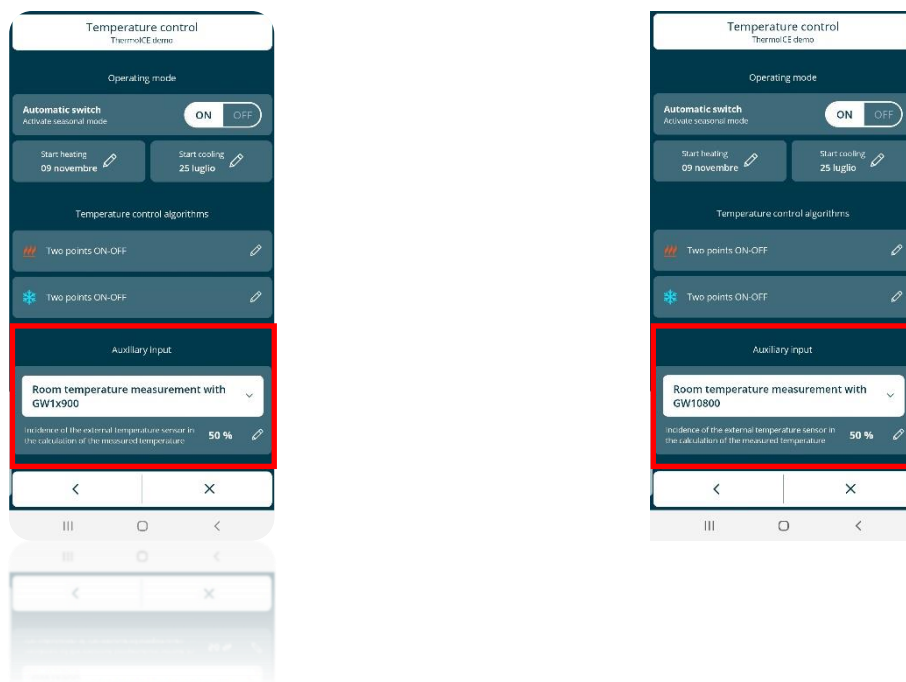
- Open the app on your mobile device
- Click on . The **"Settings"** page will open. Scroll down the page until you find the item **"Advanced settings"**
- Click on **"Advanced settings"**. The **"Advanced settings"** page will open




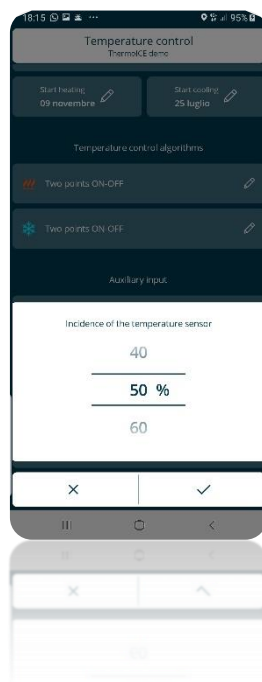
- Scroll down the **“Advanced settings”** page until you find the item **“Temperature control”**



- Click on **“Temperature control”** to open the relative page
- Under the item **“Auxiliary input”**, if the **Room temperature GW1x900** or **Room temperature GW10800** option is selected, beneath the relative window you will find the item: **“Incidence of the external temperature sensor in the measured temperature calculation”**, with the corresponding value shown on the right



- Click on the pencil  to see a drop-down menu where you can regulate the incidence of the auxiliary temperature sensor in the weighted average made to determine the overall temperature value. The value can be selected within an interval from 10% to 100%





- When you quit the settings area, you will be asked whether you want to save the changes made. Click on “Yes” to confirm the new value set

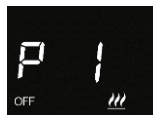
14.5 Local regulation of the floor temperature alarm threshold (P20)

This advanced parameter can only be accessed if the thermostat is set as Stand-Alone and the advanced parameters have been enabled via the app. In addition, advanced parameter P18 must be set on “**Measure floor temperature with GW10800**” – see ch. 14.1 and 14.2

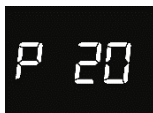
Used to modify (using the CIRCULAR slider) the max. temperature value beyond which the floor temperature alarm is triggered.





Proceed as follows:

- Activate the backlighting of the thermostat
- Use the Next button key  to select the page showing the temperature
- Press and hold the Set button key  until the code P1 appears on the screen



- Use the circular slider or the Next button key  to find advanced parameter P20




- It will only be visible if parameter P19 is set with a value of 3 or - via the app - with the item **“Measure floor temperature with GW10800”** (see ch. 142.1 and 14.2)
- Use the Mode  button key to access parameter P20
- The screen will show a numerical value indicating the floor temperature alarm threshold active in that moment
- Use the circular slider or the Next  button key to modify this alarm threshold within an interval ranging from 15°C to 100°C.
- Confirm with the Mode  button key
- Click on Set  to quit the advanced parameters area

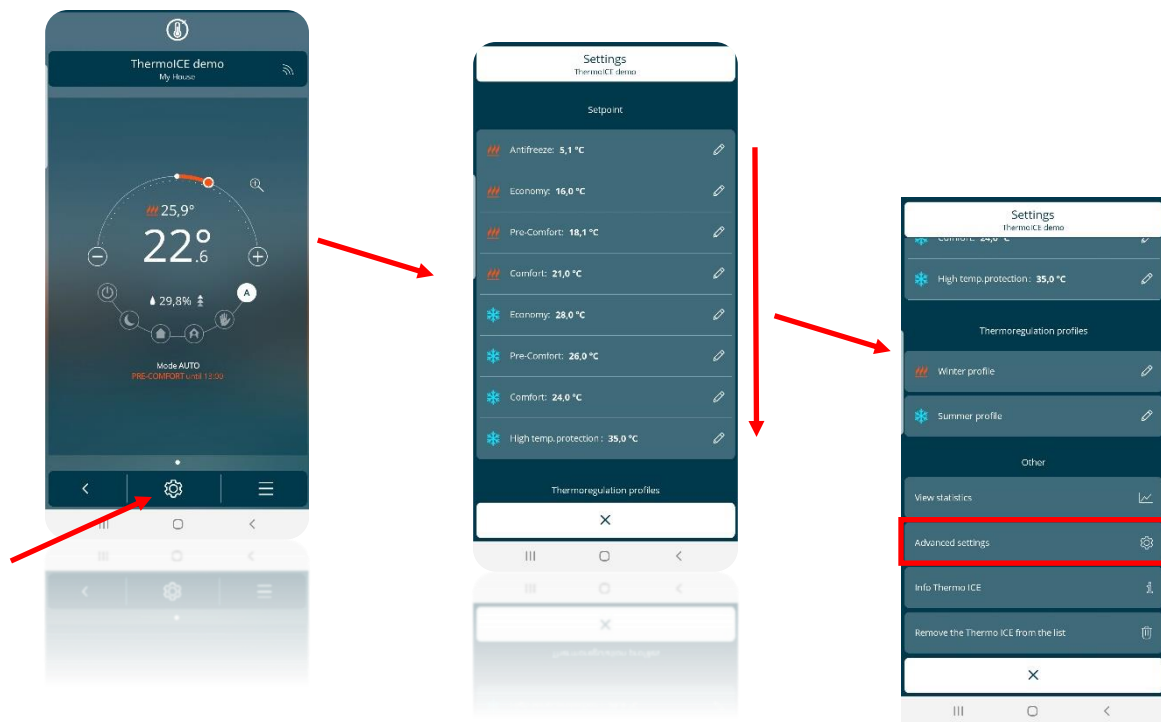
14.6 Regulating the floor temperature alarm threshold via the app

To do this, you must be an Administrator.

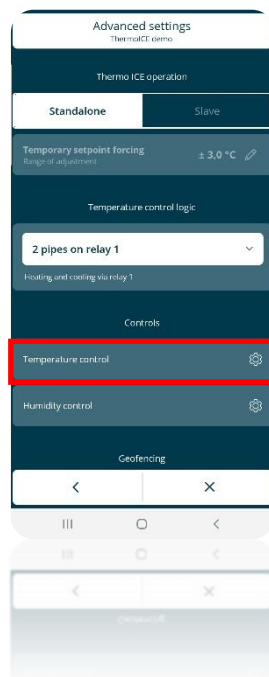
Used to modify (using the CIRCULAR slider) the max. temperature value beyond which the floor temperature alarm is triggered.

Proceed as follows:

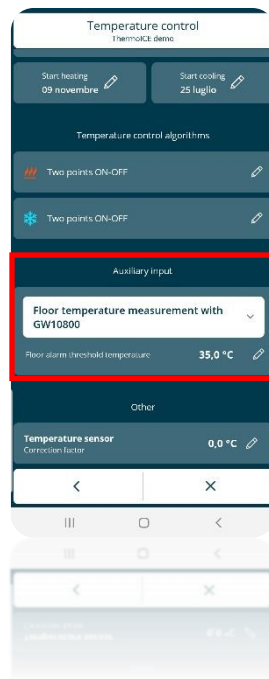
- Open the app on your mobile device
- Click on . The **“Settings”** page will open. Scroll down the page until you find the item **“Advanced settings”**
- Click on **“Advanced settings”**. The **“Advanced settings”** page will open




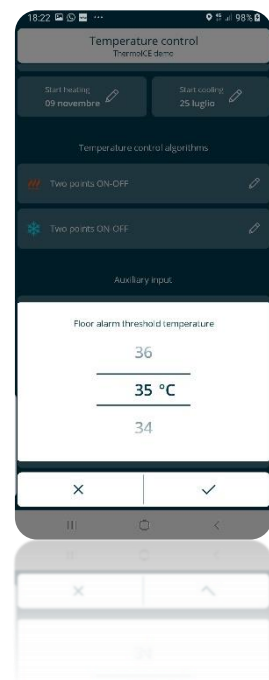
- Scroll down the **“Advanced settings”** page until you find the item **“Temperature control”**



- Click on **“Temperature control”** to open the relative page
- Under the item **“Auxiliary input”**, if the **“Floor temperature measurement with GW10800”** option is selected, underneath you will find the item: **“Floor alarm threshold temperature”**, with the corresponding value shown on the right



- Click on the pencil  to see a drop-down menu where you can regulate the floor temperature alarm threshold. The value can be selected within an interval from 15°C to 100°C










- When you quit the settings area, you will be asked whether you want to save the changes made. Click on “Yes” to confirm the new value set

DISPLAY REGULATION:

- Lighting intensity
- Proximity sensor activation/deactivation
- Standby activation/deactivation
- Audio activation/deactivation
- Time regulation
- Day regulation

15 Backlighting, proximity sensor, standby

The thermostat screen is backlit, and the colour of the commands and circular slider can change according to the type of operation (Heating/Cooling), type of control (Stand-Alone/Slave) and type of function (single or long touch on the command).


COLOURS OF THE COMMAND BUTTON KEYS		
SET		Single touch
		Long touch – Activation of advanced parameters
		Advanced parameters disabled
MODE		Single touch
		Command not authorised
CIRCULAR SLIDER		Heating
		Cooling

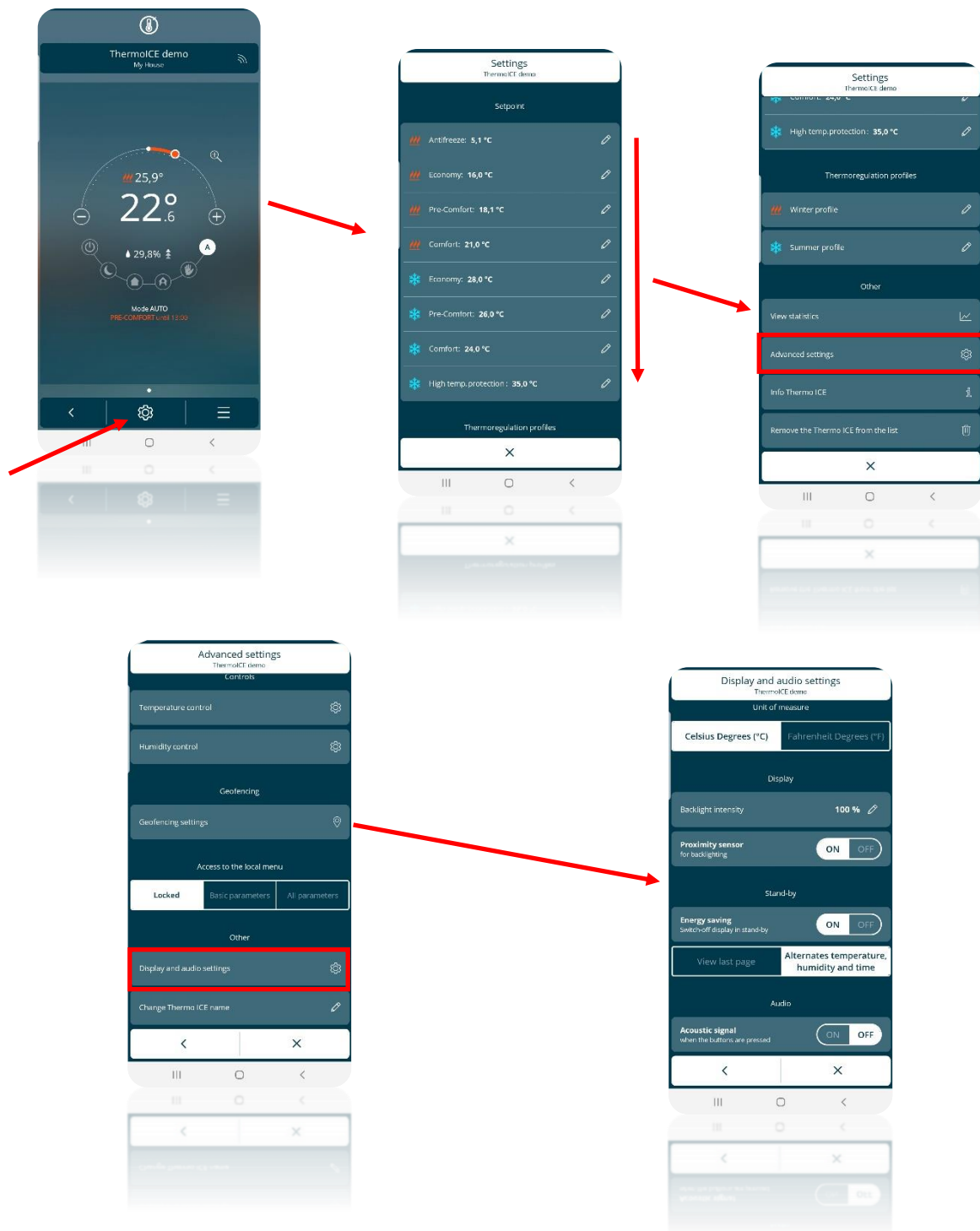
The screen is programmed to go into standby when it's not used for 30 seconds. In standby mode, the screen shows the temperature, the humidity percentage and the time (alternated). The screen has a proximity sensor which means it can be reactivated when you bring your hand close to it.

All these elements can be activated or deactivated, and regulated if necessary, by the user via the app or locally.

15.1 Setting the thermostat display via the app

To activate/deactivate standby mode, activate/deactivate the proximity sensor, regulate the lighting intensity of the screen, or activate/deactivate the audio signal, proceed as follows:

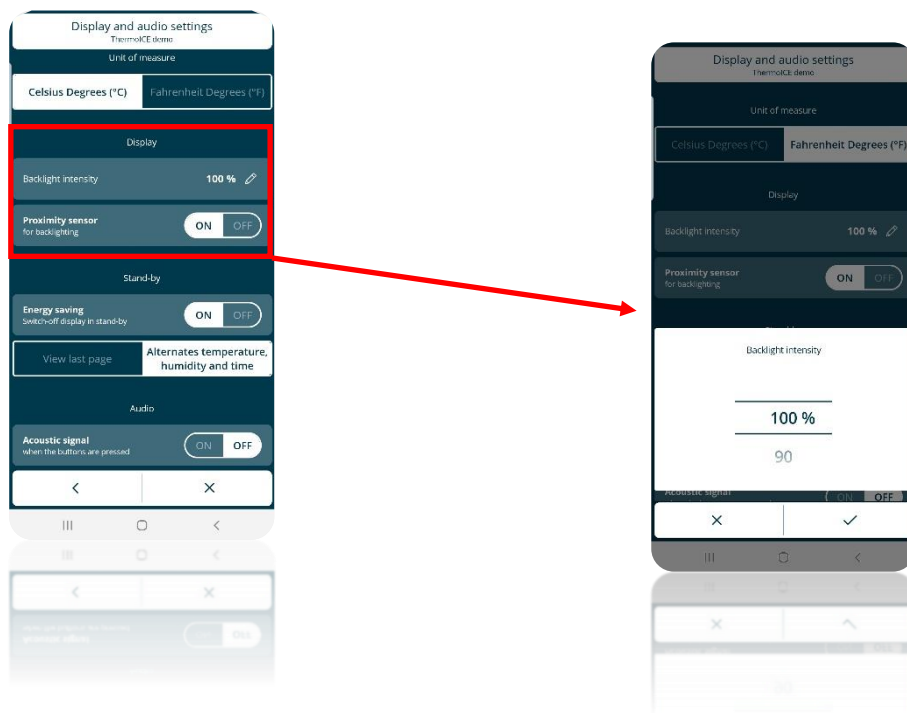
- Open the app on your mobile device
- Press on the  command
- The “**Settings**” page will open. Scroll down the page until you find the item “**Advanced settings**”. Press on it
- The “**Advanced settings**” page will open. Scroll down the page until you find the item “**Display and audio settings**”
- Open this page, which contains all the regulations regarding the display



- Apart from the item “**Measurement unit**”, there is also:
 - Display
 - Standby
 - Audio

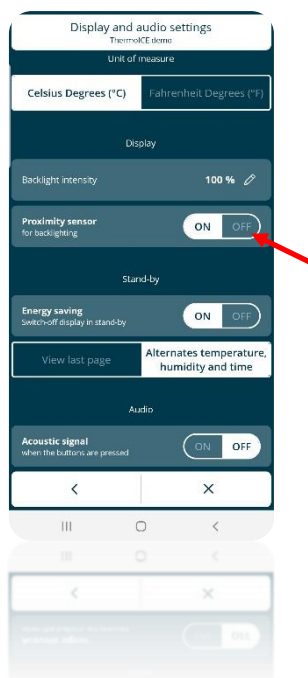
15.2 Regulating the lighting intensity of the screen

- Under the item “**Display**”, you will find “**backlighting intensity %**”
- Press on this item to open a drop-down menu where you can regulate the intensity of the backlighting (interval permitted: 30 – 100%)



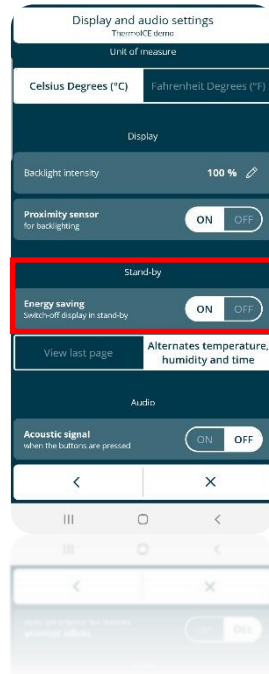
15.2.1 PROXIMITY SENSOR ACTIVATION/DEACTIVATION

- On the “**Display and audio settings**” page, underneath the “**Display**” item, there is a command for activating and deactivating the proximity sensor of the screen
- Press “ON” to activate it, or “OFF” to deactivate it



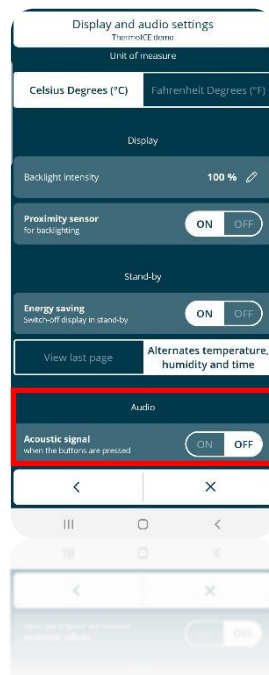
15.2.2 STANDBY ACTIVATION/DEACTIVATION

- On the “**Display and audio settings**” page, underneath the “**Standby**” item, there is a command for activating and deactivating standby mode
- The item “**Energy saving. Switch-off display in standby**” allows you to switch the screen off completely when it's not being used.
- Press “ON” to keep the screen switched off and therefore activate the energy saving function



15.2.3 AUDIO ACTIVATION/DEACTIVATION

- On the “**Display and audio settings**” page, underneath the “**Audio**” item, there is a command for activating and deactivating the audio signal associated with pressing of the commands on the thermostat screen
- Press “ON” to activate the audio signal, or “OFF” to deactivate it



15.3 Setting the thermostat display locally

You can regulate the lighting intensity, and activate/deactivate the proximity sensor, standby and audio signal locally if the thermostat status is Stand-Alone and access to the advanced parameters has been enabled via the app by the Administrator.

15.3.1 REGULATING THE LIGHTING INTENSITY OF THE SCREEN

- Activate the backlighting of the thermostat
- Use the Next button key to select the thermostat page showing the temperature ➡
- Press and hold the Set button key ⚙ until the code P1 appears on the screen



- Using the circular slider or the Next button key ➡, scroll through the advanced parameters until you find parameter P13



- Select parameter P13 using the Mode button key ◻
- This parameter is used to regulate the lighting intensity of the screen. The permitted interval ranges from 30% to 100%. The scale is in even steps (i.e. not continuous): each step allows you to increase or reduce the intensity by 10%
- After defining the required lighting intensity level, click on Mode ◻ again to confirm your choice
- Click on Set ⚙ to quit the advanced parameters area

15.3.2 PROXIMITY SENSOR ACTIVATION/DEACTIVATION

- Activate the backlighting of the thermostat
- Select the thermostat page showing the temperature
- Press and hold the Set button key ⚙ until the code P1 appears on the screen



- Using the circular slider or the Next button key ➡, scroll through the advanced parameters until you find parameter P17




- Select the parameter using the Mode button key ◻
- There are two possible values, 0 and 1

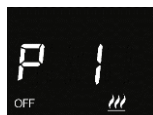
SUMMARY OF VALUES FOR PARAMETER P17	
0	Deactivated
1	Activated


- Select 0 to deactivate the proximity sensor, or 1 to activate it
- Use Mode ◻ to confirm your choice
- Click on Set ⚙ to quit the advanced parameters area

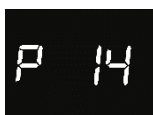
15.3.3 STANDBY ACTIVATION/DEACTIVATION


15.3.3.1 VIA THE ADVANCED PARAMETER

- Activate the backlighting of the thermostat
- Select the thermostat page showing the temperature
- Press and hold the Set button key  until the code P1 appears on the screen





- Using the circular slider or the Next button key , scroll through the advanced parameters until you find parameter P14



- Select the parameter using the Mode button key 
- There are two possible values, 0 and 1

SUMMARY OF VALUES FOR PARAMETER P14	
0	Deactivated
1	Activated

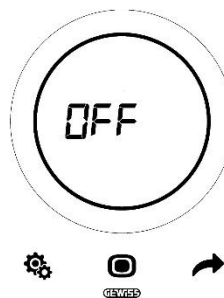
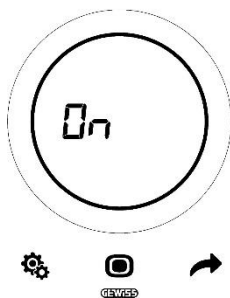
- Select 0 to deactivate standby mode, or 1 to activate it
- Use Mode  to confirm your choice
- Click on Set  to quit the advanced parameters area

15.3.3.2 VIA THE CIRCULAR SLIDER


- Press a point on the left-hand side of the circular slider and hold it for 3 seconds

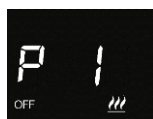



- The word "ON" or "OFF" will appear on the screen, depending on whether standby was already enabled or not

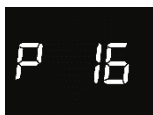



15.3.4 AUDIO ACTIVATION/DEACTIVATION

- Activate the backlighting of the thermostat
- Select the thermostat page showing the temperature
- Press and hold the Set button key  until the code P1 appears on the screen





- Using the circular slider or the Next button key , scroll through the advanced parameters until you find parameter P16



- Select the parameter using the Mode button key 
- There are two possible values, 0 and 1

SUMMARY OF VALUES FOR PARAMETER P14	
0	Deactivated
1	Activated




- Use Mode  to confirm your choice
- Click on Set  to quit the advanced parameters area

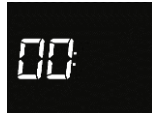
15.4 Regulating the time shown on the thermostat






If standby mode is active, the thermostat screen will alternately show the measured temperature, humidity percentage and current time.

The date and time are regularly updated thanks to the connection with the server.




If you need to alter these data however, you can do it locally (as long as access to the basic or advanced parameters has been enabled via the app).

- Activate the backlighting of the thermostat
- Use the Next button key  to scroll through the three thermostat pages until you reach the one showing the current time
- Press Set . The button key will turn green  and the time value will begin flashing



- Press Mode  to begin changing the hour
- Use the circular slider or the Next button key  to change the hour shown on the thermostat
- After setting the required value, press Mode  again to confirm your choice
- Use the Next button key  to move on to the minutes
- Press Mode  to begin changing the minutes
- The minute value will begin flashing







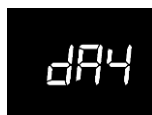
- Use the circular slider or the Next button key  to change the minutes shown on the thermostat
- After setting the required value, press Mode  again to confirm your choice
- Use Set  to quit the menu


15.5 Regulating the day of the week

Just like for the time, also the day is automatically updated by the thermostat when it connects to the server.

If you need to alter this data item however, you can do it locally (as long as access to the basic or advanced parameters has been enabled via the app).




- Activate the backlighting of the thermostat
- Use the Next button key  to scroll through the three thermostat pages until you reach the one showing the current time
- Press Set . The button key will turn green  and the time value will begin flashing
- Use the Next button key  to move from the hours to the minutes and then the day, without entering the relative regulation menus. When you have reached the “Day” page, this word will appear on the screen



- Press Mode  to access the menu where you can change the day of the week

- There are seven possible values, each representing a day of the week:

SUMMARY OF THE VALUES REPRESENTING THE DAYS OF THE WEEK	
0	Sunday
1	Monday
2	Tuesday
3	Wednesday
4	Thursday
5	Friday
6	Saturday

- Use the circular slider or the Next button key  to select the value corresponding to the current day
- Confirm with the Mode  button key
- Use Set  to quit the menu

USAGE STATISTICS

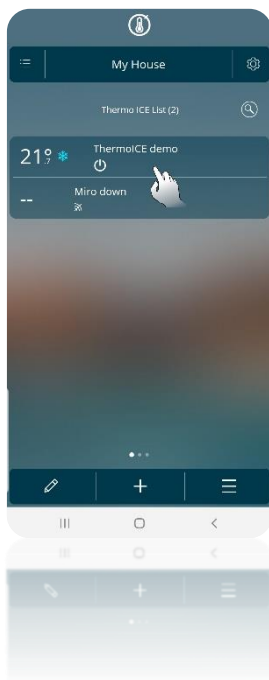
16 Usage statistics


The Thermo Ice WiFi app allows you to graphically view the temperature and humidity levels and the percentage of system activation in heating/cooling over time, as registered on the cloud.

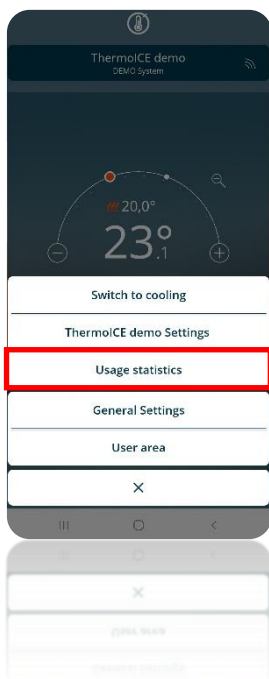
This function offers you immediate visual feedback about the behaviour of the thermostat.

To view the usage statistics, carry out the following steps:

1. Open the Thermo Ice WiFi app
2. Select the thermostat that you want to see the data for



3. The homepage of the selected thermostat will open
4. Click on the  icon
5. A drop-down menu will appear. Click on the third item: **“Usage statistics”**



6. You will see a page showing the following chart. There are three variables:
- Temperature
 - Humidity
 - Switch-on operations



The temperature curve shows the various temperature values measured by the thermostat sensor in the period in question.

The humidity curve shows the various humidity levels registered by the thermostat sensor in the period in question.

The switch-on operations curve shows the percentages of valve opening time in the period in question.

The y-axis to the left of the chart shows the extreme values and the average value of the temperature levels registered.

The central y-axis shows the extreme values and the average value of the humidity levels measured.

The y-axis to the right of the chart shows the percentage of valve opening time, which may vary from 0% to 100%.

The values on each of these axes use the same colour as the curve that they refer to.

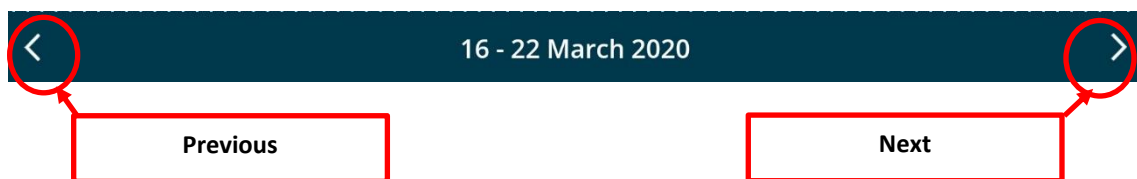


Below the x-axis, you can select the type of time period you want to see. The possible options are:

- Yearly
- Monthly
- Weekly
- Daily



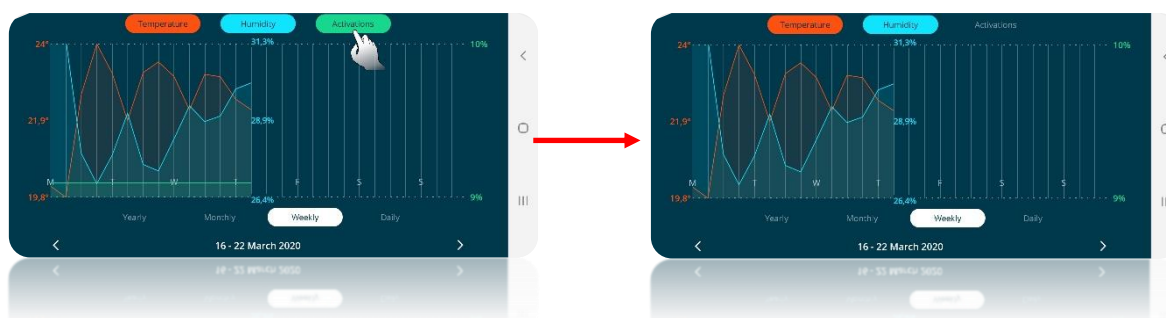
On the line at the bottom of the page, you can choose the day, week, month or year that you want to see. Use the two arrows on the right and left to move to the day, week, month or year before/after the one shown in that moment.



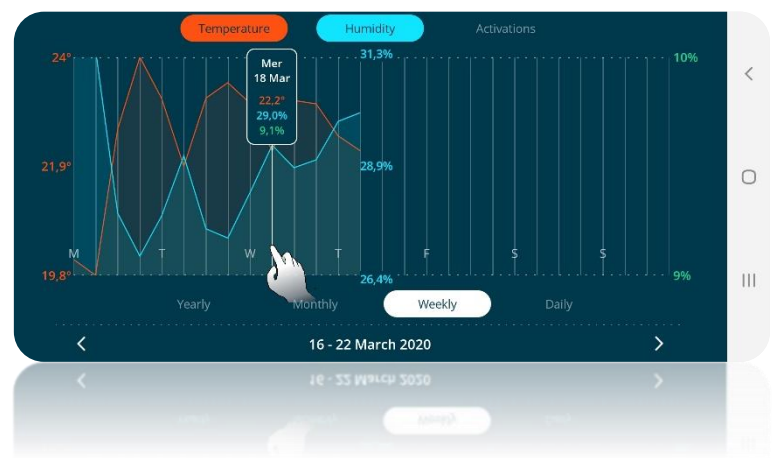
You can also click directly on the time period shown in that moment to open a drop-down menu where you can directly choose the period you want to see.



Each of the three curves can be removed from the chart. Click on the item you want to remove at the top of the page; it will no longer be coloured and the relative curve will not be visible on the screen.



Press and hold on a certain point of the chart to see the exact values registered in that point.



MAINTENANCE


17 Maintenance

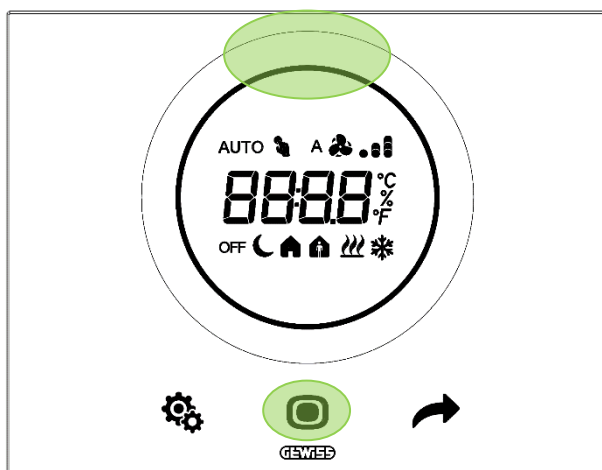
The user may need to clean the plate if it gets dirty. There is a special function that allows you to do this without accidentally altering the thermostat settings.

17.1 Cleaning the plate

This function temporarily inhibits the capacitive sensors so you can clean the surface of the plate without accidentally modifying the thermostat settings. It is activated/deactivated in the following way:

- **Enabling:**

Touch the top part of the circular slider and the MODE  button key simultaneously for more than 3 seconds



A 30-second countdown will begin on the screen. The user can clean the plate within this time without accidentally activating the commands.

- **Disabling:**



At the end of the countdown, the thermostat will return to its normal operation with the commands once again enabled.

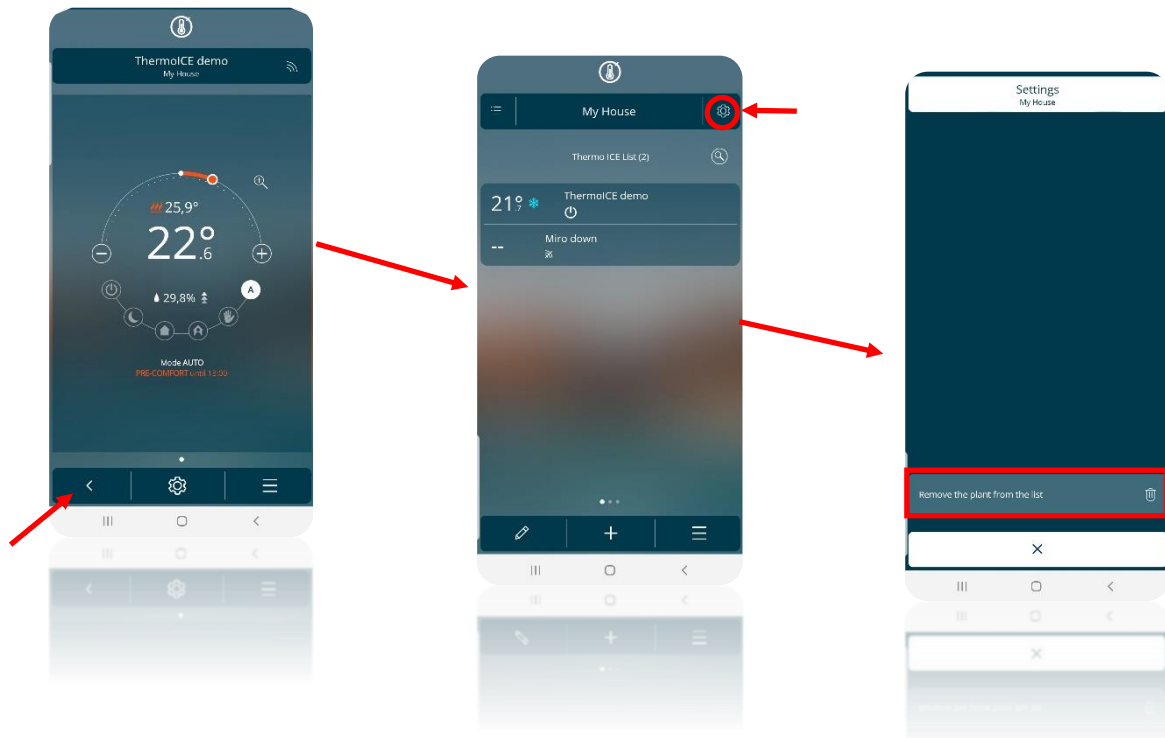
DELETING A SYSTEM

REMOVING USERS

18 Deleting a system



To delete a system from the list of devices associated with your app, proceed as follows:

- Open the app on your mobile device
- Use the  button key to open the page listing the devices associated with the app
- Click on the  button key at the top right
- The “**Settings**” page will open. The last item on this page is “**Remove the plant from the list**”
- Click on this item to delete the system from the list

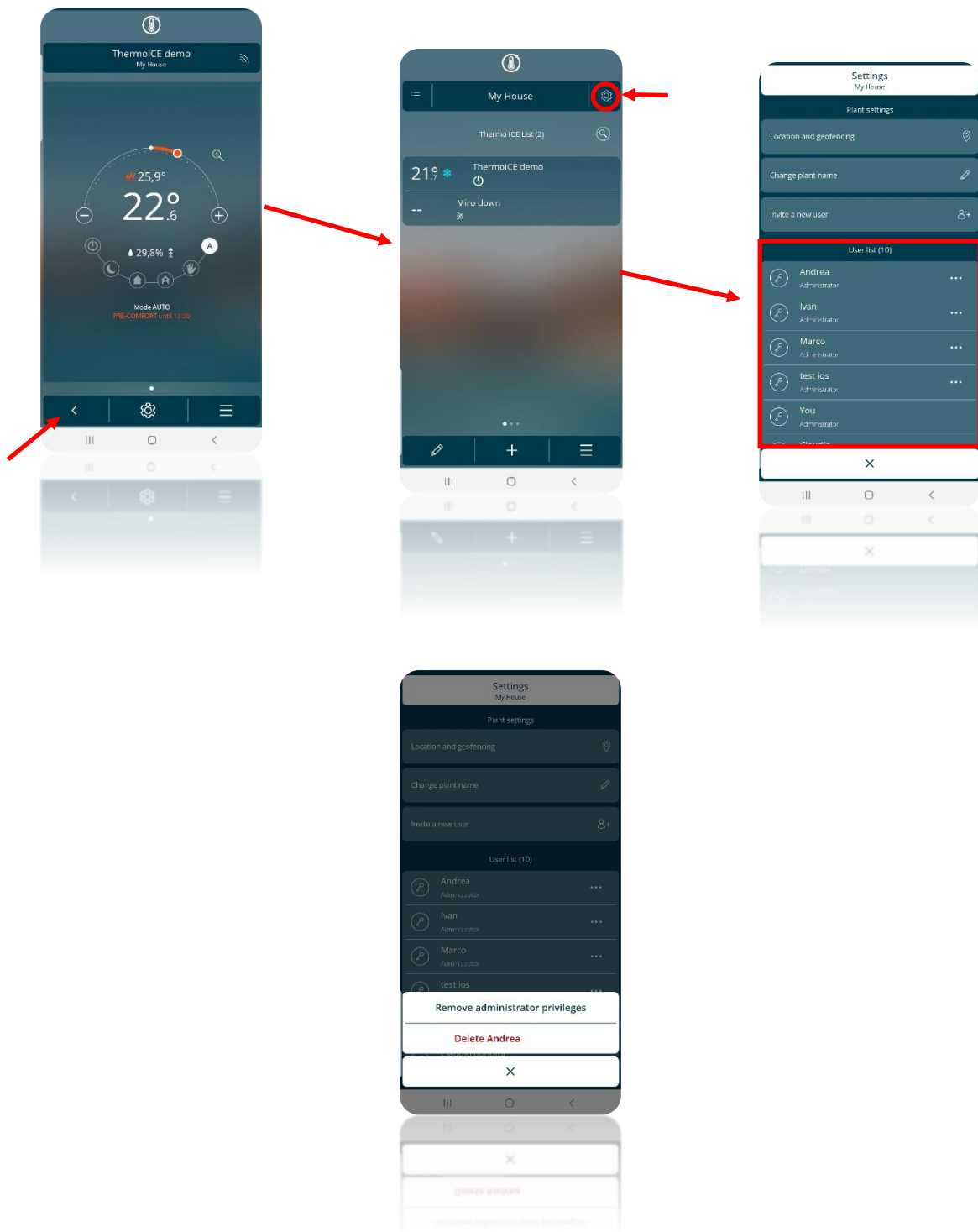


19 Removing a user

The Administrator can remove other users (both Base Users and Administrators) from the control of a specific system. This is done as follows:

- Open the app on your mobile device
- Use the  button key to open the page listing the devices associated with the app
- Click on the  button key at the top right
- The “**Settings**” page will open. The “List of users” item shows all the users who can control the thermostat in question. Under the name of each user, you can see his/her role (Administrator or Base User)
- When you select the name of the user you want to remove, a drop-down menu will appear at the bottom of the page. If the selected user is an Administrator, there will be two possible options:
 - Remove Administrator privileges
 - Delete “User name”



Selecting the second option, the user will be removed from the list

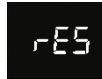



RESETTING THE FACTORY CONDITIONS

20 Resetting the factory conditions


If you need to reset the thermostat with its original factory conditions, proceed as follows:

- Press the Next button key  for 10 seconds
- The screen will show a numerical value indicating the firmware version installed on the thermostat
- Press the Mode button key  for 15 seconds
- The screen will show the code “rES” (Reset)

The image shows a black rectangular screen with the text "rES" in a white, monospaced font.

- Press Mode  to confirm that you want to make a reset
- The word “donE” will appear on the screen

The image shows a black rectangular screen with the text "donE" in a white, monospaced font.

- The thermostat will restart
- The screen will show a numerical value indicating the firmware version installed on the thermostat
- The thermostat will return to the homepage
- The icon indicating the strength of the Wi-Fi connection  will flash

PARAMETERS: BASIC AND ADVANCED


21 Parameters: basic and advanced

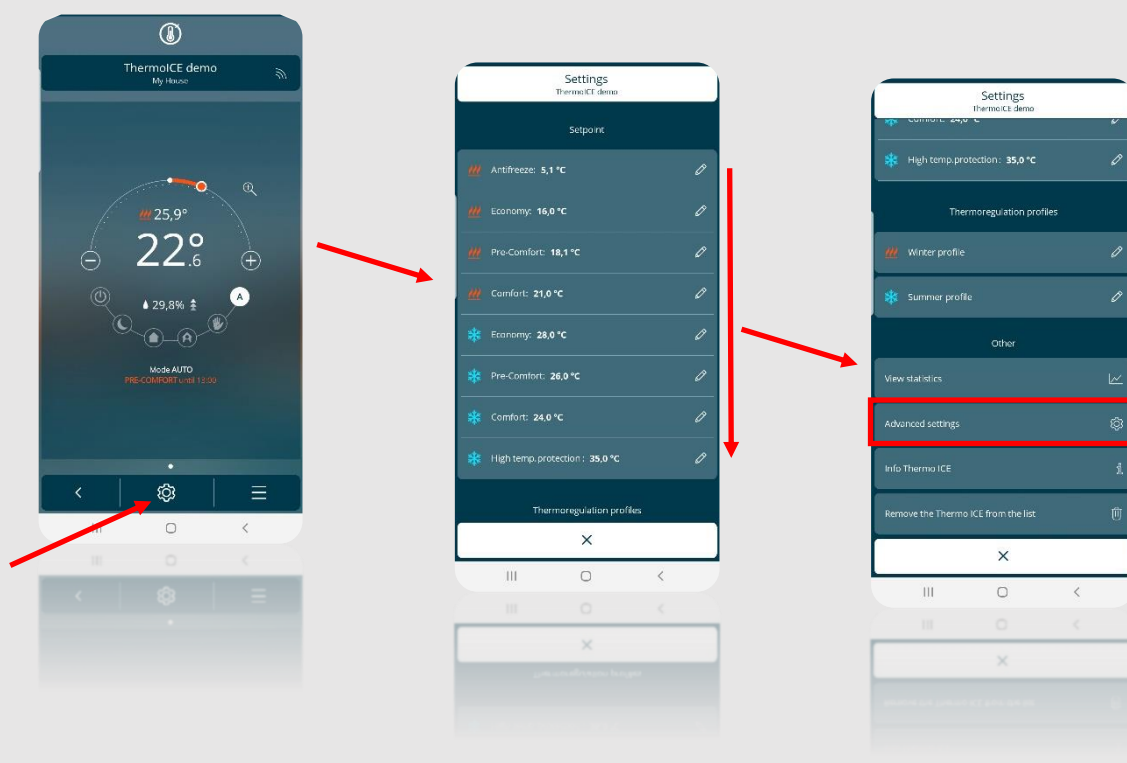
Thermostat operation is governed by a series of parameters that can be activated/deactivated and regulated by the user. Depending on the settings defined via the app, these parameters may be enabled or disabled, enabled for Administrators only, accessible or not accessible locally.

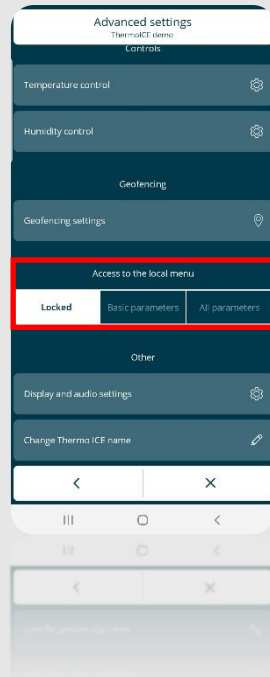
Local access to the basic and advanced parameters must be enabled by an Administrator via the app.

ENABLING ACCESS TO BASIC AND ADVANCED PARAMETERS VIA THE APP

Carry out the following steps:

- Open the app on your mobile device
- Click on 
- The “**Settings**” page will open. Scroll down the page until you find the item “**Advanced settings**”. Press on it
- The “**Advanced settings**” page will open. Scroll down the page until you find the item “**Access to local menu**”





- Under the item **“Local menu access”** you will find three possible options:
 - Disabled
 - Basic parameters
 - All parameters



If “Disabled” is selected, you cannot access either basic or advanced parameters locally. If “Basic parameters” is selected, you can access only the basic parameters locally. If “All parameters” is selected, you can access both basic and advanced parameters locally.

The parameters are divided into two large groups: basic and advanced.

Bear in mind that all the parameters, both basic and advanced, are activated from the specific corresponding page of the thermostat. This means that, in order to access the basic and advanced parameters for temperature control and setpoint regulation, you must go to the thermostat page showing the current temperature. To access the basic and advanced parameters relating to humidity on the other hand, go to the thermostat page showing relative humidity.

21.1 Basic parameters

These are the parameters most commonly used when the device is operating, and they are designed primarily for the end user.

If access has been enabled via the app, press SET  briefly to see the “basic” parameters. The SET icon will turn green  to show that the function has been activated.

The basic parameters can be sub-divided as follows:

THERMOSTAT PAGE: TEMPERATURE		
BASIC PARAMETERS		
SETPOINT	TYPE OF OPERATION	
COMFORT	Heating (Heat mode)	Cooling (Cool mode)
PRE-COMFORT		
ECONOMY		

THERMOSTAT PAGE: HUMIDITY	
BASIC PARAMETERS	
Humidity threshold	Hysteresis

THERMOSTAT PAGE: CLOCK		
BASIC PARAMETERS		
Hour	Minutes	Day



From the temperature page, you can therefore define the setpoints for the COMFORT, PRE-COMFORT and ECONOMY operating modes. You can also decide whether the thermostat should be used in Heating or Cooling mode (see 11.1.4.5.).




From the relative humidity page, you can define the humidity threshold and hysteresis level (see ch. 13.5 and 13.7, and ch. 20.2.11.).

From the page showing the current time, you can regulate the hour, minutes and day shown on the thermostat (see 13.3 and 13.4).

21.2 Advanced parameters

The advanced parameters are the ones that alter device operation. These are the parameters least used when the device is operating, and they are designed for the installer or an expert user.

If access has been enabled via the app, press and hold SET  (>10 seconds) to see the advanced parameters. Once the function has been activated, the SET icon remains green  and the screen shows the letter P followed by a number indicating the advanced parameter that can be selected.

Use Mode  to select the parameter shown in that moment by the thermostat. Use the circular slider or the Next button key  to move between the various values available for the selected parameter. Use Mode  to confirm your choice.

As for the basic parameters, also the advanced ones are divided by type (temperature and humidity); this means they can only be viewed via the specific thermostat page relating to temperature or relative humidity.

Remember also that some advanced parameters depend on a previous advanced parameter: only be setting the previous parameter at a certain value can the next one be visualised and accessed. Otherwise, it will not appear on the screen.

21.2.1 INDEX OF THE ADVANCED PARAMETERS

Parameter	Function	Conditions for the activation of other parameters
P1	H/C setpoint OFF	
P2	Internal sensor correction factor - temperature	
P3	Temperature adjustment control logic (relays)	
P4	H/C control algorithm	
<i>P5</i>	<i>Hysteresis range</i>	P4 = 0
<i>P6</i>	<i>Proportional band - Proportional control</i>	P4 = 1
<i>P7</i>	<i>Integration time - Proportional control</i>	P4 = 1
<i>P8</i>	<i>Cycle time - Proportional control</i>	P4 = 1
P10	Internal sensor correction factor - humidity	
P11	Humidity management	If P11 = 1 or 2: access to basic parameters: "Humidity threshold" + "Humidity threshold hysteresis"

P12	Temperature measurement unit °C/°F	
P13	Backlighting intensity regulation	
P14	Display deactivation in standby	
<i>P15</i>	<i>Temperature/Humidity/Time visualisation</i>	P14 = ON
P16	Audio signal	
P17	Proximity sensor	
P18	Enabling of the auxiliary sensor for temperature sensor	
<i>P19</i>	<i>Auxiliary sensor incidence in measured temperature calculation</i>	P18 = 0, 1, 2
<i>P20</i>	<i>Floor temperature alarm threshold</i>	P18 = 3
P21	Wi-Fi configuration mode	
P22	Wi-Fi activation	

KEY

Parameters only visible by accessing the relative humidity page

Px Advanced parameters whose visibility and accessibility depends on the setting defined for a previous one

21.2.2 ADVANCED PARAMETER P1

This parameter is used to alter the setpoint associated with OFF mode (Building protection) for the operating type currently active (H or C).

SUMMARY OF VALUES FOR PARAMETER P1		
Heating	5°C << 10°C	41°F << 50°F
Cooling	35°C << 40°C	95°F << 104°F

21.2.3 ADVANCED PARAMETER P2

This parameter is used to delete a temperature measurement error made by the sensor on the device due to the heat generated by the device circuit or the installation area.

SUMMARY OF VALUES FOR PARAMETER P2	
	-5°C << 5°C
	-9°F << 9°F

21.2.4 ADVANCED PARAMETER P3

This parameter is used to alter the type of temperature adjustment system and then configure the relays in order to control it.

SUMMARY OF VALUES FOR PARAMETER P3	
0	Heating only, on relay 1
1	Cooling only, on relay 1
2	Heating + Cooling, 2 ways on relay 1
2	Heating + Cooling, 4 ways on relay 1- heating / relay 2 - cooling

21.2.5 ADVANCED PARAMETER P4

This parameter is used to define which algorithm must be used by the thermostat for the type of operation currently active. Depending on the algorithm chosen, advanced parameters P5, P6, P7 and P8 will be enabled (see below).

SUMMARY OF VALUES FOR PARAMETER P4	
0	2 points ON-OFF
1	PWM proportional-integral

SUMMARY OF VALUES FOR PARAMETER P4			
0	2 points ON-OFF	1	PWM proportional-integral
P5		P6	P7 P8

21.2.6 ADVANCED PARAMETER P5

This parameter is used to alter the value of the regulation differential for the 2-point control algorithm of the type of operation active (H or C). It is visible if the current value of advanced parameter P4 is “2 points ON-OFF” (0).

SUMMARY OF VALUES FOR PARAMETER P5	
0.1°C << 2°C	
0.2°F << 3.6°F	

21.2.7 ADVANCED PARAMETER P6

This parameter is used to alter the value of the proportional band for the PWM proportional-integral control algorithm of the type of operation active (H or C). It is visible if the current value of advanced parameter P4 is “PWM proportional-integral” (1).

SUMMARY OF VALUES FOR PARAMETER P6	
1°C << 10°C	
1.8°F << 18°F	

21.2.8 ADVANCED PARAMETER P7

This parameter is used to alter the value of the integration time for the PWM proportional-integral control algorithm of the type of operation active (H or C). It is visible if the current value of advanced parameter P4 is “PWM proportional-integral” (1).

SUMMARY OF VALUES FOR PARAMETER P7	
1" << 250"	

21.2.9 ADVANCED PARAMETER P8

This parameter is used to alter the value of the cycle time for the PWM proportional-integral control algorithm of the type of operation active (H or C). It is visible if the current value of advanced parameter P4 is “PWM proportional-integral” (1).

SUMMARY OF VALUES FOR PARAMETER P8	
5	5 minutes
10	10 minutes
15	15 minutes
20	20 minutes
30	30 minutes
40	40 minutes
50	50 minutes
60	60 minutes

21.2.10 ADVANCED PARAMETER P10

This parameter is used to correct the value measured by the humidity sensor on the device.

SUMMARY OF VALUES FOR PARAMETER P10	
	-10% < < 10%

21.2.11 ADVANCED PARAMETER P11

This parameter is used to enable or disable humidification or dehumidification.

For this parameter to be visualised and accessible, the “Temperature adjustment control logic” must NOT be set on option “4 ways on relays 1 and 2”, and the humidity control must be set on “Humidity increase” or “Humidity reduction” (see ch. 13).

PRE-REQUISITES		
Temperature adjustment control logic	Humidity control	
≠ “4 ways on relays 1 and 2”	“Humidity increase” / “Humidity reduction”	
SUMMARY OF VALUES FOR PARAMETER P11		
0	1	2
Disabled	Humidification	Dehumidification
	ENABLING OF BASIC PARAMETERS	
	“Humidity threshold”	“Humidity threshold hysteresis”

If parameter P11 is set with a value of 1 or 2, access to the basic parameters “Humidity threshold” and “Humidity threshold hysteresis” is enabled.

21.2.12 ADVANCED PARAMETER P12

This parameter is used to alter the temperature measurement unit shown on the display.

SUMMARY OF VALUES FOR PARAMETER P12	
0	Celsius (°C)
1	Fahrenheit (°F)

21.2.13 ADVANCED PARAMETER P13

This parameter is used to alter the percentage value of the display backlighting intensity when the device is not in standby.

SUMMARY OF VALUES FOR PARAMETER P13	
	30% << 100%

21.2.14 ADVANCED PARAMETER P14

This parameter is used to alter the display status (light signal of the measured temperature/humidity/current time) in standby.

SUMMARY OF VALUES FOR PARAMETER P14		PARAMETER RELEASED
Off	Disabled	/
On	Enabled	P15

21.2.15 ADVANCED PARAMETER P15

This parameter is used to alter the activation of the alternated visualisation of the thermostat, humidity and clock pages on the display when the device is in standby. It's visible if the value of advanced parameter P14 is “ON”.

SUMMARY OF VALUES FOR PARAMETER P15	
0	Deactivated
1	Activated

21.2.16 ADVANCED PARAMETER P16

This parameter is used to enable or disable the audio signal that accompanies the pressing of button keys.

SUMMARY OF VALUES FOR PARAMETER P16	
0	Disabled
1	Enabled

21.2.17 ADVANCED PARAMETER P17

This parameter is used to enable the proximity sensor on the device. If enabled, the backlighting comes on when the sensor detects that someone is near the device; if disabled, it comes on when any of the capacitive sensors (slider or push-buttons) are activated.

SUMMARY OF VALUES FOR PARAMETER P17	
0	Disabled
1	Enabled

21.2.18 ADVANCED PARAMETER P18

This parameter is used to configure the temperature sensor function of the auxiliary input on the device.

SUMMARY OF VALUES FOR PARAMETER P18		PARAMETER RELEASED
0	Disabled	/
1	Enabled for GW1x900	P19
2	Enabled for GW10800	
3	Enabled for GW10800 (floor)	P20

If value 1 or 2 is selected, advanced parameter P19 is enabled. If value 3 is selected, advanced parameter P20 is enabled.

21.2.19 ADVANCED PARAMETER P19

This parameter is used to regulate the incidence of the auxiliary temperature sensor in the weighted average made to determine the overall temperature value measured by the device. It's visible if the value of advanced parameter P18 is "enabled to measure room temperature with GW1x900" (1) or "enabled to measure room temperature with GW10800" (2).

SUMMARY OF VALUES FOR PARAMETER P19	
10% << 100%	

21.2.20 ADVANCED PARAMETER P20

This parameter is used to alter the max. temperature value beyond which the floor temperature alarm is triggered. It's visible if the value of advanced parameter P18 is "enabled to measure floor temperature with GW10800" (3).

SUMMARY OF VALUES FOR PARAMETER P20	
15°C << 100°C	
59°F << 212°F	

21.2.21 ADVANCED PARAMETER P21

This parameter is used to configure the thermostat and associate it with your app. The values that can be selected for this parameter are as follows:

SUMMARY OF VALUES FOR PARAMETER P 21	
0	Default
1	Wi-Fi configuration
2	ESP Touch
3	WPS

NB: the default setting of the new thermostat allows the advanced parameters to be accessed. If, for any reason, this is not the case, reset the original factory conditions of the thermostat.

21.2.22 ADVANCED PARAMETER P22

This parameter is used to activate or deactivate the radio module (Wi-Fi).

SUMMARY OF VALUES FOR PARAMETER P22	
0	Disabled
1	Enabled

Punto di contatto indicato in adempimento ai fini delle direttive e regolamenti UE applicabili:

Contact details according to the relevant European Directives and Regulations:

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