

CHORUS **S** MART

GEWISS

THERMO ICE WI-FI (SURFACE-MOUNTING)

CE



GW16970CB

GW16970CL

GW16970CN

GW16970CT

Programming manual

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1 General

The surface-mounted THERMO ICE Wi-Fi makes it possible to control the temperature of the room in which the device is installed.

It can be used:

- as an independent smart thermostat, without the need for a Smart Home system. In this case the device is controlled via the “ThermoICE 2.0” app;
- integrated in the Gewiss “Connected Smart Home”, in that case the device can interact with all the other system devices and is controlled together with all the other system functions via the “HOME GATEWAY” app

The characteristics and functions described below apply for both options for using the THERMO ICE Wi-Fi.

The temperature is regulated by commanding the heating/cooling solenoid valve via the local relay.

The device can manage both two or four way heating/cooling systems as it has two output relays.

The possible configurations of the two relays are as follows:

Relay 1	Relay 2
Heating	Humidity
Cooling	Humidity
Heating/Cooling	Humidity
Heating	Cooling

The thermostat has a backlit display with white LEDs, with sensitive rear-projected areas on a plate.

The device must be powered from the mains network, and features a built-in sensor for measuring the room temperature and humidity, and a proximity sensor for activating the back-lighting when the user approaches it. There is also a Wi-Fi module for remote control via the relative app.

The thermostat offers:

- types of operation: heating and cooling with independent control algorithms;
- 6 operating modes: OFF (anti-freeze/high temperature protection), Economy, Pre-comfort, Comfort, Manual and Scheduling;
- 4 heating adjustment temperatures (Teconomy, Tpre-comfort, Tcomfort, Tanti-gelo (Tanti-freeze));
- 4 cooling adjustment temperatures (Teconomy, Tpre-comfort, Tcomfort, Thigh_temperature_protection);
- 2 control types: HVAC or setpoint mode;
- Control algorithms: 2 ON/OFF points or PI proportional with PWM control;
- 2 relay outputs with NO contact, which can be used by the thermostat to command the heating, cooling or humidity solenoid valve (see table above);
- 1 input for NTC external temperature sensor (e.g. protection sensor for underfloor heating).

The setpoint (target temperature) of the Comfort, Pre-comfort and Economy functions can be set using the app; in the space itself, this can be temporarily forced using the circular slider.

In Manual mode, the user can decide the desired target temperature on a case-by case basis.

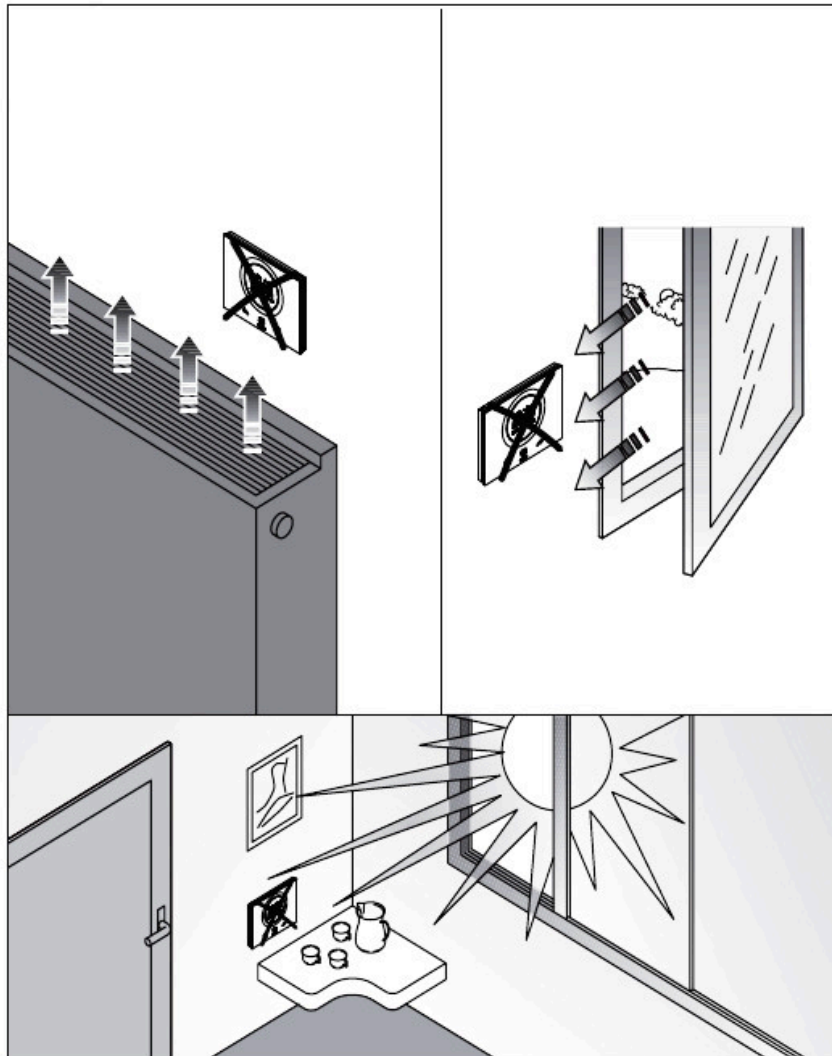
In Scheduling mode, the thermostat acts according the weekly program ming parameters, as set via the app (Timed thermostat function).

In OFF mode, the thermostat will only be activated to safeguard the domestic systems in cases where the ambient temperature reaches the critical thresholds set.

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.

2 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 that can be regulated both via the app and locally.

3 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

4 Installing the app on a mobile device

The use of the thermostat requires the installation of the relative app on a mobile device (e.g. a smartphone or tablet).



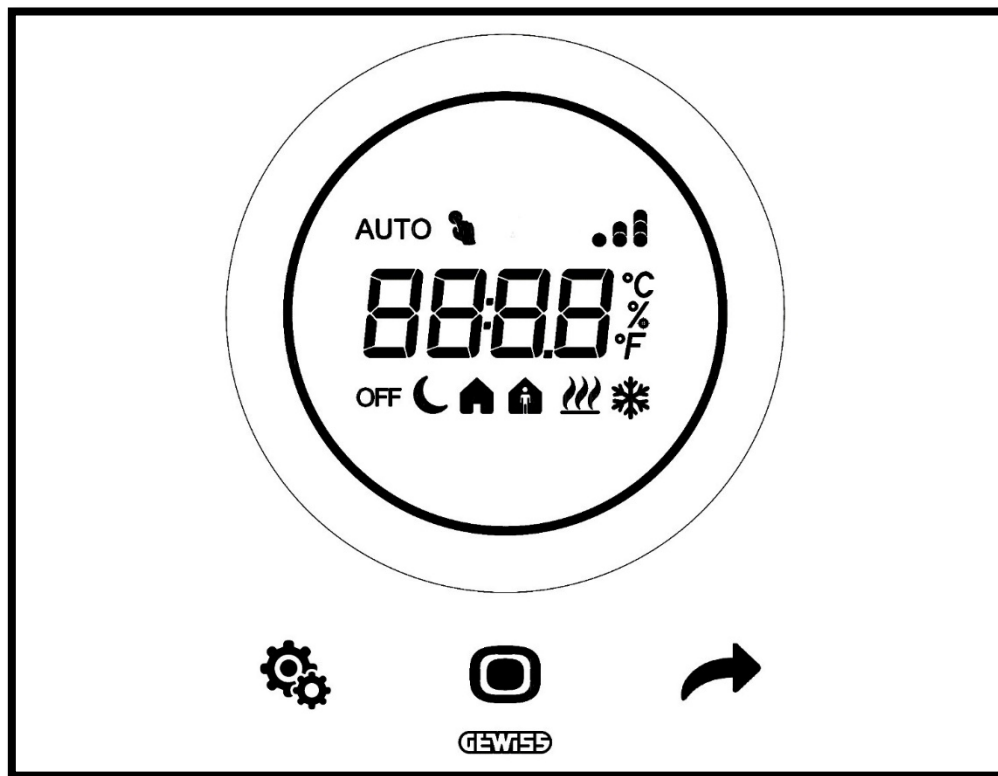
THE THERMOSTAT

5 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	• Change active mode • Confirm parameter to be changed
	Next	• Display next page • Display next parameter to be changed • Display next parameter value
	Set	SET menu activation: change the device parameters
	Slider	• Display the previous or next value of the parameter to be changed • Change the temporary setpoint Circular light guide that illuminates the sliding area, changing colour during the heating (red) and cooling/ humidity management (pink) activation phases
	Display for visualisation	• 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		Scheduling (hourly profile) mode active
		• 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

6 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.

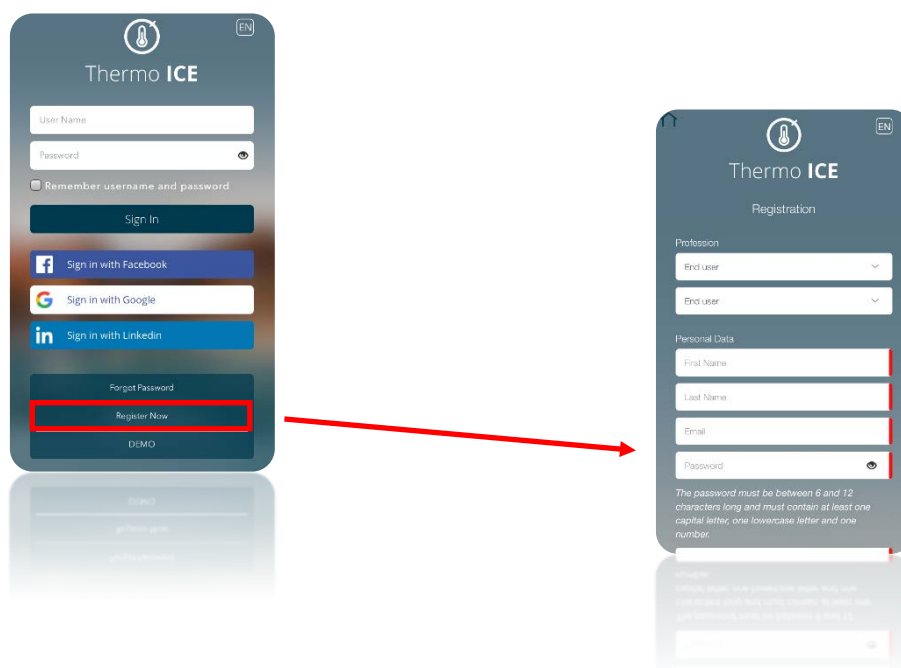
First, it's important to clarify that there must be a Wi-Fi network in the room to be able to use the thermostat via the app. Secondly, the specific app must be downloaded onto a mobile device.

6.1 Creating a new account on the app

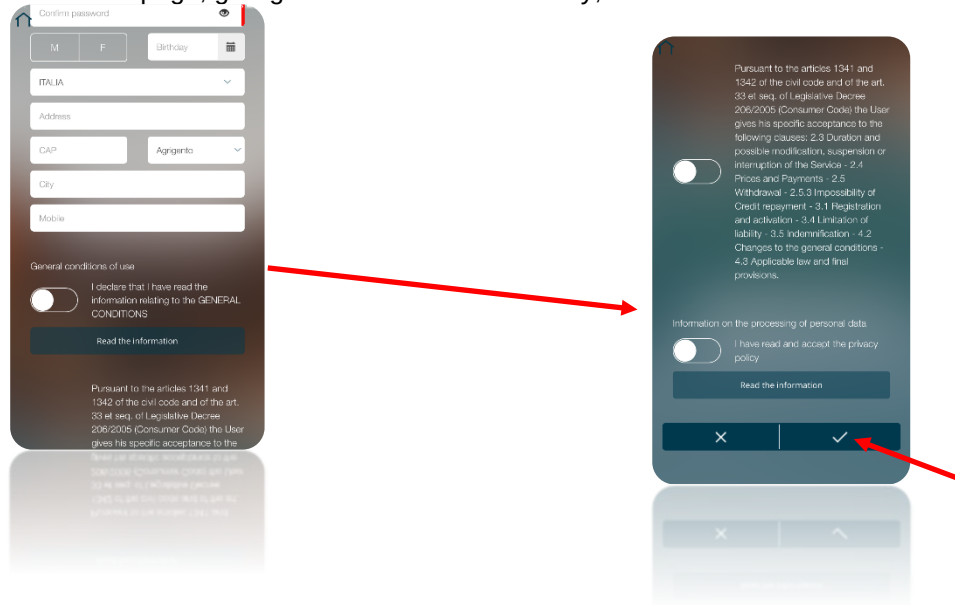
After wiring the thermostat and fixing it to the wall, as explained in the installation manual supplied with the device (also available at www.gewiss.com), access the app (Thermo ICE 2.0) that enables the remote control of the thermostat.

Carry out the following steps:

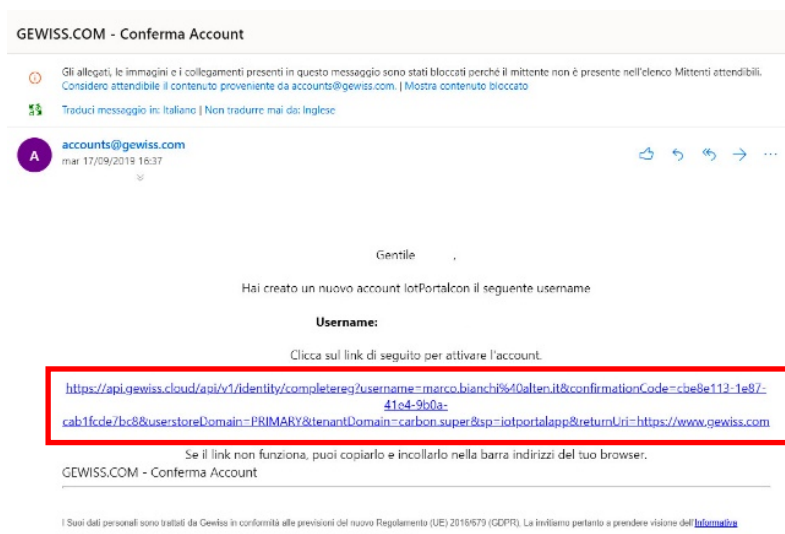
- Download the app from the relative store on the chosen mobile device (e.g. smartphone)
- After installing the app, open it
- Select **“Register now”**
- Fill in the various fields to complete the registration. The fields highlighted with a red line on the right are compulsory.



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

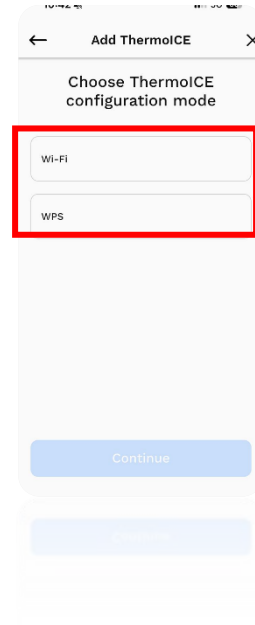
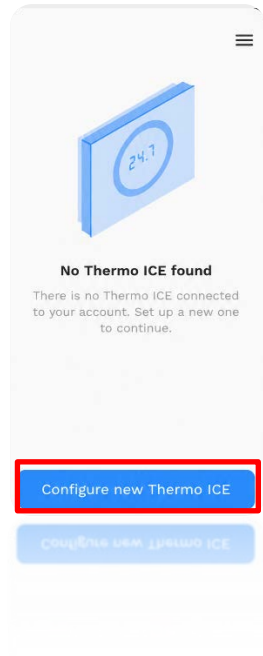


- Open the e-mail address you indicated during the registration phase
- Check the incoming post. There should be an e-mail confirming the registration (if there isn't, check the "Spam" folder)
- Scroll down the text until you reach the link (text underlined in blue) for confirming the registration

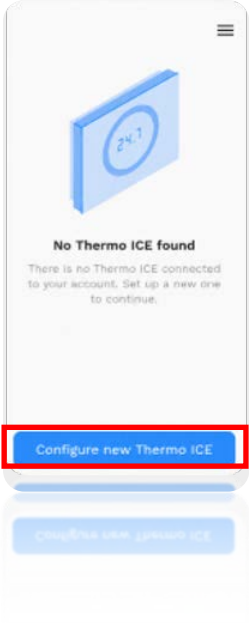
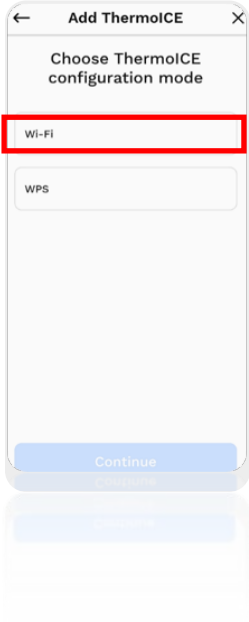


6.2 Associating the Thermo ICE Wi-Fi

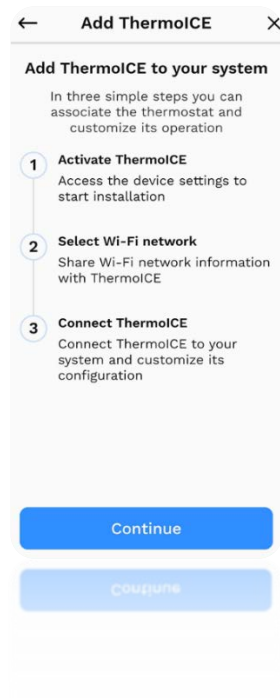
- In the app, select the “**Configure new Thermo ICE**” option
- Choose which of the three configuration modes you want to use. The three possibilities are:
 - **WPS configuration**
 - **Wi-Fi configuration**



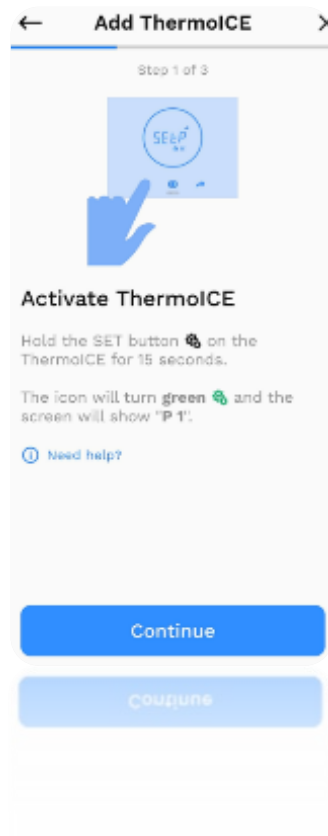
The configuration mode recommended by the manufacturer is Wi-Fi.

WI-FI CONFIGURATION		P21
ANDROID PROCEDURE:		1
1. Open the Thermo Ice app 2. The “Thermo ICE search” page will open. 3. Click on “Configure new Thermo ICE”  4. A drop-down menu allows you to choose one of the three possible configuration modes. 5. Select “Wi-Fi configuration” 		

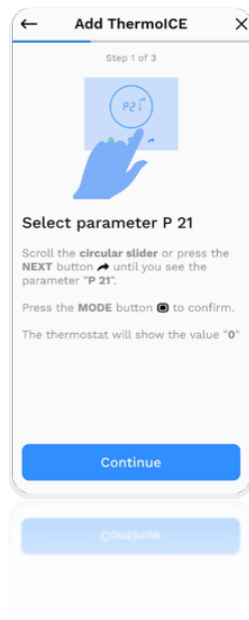
6. Insert the device name
7. A to-do list page will open



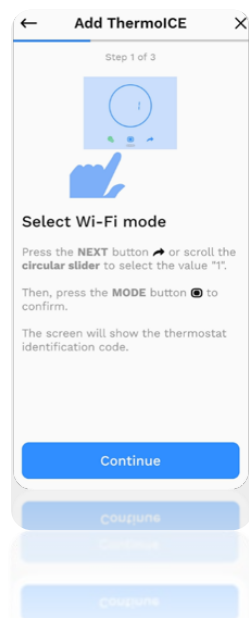
8. Press and hold the Set  button for at least 15 seconds. It will turn green 



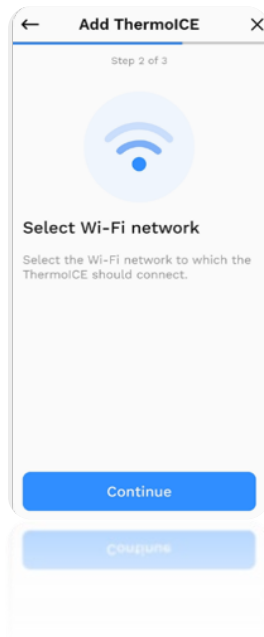
9. The message “**P 1**” will appear on the screen, which stands for “Advanced parameter 1”. This allows you to access the thermostat’s advanced parameters
10. Using the Next button  or the circular slider, navigate to parameter “**P 21**”
11. Use the Mode button  to access the P21 parameter menu



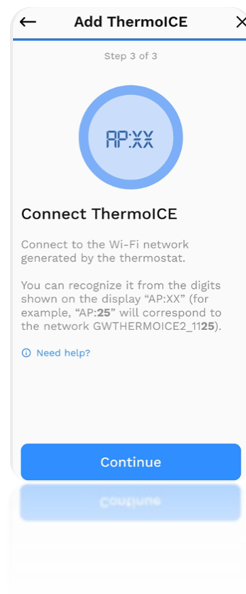
12. The value “0” will appear on the screen.
13. Select the value 1 using the Next button  or the circular slider.
14. Confirm your selection using the Mode button 



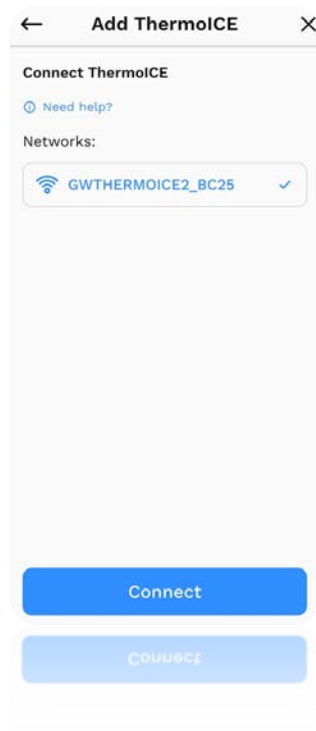
15. Select the Wi-Fi network



16. Once you have entered the Wi-Fi network (encryption type: WPA/WPA2) and clicked 'Continue', the message 'AP: XX' will appear on the device's screen, where XX refers to the last two characters of the Wi-Fi network name generated by the thermostat ('25' in the example below)



17. The App sends to Wi-Fi page
18. Select the network generated by the thermostat itself (identified by the label: "GWTHERMOICEX_YYXX")



19. If the Wi-Fi network generated by the Thermo ICE requires a password, follow the instructions shown on the relevant screen.

Starting from firmware version 3.0.0, the Wi-Fi network generated by Thermo ICE in Access Point mode is password-protected.

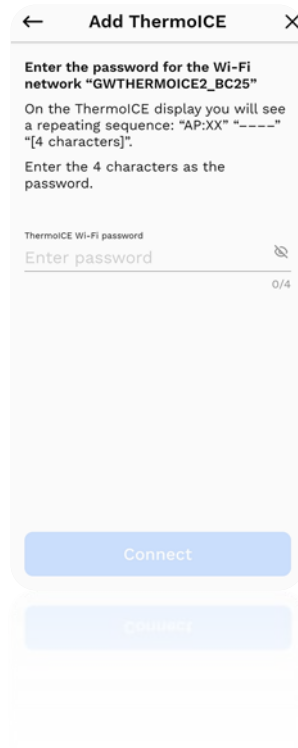
The app automatically detects whether the selected Thermo ICE requires a password.

If a password is required:

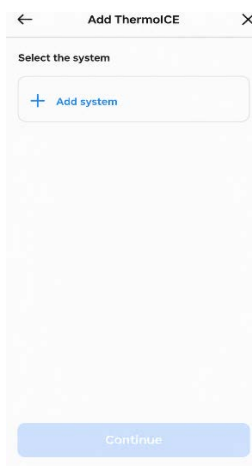
- check the Thermo ICE display;
- identify the sequence of 4 characters shown cyclically on the display, alternating with the "AP:XX" indication;
- enter the 4 characters displayed on the Thermo ICE into the app, in the same order;
- the app will generate the password required to connect to the Thermo ICE Wi-Fi network;
- copy the generated password;
- when the smartphone asks for the password to access the Thermo ICE Wi-Fi network, paste the password previously generated by the app and confirm the connection;
- once the connection has been established, return to the app and continue with the configuration procedure.

If the Thermo ICE does not require a password, the app automatically detects this condition and continues with the corresponding configuration flow.

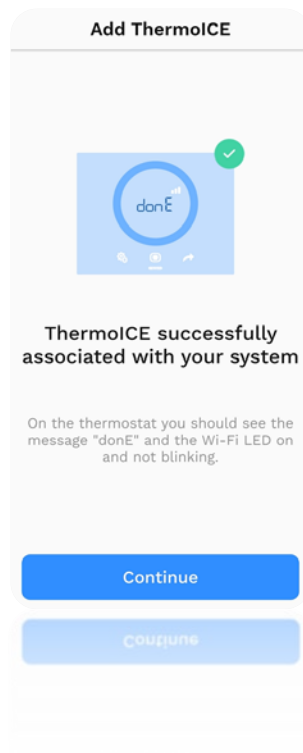
Note: the 4 characters shown on the Thermo ICE display are not the Wi-Fi password itself. They must be entered into the app, which will generate the password to be used to connect the smartphone to the Thermo ICE Wi-Fi network.



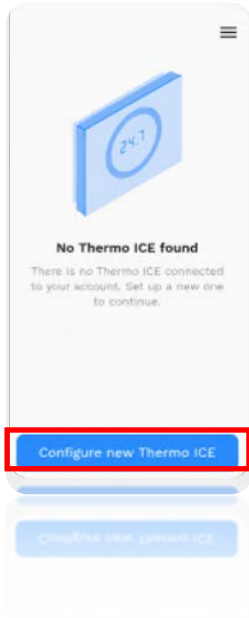
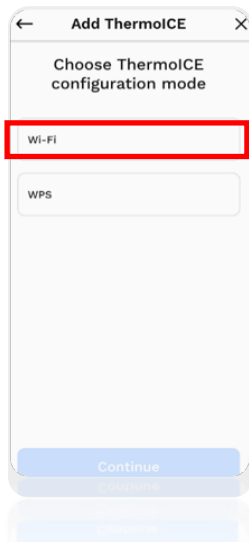
20. The page for adding Thermo ICE to a system then opens



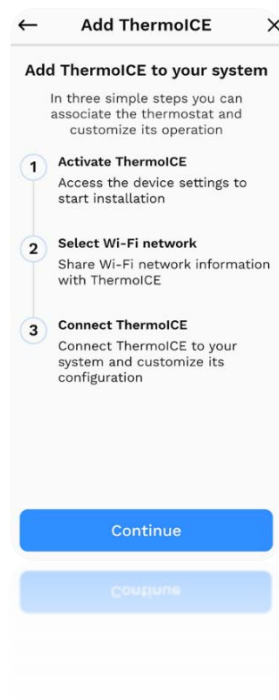
21. Once pairing is complete, the message “DonE” appears on the thermostat display



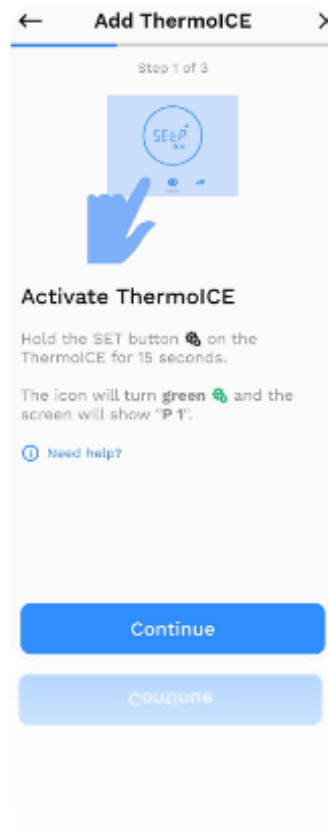
22. The thermostat you have just paired appears on the page showing the thermostats linked to the app
23. Set-up is complete

WI-FI CONFIGURATION		P21
IOS PROCEDURE:		1
1. Open the Thermo Ice app 2. The “Thermo ICE search” page will open. 3. Click on “Configure new Thermo ICE”		
 The screenshot shows the Thermo ICE app interface. At the top, there is a blue header with a hamburger menu icon. Below it, a blue box displays a temperature reading of 24.1. The main text reads "No Thermo ICE found" followed by a subtext: "There is no Thermo ICE connected to your account. Set up a new one to continue." At the bottom, a blue button labeled "Configure new Thermo ICE" is highlighted with a red rectangular box.		
4. A drop-down menu allows you to choose one of the three possible configuration modes. 5. Select “Wi-Fi configuration”		
 The screenshot shows the "Add ThermoICE" screen. At the top, there is a back arrow and a close 'X' button. The title is "Add ThermoICE". Below it, the text reads "Choose ThermoICE configuration mode". A dropdown menu is open, showing "Wi-Fi" as the selected option, which is highlighted with a red rectangular box. Below the dropdown, there is a "WPS" option. At the bottom, a blue button labeled "Continue" is visible.		

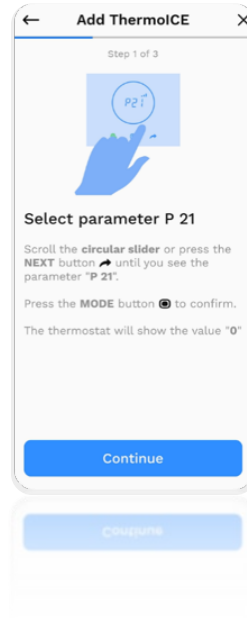
6. Insert the device name
7. A to-do list page will open



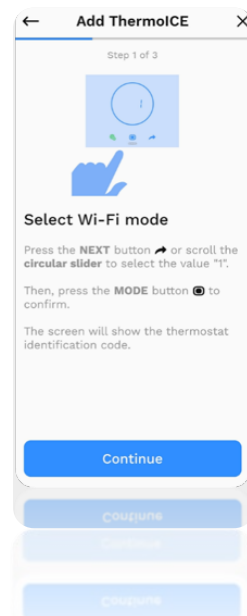
8. Press and hold the Set  button for at least 15 seconds. It will turn green 



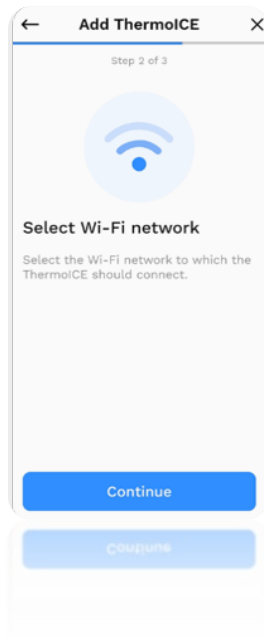
9. The message “**P 1**” will appear on the screen, which stands for “Advanced parameter 1”. This allows you to access the thermostat’s advanced parameters
10. Using the Next button  or the circular slider, navigate to parameter “**P 21**”
11. Use the Mode button  to access the P21 parameter menu



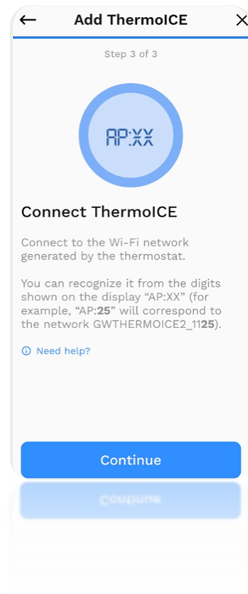
12. The value “0” will appear on the screen.
13. Select the value 1 using the Next button  or the circular slider.
14. Confirm your selection using the Mode button 



15. Select the Wi-Fi network



16. Once you have entered the Wi-Fi network (encryption type: WPA/WPA2) and clicked 'Continue', the message 'AP: XX' will appear on the device's screen, where XX refers to the last two characters of the Wi-Fi network name generated by the thermostat ('25' in the example below)



17. Click on **"Open Settings"**
18. The app takes you to your smartphone's Wi-Fi settings, displaying a page showing all available networks. Select the network generated by the thermostat itself (identified by the name: "GWTHERMOICEX_YYXX")
19. During the configuration procedure, after selecting the Wi-Fi network generated by Thermo ICE, the app displays the password entry screen.

Starting from firmware version 3.0.0, the Wi-Fi network generated by the Thermo ICE in Access Point mode is password-protected.

On devices with firmware versions earlier than 3.0.0, the Wi-Fi network does not require a password.

The app cannot automatically determine which type of Thermo ICE has been selected. The user must therefore check the Thermo ICE display and proceed according to the information shown.

If a sequence of 4 characters is shown cyclically on the Thermo ICE display, alternating with the "AP:XX" indication, proceed as follows:

- enter the 4 characters displayed on the Thermo ICE into the app, in the same order;
- the app will generate the password required to connect to the Thermo ICE Wi-Fi network;
- copy the generated password;
- when the smartphone asks for the password to access the Thermo ICE Wi-Fi network, paste the password previously generated by the app and confirm the connection;
- once the connection has been established, return to the app and continue with the configuration procedure.

If no 4-character password sequence is shown on the Thermo ICE display, the Wi-Fi network generated by the device does not require authentication.

In this case, select **"No password required"** in the app and continue with the standard configuration flow.

Note: on iOS devices, always check the Thermo ICE display to determine which procedure must be followed.

Note: the 4 characters shown on the Thermo ICE display are not the Wi-Fi password itself. They must be entered into the app, which will generate the password to be used to connect the smartphone to the Thermo ICE Wi-Fi network.

← Add ThermoICE ×

Enter the password for the Wi-Fi network "GWATHERMOICE2_BC25"

On the ThermoICE display you will see a repeating sequence: "AP:XX" "-----" "[4 characters]".

Enter the 4 characters as the password.

ThermoICE Wi-Fi password

Enter password 0/4

Connect

20. The page for adding Thermo ICE to a system then opens

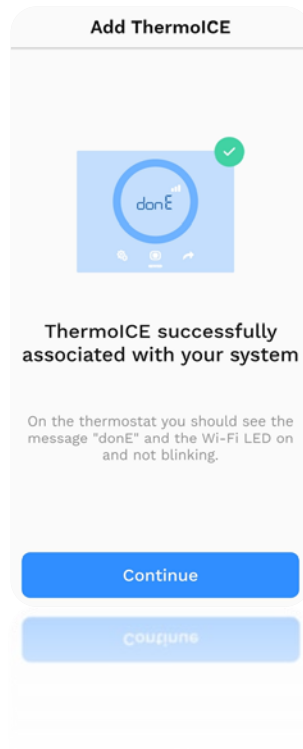
← Add ThermoICE ×

Select the system

+ Add system

Continue

21. Once pairing is complete, the message “DonE” appears on the thermostat display

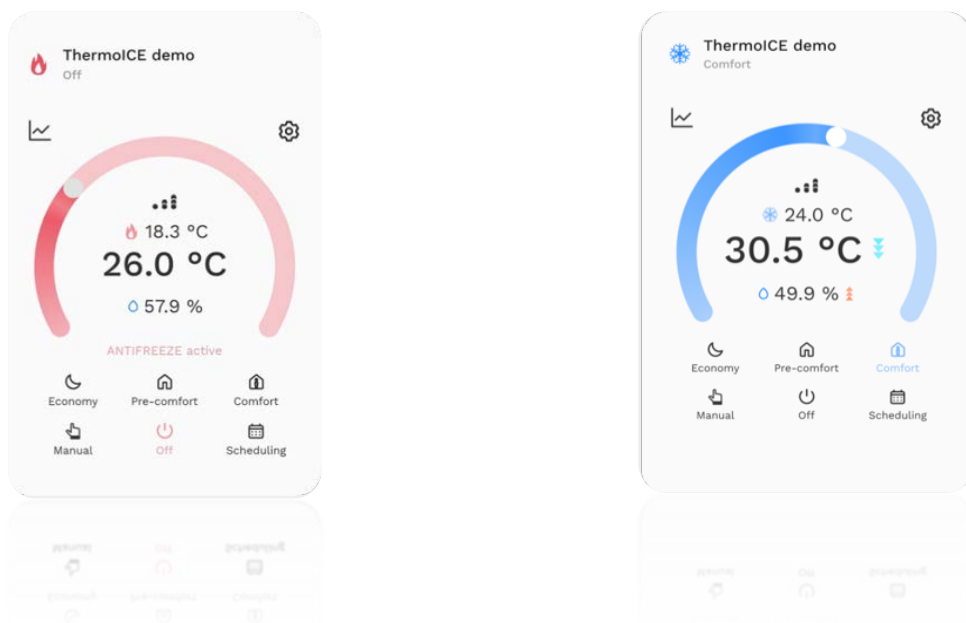


22. The thermostat you have just paired appears on the page showing the thermostats linked to the app

23. Set-up is complete

7 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
26.0 °C	Indicator of the room temperature measured
🔥 18.3 °C	Indicator of the setpoint defined
💧 57.9 %	Indicator of the humidity percentage measured by the thermostat
🔥 ❄️	Indicator of the type of operation selected: Heating/Cooling
	Temperature regulation curve (temporary setpoint forcing). Scroll to the left or press the minus button key to lower the temperature. Scroll to the right or press the plus button key to raise the temperature. 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.
	Operating mode selector. 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. The following modes can be selected: Scheduling / OFF / Comfort / Pre-Comfort / Economy / Manual
Manual	Operating mode. The word that appears at the bottom indicates the operating mode selected.

BASIC GUIDE TO USING THE THERMOSTAT AND THE APP

8 Basic guide

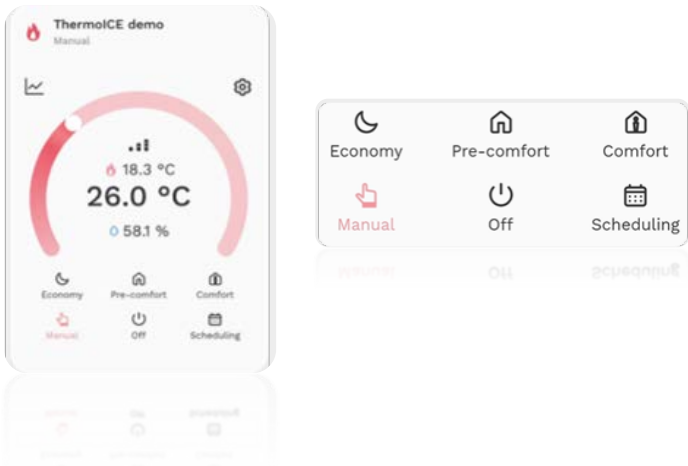
Once the app has been installed and associated with the thermostat, you can command the thermostat itself both locally and from a distance.

8.1 Thermostat operating mode

The thermostat has six different operating modes:

COMFORT	Pre-defined setpoint; the setpoint can be temporarily forced
PRE-COMFORT	
ECONOMY	
SCHEDULING	
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
 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.	 Press the Mode button key  to pass from one operating mode to another. [If the thermostat is set in Slave mode, the user can only pass from the predefined operating mode to OFF mode.]

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.

8.2 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
 From the main page of the app, you can alter the room temperature by means of the temperature regulation curve. Scroll your finger around the curve itself, to temporarily force the target temperature. (In the case of Base Users, this modification is subject to limitations)	 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. [If the thermostat is set in Slave control, temporary temperature forcing will be subject to limitations.]

8.3 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 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
- The possibility to select all six thermostat operating modes (Comfort/Pre-Comfort/Economy/Scheduling/Manual/OFF) - Unlimited access to the advanced parameters (if consent has been given via the app) - Unlimited temporary forcing of the temperature	- The choice of operating mode is limited to the predefined one, or OFF - No access to the parameters - Limited temporary forcing of the temperature

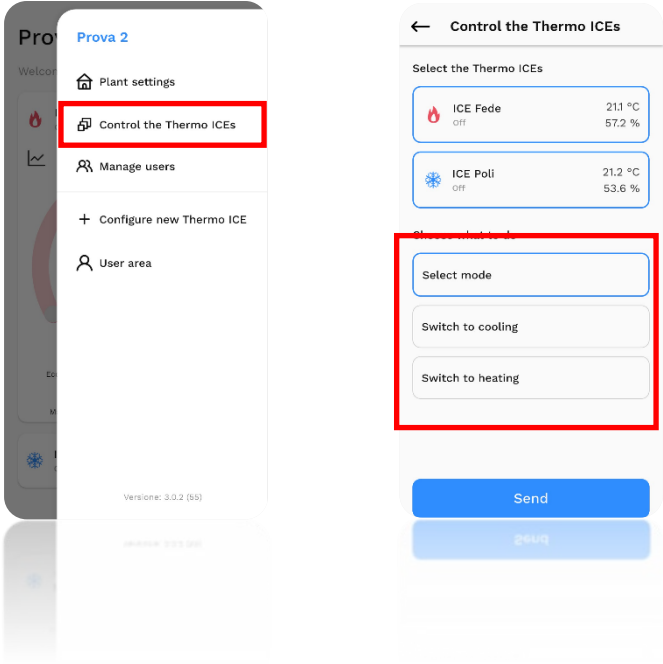
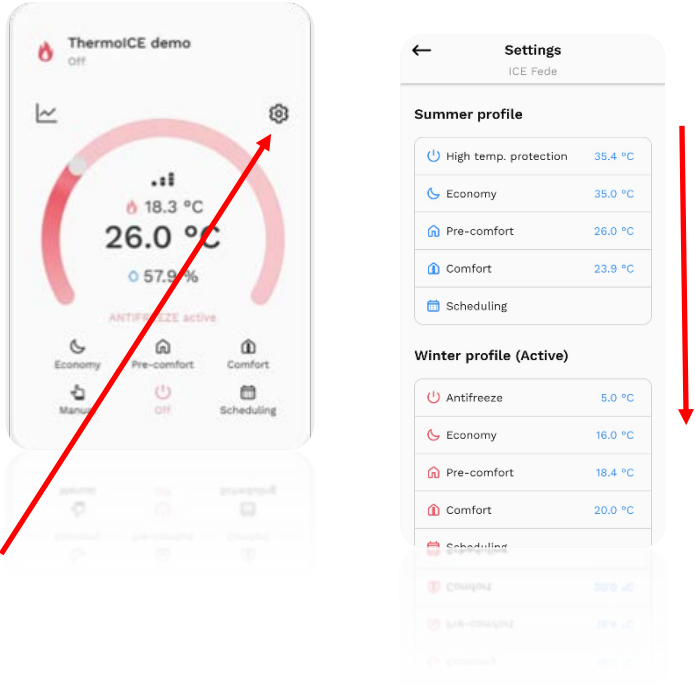
REMOTE COMMAND (APP)	
ADMINISTRATOR	BASE USER
- Add new users and define their role (Administrator or Base User)	- Disabled
- Regulation of local access to the advanced parameters (Disabled/Standard/All)	- Disabled
- Set the temporary forcing regulation interval	- Disabled
- Define the setpoint for Anti-freeze / 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 SCHEDULING mode	- Disabled
- Set the type of algorithm	- Disabled
- Set the auxiliary input	- Disabled
- Advance SCHEDULING activation	- Disabled
- Correction factor regulation	- Disabled
- Operating mode selection	- Operating mode selection
- Temporary forcing	- Limited temperature forcing

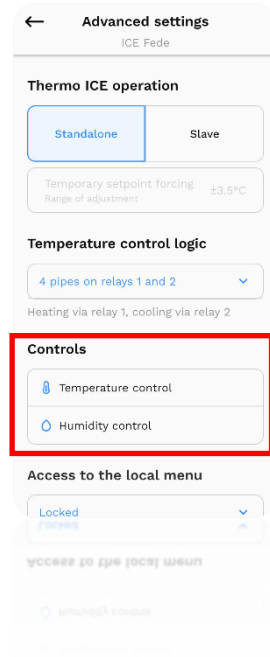
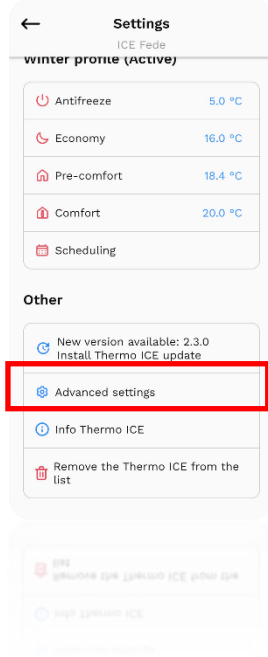
8.4 Switching from Heating to Cooling and vice versa

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

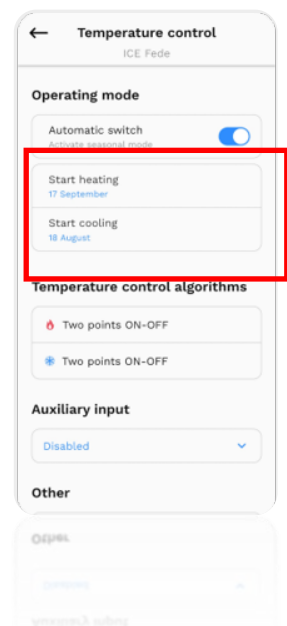
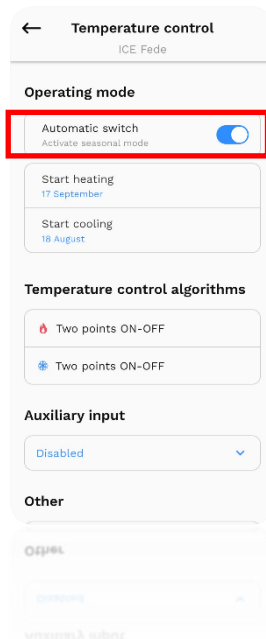
app - or it can be pre-set via the app, thereby allowing automatic switchover (but this option is not available for Base Users).

MANUAL	Local	• 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 • 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 (This command is only enabled if the thermostat is set on “2 ways on relay 1” or “4 ways on relays 1 and 2”)
	App	• Open the app on your mobile device • Use the  button key • A drop-down menu will appear. • Click on “Control the Thermo ICes” • Click on “Switch to [heating/cooling]”

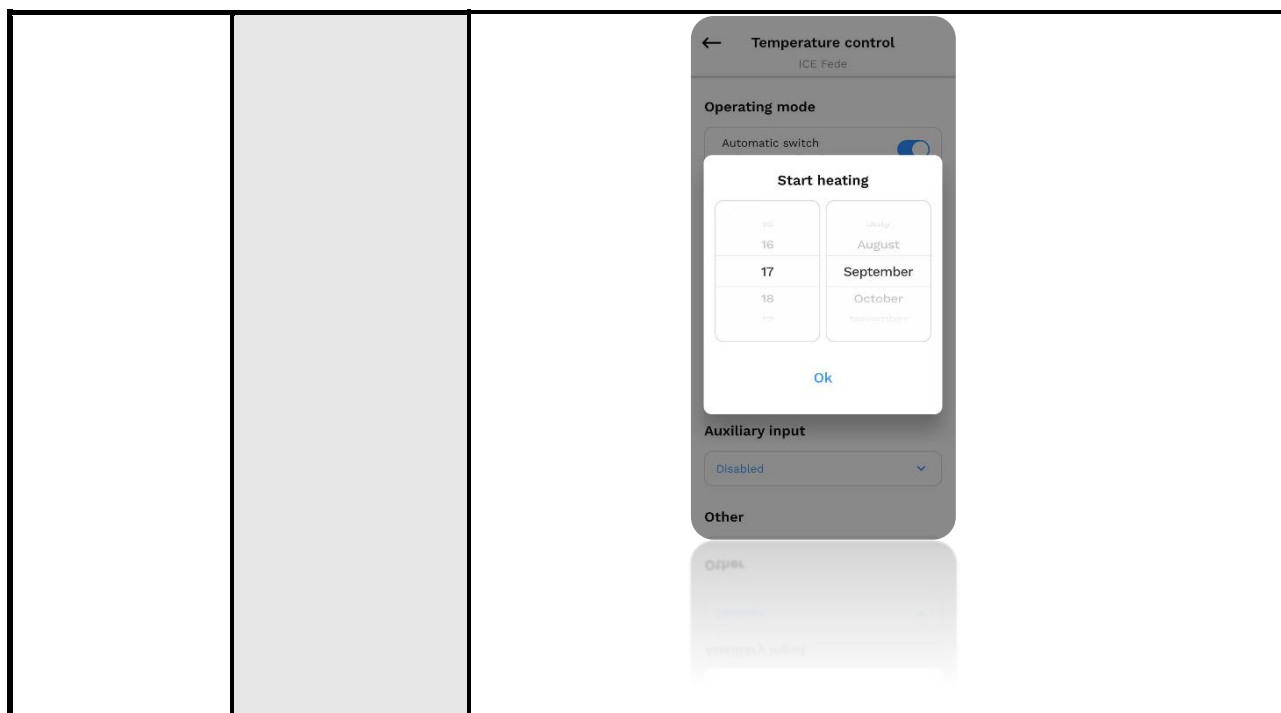
		
SCHEDULING	App	• Open the app on your mobile device • Click on  . The “Settings” page will open.  • Scroll down the page until you find the item “Advanced settings”. Click on “Advanced settings” • A new page will open. Click on “Temperature control”



- 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

9 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, 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).

9.1 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**

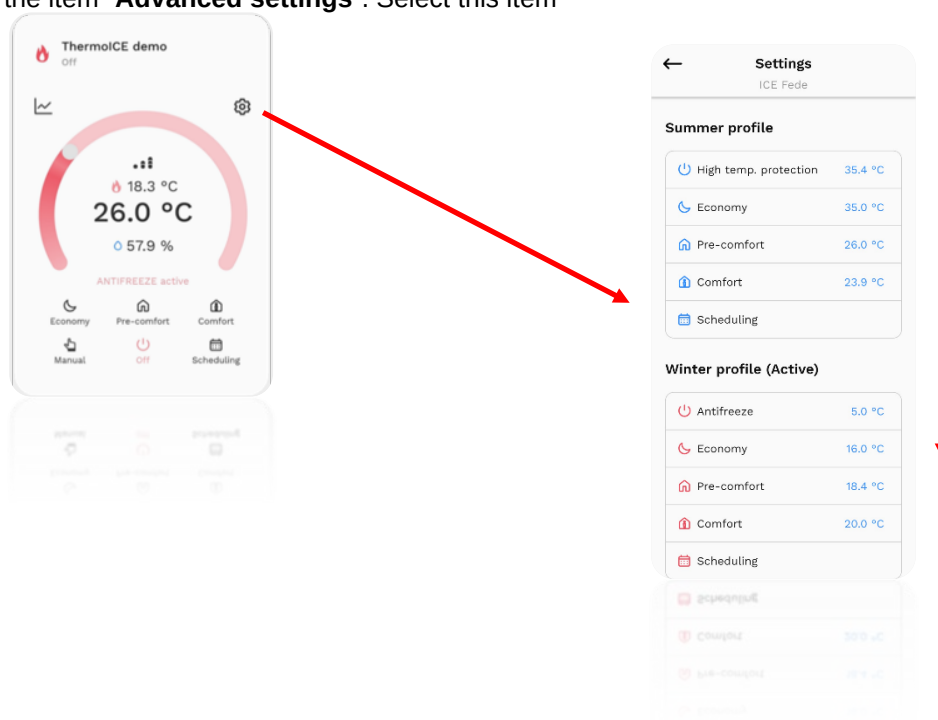
TYPE OF CONTROL	
STAND-ALONE	SLAVE
This mode gives the user complete control of the device and its functions. It determines the behaviour of the device, whether set locally or via the app, in the following way: • You can alter the operating parameters and change the modes freely, without limits, directly 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: - 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 SCHEDULING 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.	This mode gives limited thermostat control. It determines the behaviour of the device, whether set locally or via the app, in the following way: • 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: - 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 SCHEDULING 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).

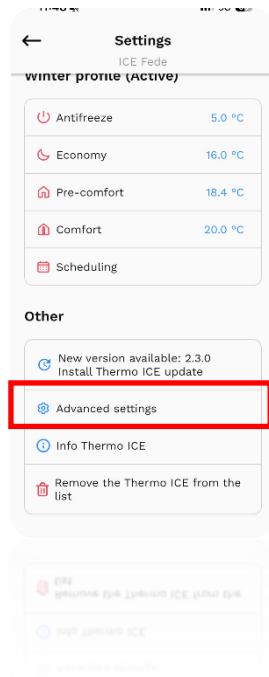
- Only Administrators can alter the parameters.
- Access to the temperature adjustment profiles is permitted for Administrators in read/write mode, but is not permitted for Base Users.
- Limit-free humidity management is available to Administrators, whereas Base Users cannot access the parameter modification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

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

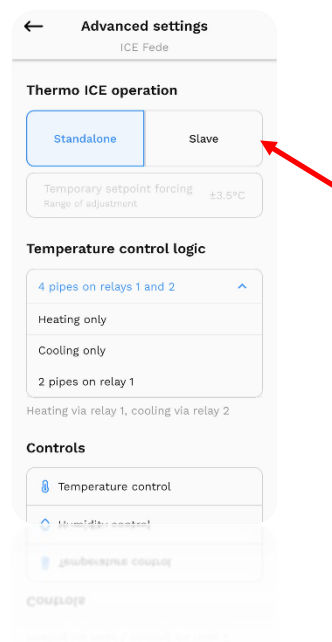
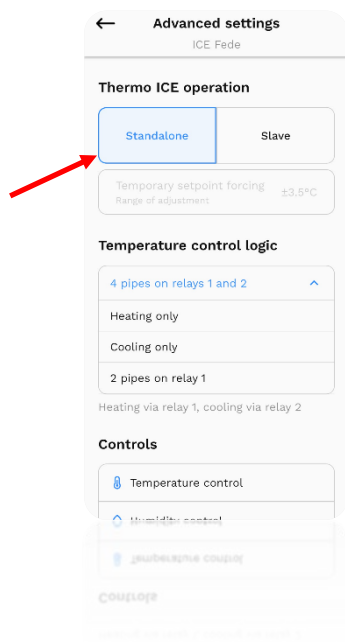
An Administrator can define which type of control to apply to the associated thermostat. To do this, follow the instructions below:

- 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



9.2 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.

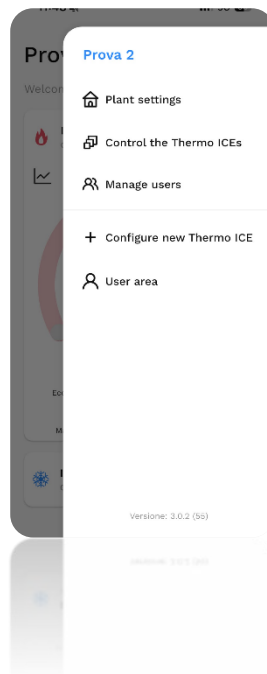
These limits regard the functions and regulations available on his/her app.

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

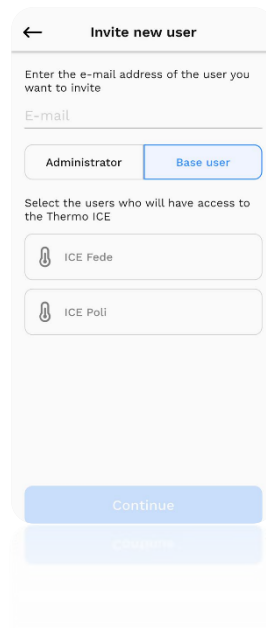
In every system, there may be several thermostats and several Administrators and Base Users. Using the app, the first Administrator (the person who first associated the specific thermostat with the new system) can add other users, giving them the possibility to use the thermostat.

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 bottom ; 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 “**Manage Users**”



- 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



The screenshot shows a mobile app interface titled "Invite new user". At the top, there is a back arrow and the title. Below the title, a text prompt says "Enter the e-mail address of the user you want to invite". Underneath is an "E-mail" input field. Below the input field are two buttons: "Administrator" and "Base user", with "Base user" being highlighted in blue. Further down, a text prompt says "Select the users who will have access to the Thermo ICE". Below this are two rows, each with a thermostat icon and a label: "ICE Fede" and "ICE Poli". At the bottom of the screen are two buttons: "Continue" (highlighted in blue) and "Cancel" (faded).

- 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

9.3 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.

9.3.1 HOW TO SET THE "TYPE OF OPERATION" LOCALLY

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

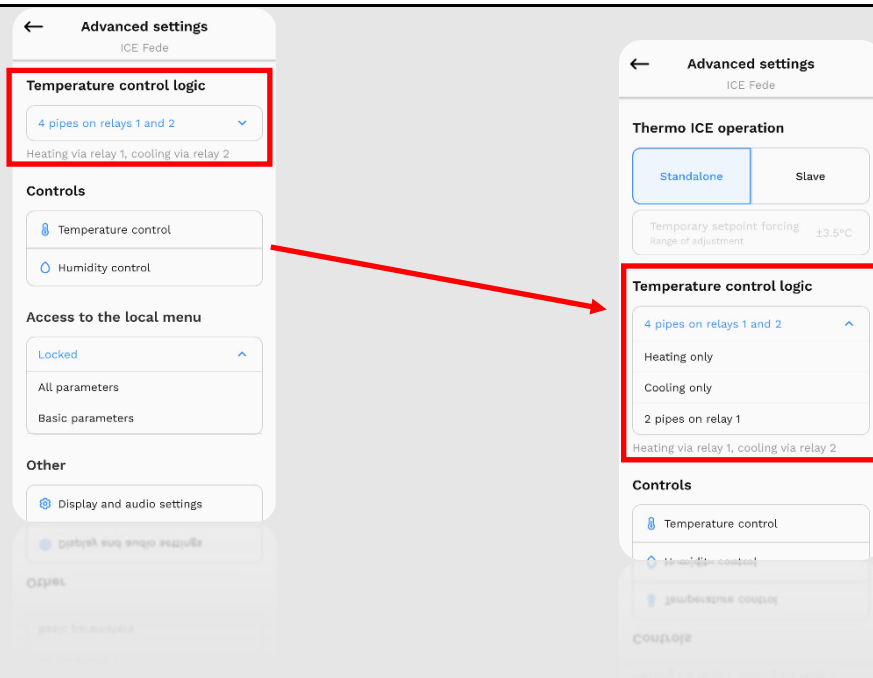
NB: to switch from Heating to Cooling or vice versa, the "**Temperature control logic**" on the app must be set on "**2 pipes on relay 1**" or "**4 pipes on relays 1 and 2**".

(To set the control logic via the app, refer to the paragraph below.)

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:



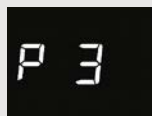
WHERE TO SET THE TEMPERATURE ADJUSTMENT CONTROL LOGIC LOCALLY

(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

7. Using the circular slider or the Next button key , choose the value corresponding to the required configuration

8. Click on the Mode button key  to confirm your choice
9. 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

(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



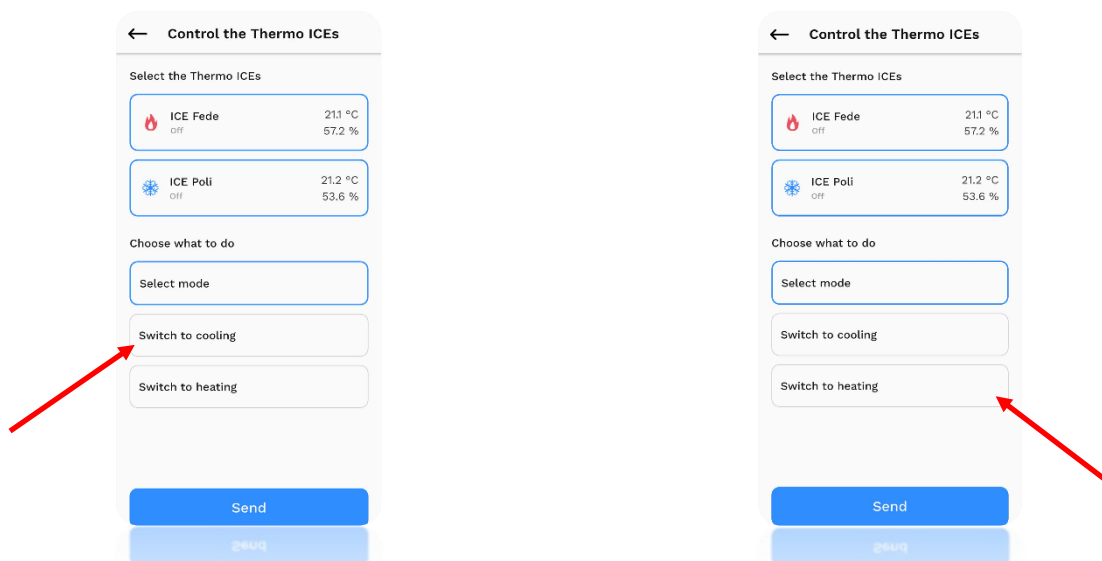
- Click on the Mode button key 
- The symbol indicating the set type of operation   will flash on the screen
- Use the Next button key  to move from one to the other
- Use Mode  to confirm your choice
- Click on Set  to quit

9.3.2 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. Click on "Control the Thermo ICEs"
- Click on "Switch to cooling" / "Switch to heating" if you want to change the type of thermostat operation



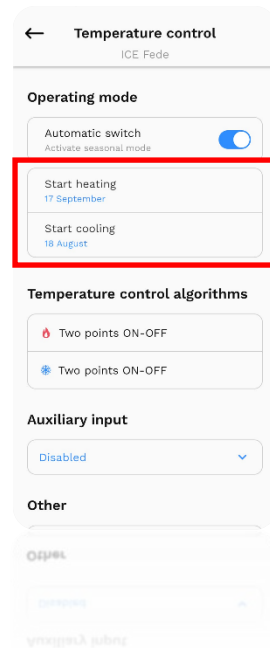
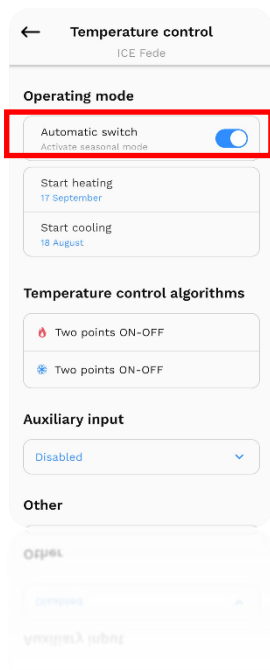
9.3.3 SET THE DATES FOR AUTOMATIC HEATING/COOLING SWITCHOVER VIA THE APP

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. For this to happen, the operating mode must be SCHEDULING.

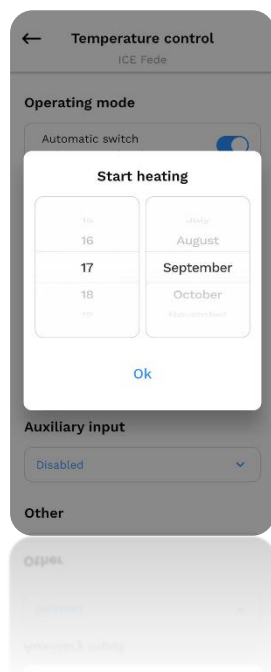
Attention: the dates are not stored by the thermostat but only in the cloud, which handles the change in the type of operation on the predefined days.

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



9.4 Operating modes

The thermostat has six different operating modes:

COMFORT	Pre-defined setpoint; the setpoint can be temporarily forced
PRE-COMFORT	
ECONOMY	
SCHEDULING	
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 SCHEDULING 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.

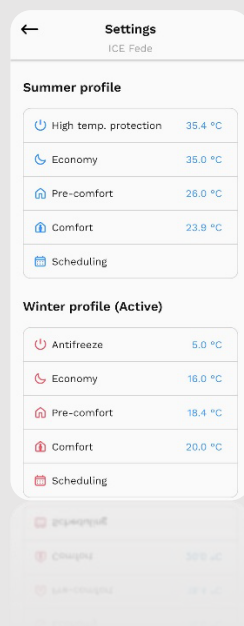
The setpoint predefined by the programming can be altered locally, using the circular slider (temporary setpoint forcing).

REGULATION OF THE TEMPERATURE ADJUSTMENT PROFILES

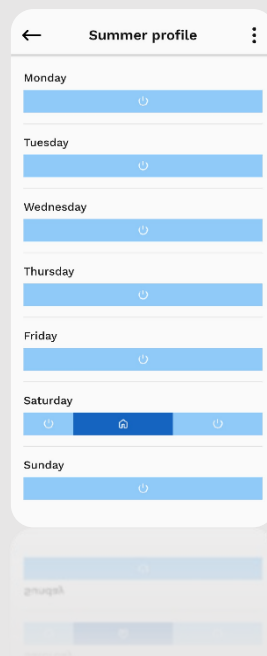
The temperature adjustment profiles can only be modified by an Administrator, via the app.

Follow the instructions below:

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

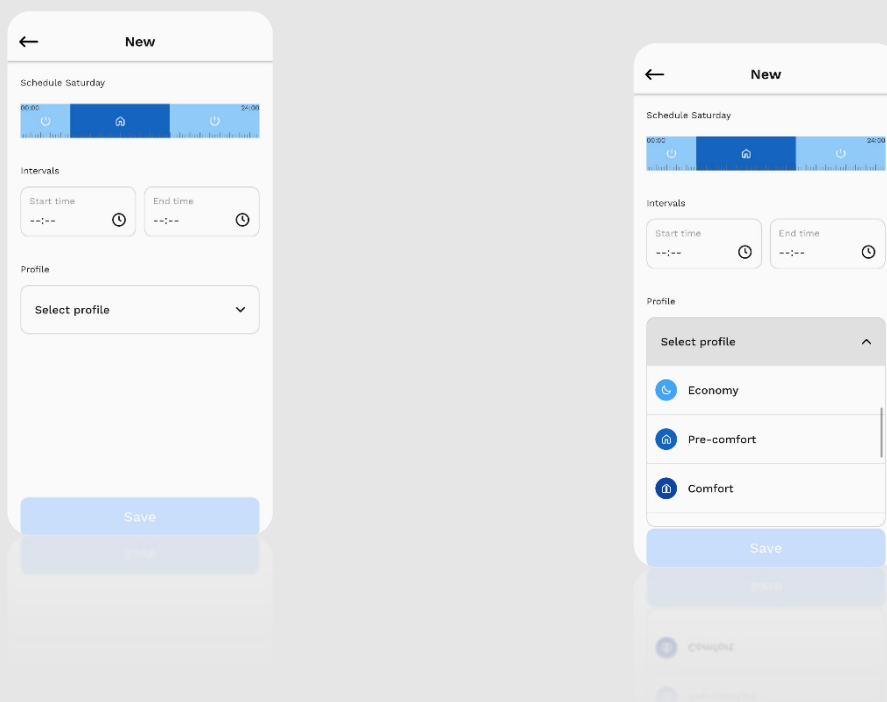


- The temperature adjustment profiles are divided into “**Winter profile**” and “**Summer profile**”. The activation of one or the other depends on the dates set on the “**Temperature control**” page
- Click on “**Scheduling**” to open a page where the Administrator can set the temperature adjustment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

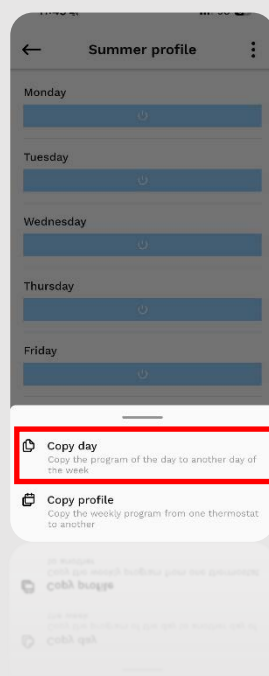


- Click on  /  it opens a page where to modify the daily schedule, or to add an interval.
- Using this instrument it is possible to add up to 8 different intervals for that day.

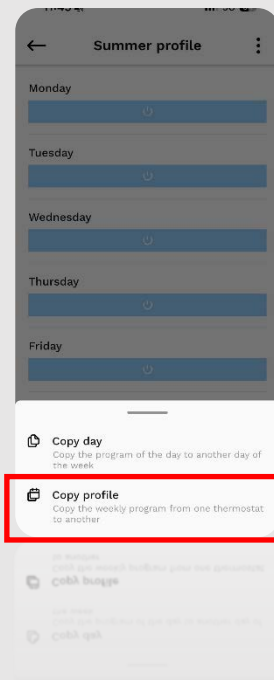
- “Add an interval” to open a file where you can choose one of the six different thermostat operating modes



- 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: **“You must have at least one other Thermo ICE from which or into which to copy the profile”**

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 ($T_{\text{building protection}}$).

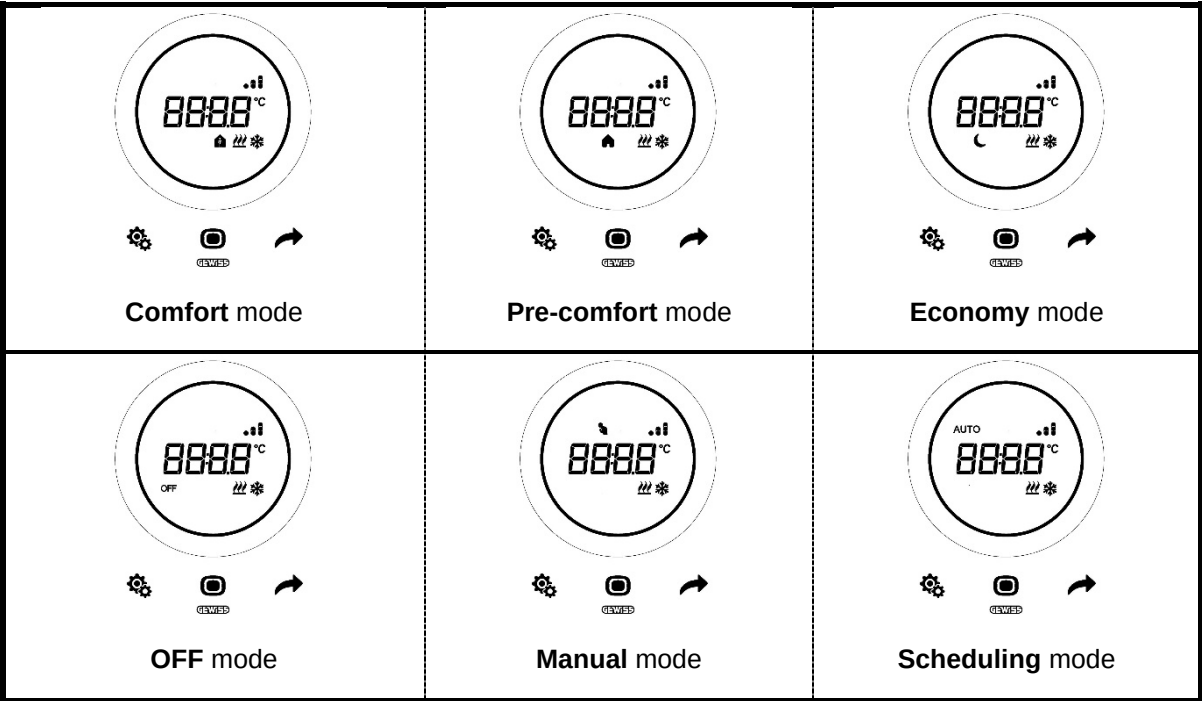
The setpoint regulation range is further limited if the thermostat is set in Slave control mode. The Administrator can make changes to this temperature range.

9.4.1 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

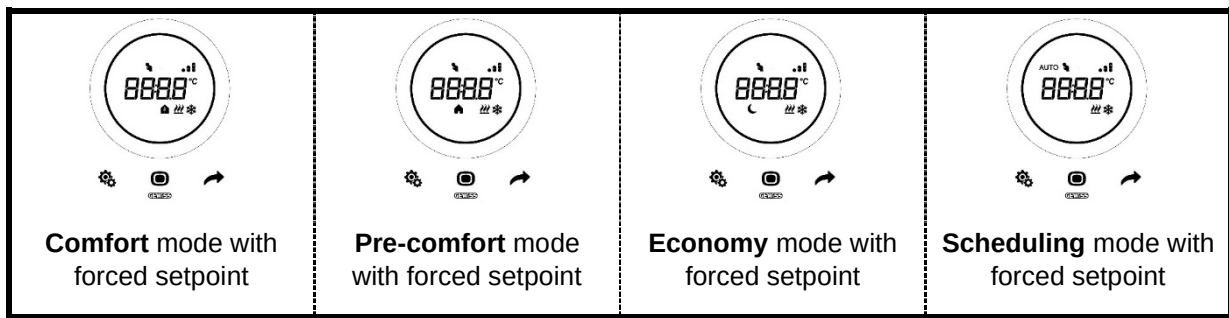


If, on the other hand, the thermostat is set to Slave control, the individual operating modes can only be selected if they have already been set. The user can only change the operating mode by choosing between OFF or the mode already set.

	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 SCHEDULING mode)
- there is a new local modification to the setpoint
- the setpoint is modified via the app (by Administrators only)

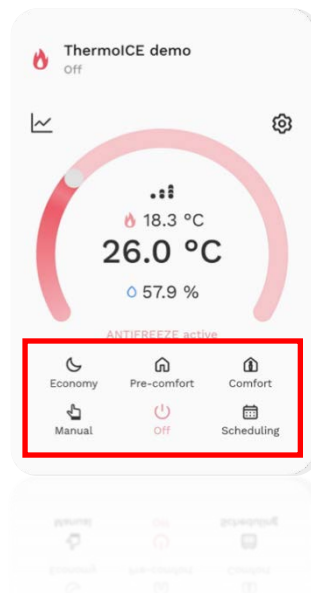
If the thermostat is set in **Slave** control, setpoint forcing may vary within a limited range. The Administrator can regulate this range to make it narrower, but it must always remain within the interval [0.5°; 5°].

9.4.2 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

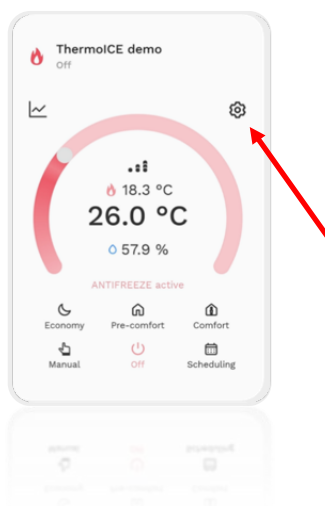


9.4.3 HOW TO CHANGE THE SETPOINT REGULATION INTERVAL FOR MANUAL, ECONOMY, PRE-COMFORT AND COMFORT MODES WITH SLAVE CONTROL

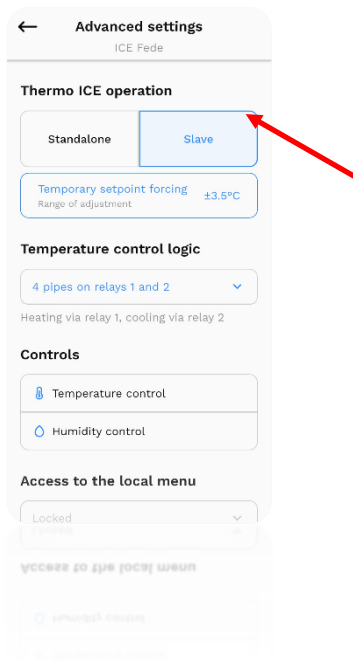
The **Administrator** can use the app to alter the setpoint regulation interval for the ECONOMY, PRE-COMFORT, COMFORT (temporary setpoint forcing) and MANUAL operating modes when the thermostat is set on **Slave** control.

Follow these steps:

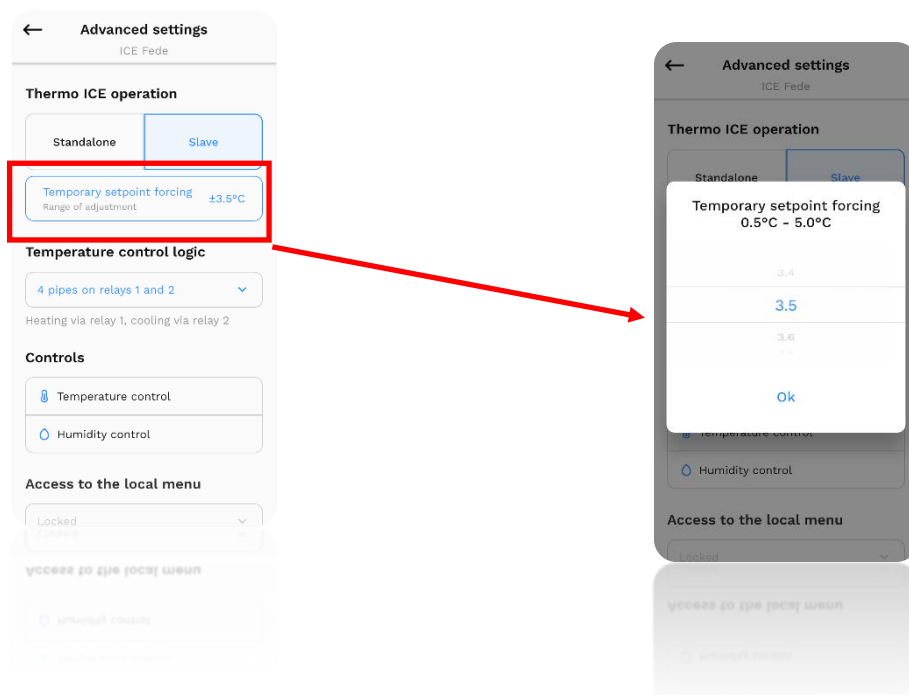
- Open the app on your mobile device
- Click on . The “Settings” page will open



- Scroll down the list until you find the item “**Advanced settings**”. Click on it.
- The control type must be set as “**Slave**”



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



9.4.4 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	$10^{\circ}\text{C} \leq T_{\text{comfort}} \leq T_{\text{pre-comfort}} \leq T_{\text{economy}} \leq 35^{\circ}\text{C}$

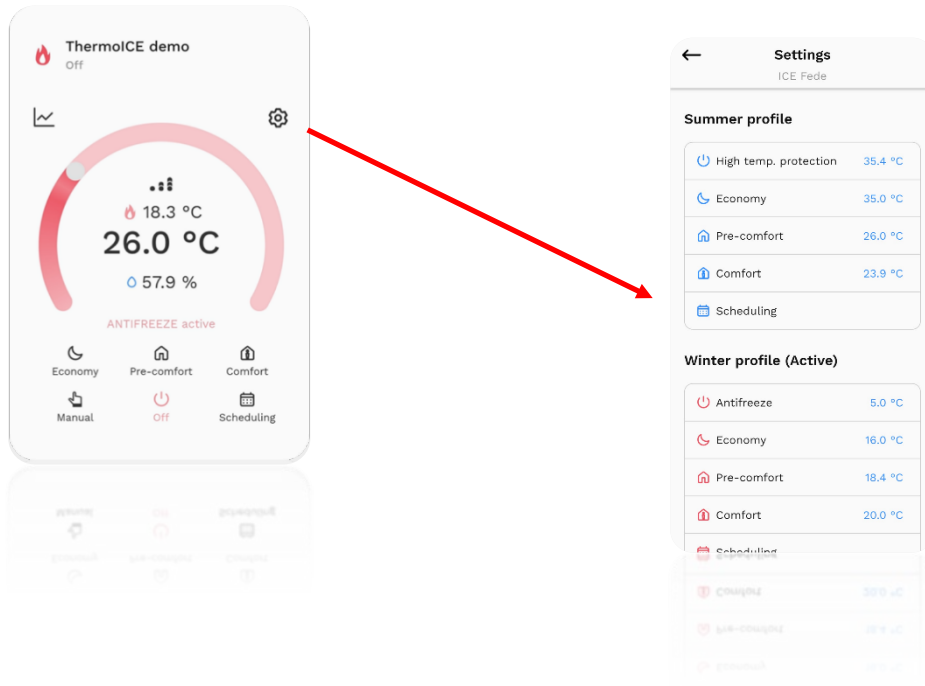
* "T" indicates the general value of the setpoint of that mode

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 with 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.

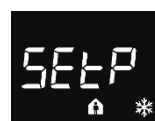
Note that an interval is associated with each setpoint (e.g. Protezione temp. elevate - intervallo [35° - 40°]). This indicates the temperature range within which the setpoint can be regulated. The interval start and end points are determined by the need to respect the hierarchical order mentioned previously.

9.4.5 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

9.4.6 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

9.5 Control algorithms

The thermostat can regulate its own operation (and, consequently, system management) based on 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	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. 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.
Proportional-integral with PWM control	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. 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.

9.5.1 HOW TO SET THE CONTROL ALGORITHM LOCALLY

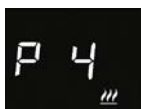
You can choose which of the two algorithms to use directly from the thermostat. This is only possible, however, if the thermostat is set in Stand-Alone control mode; the advanced parameters are not visible if the thermostat is in Slave mode. In addition, access to the advanced parameters must have been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

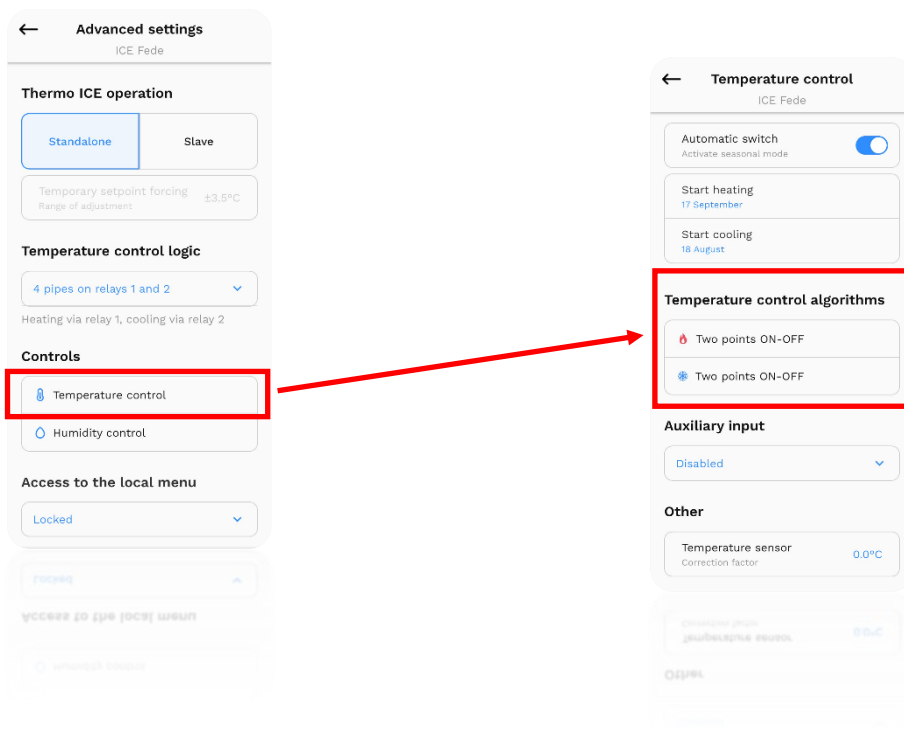
- Use the circular slider or the Next button key  to pass from one value to the other (i.e. to select one algorithm or the other)
- Use Mode  to confirm your choice
- Click on Set  to quit the advanced parameters area

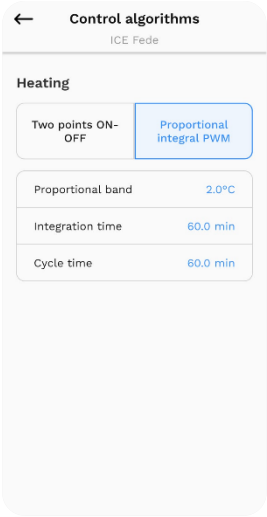
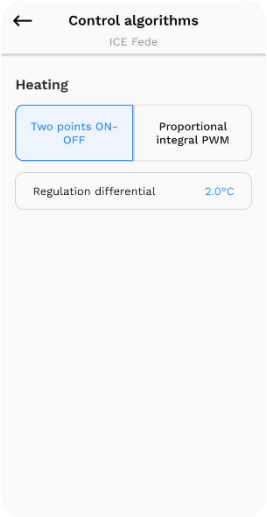
9.5.2 WHERE TO SET THE CONTROL ALGORITHM ON THE APP

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)





HUMIDITY

10 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.

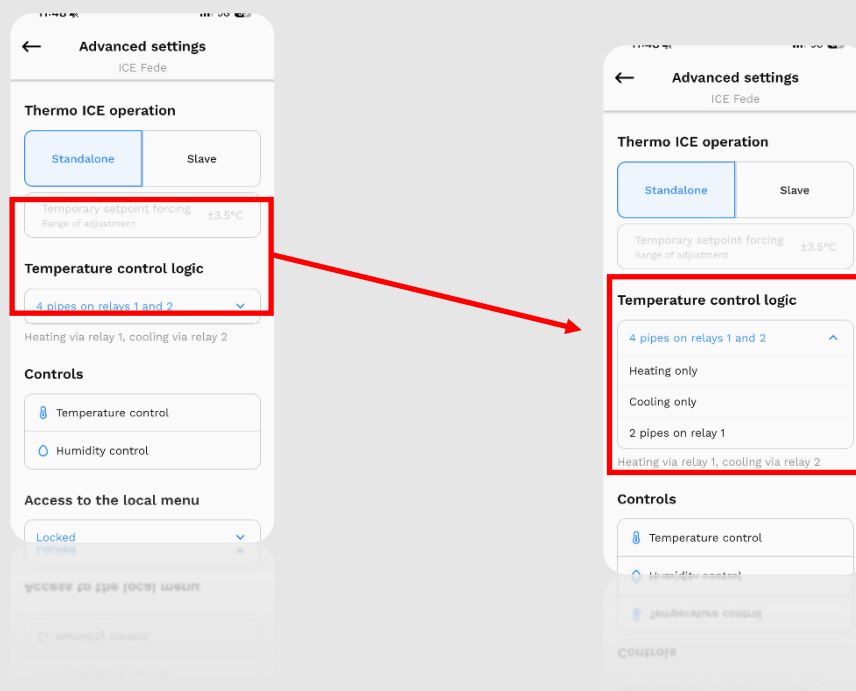
This parameter can only be viewed and set if the “**Temperature adjustment control logic**” is not set on “4 ways”; in this case, it is not possible to manage the humidity level.

At the same time, “**Humidity control**” must be set on “**Humidity increase**” or “**Humidity reduction**” via the app 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**

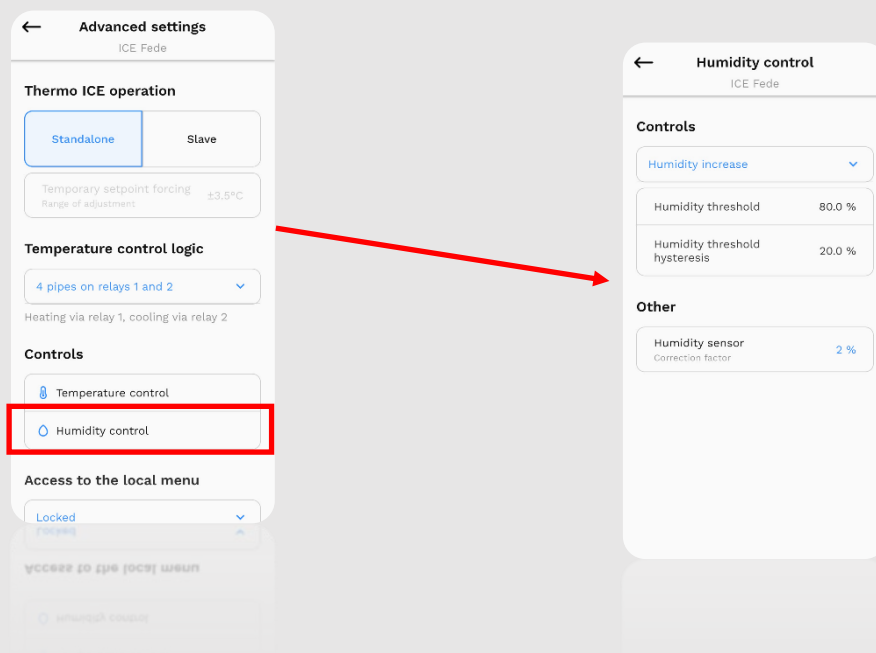
The options that allow the control of the advanced humidity parameters are the first three. Advanced humidity parameter control is not possible if the last option (4 pipes on relays 1 and 2) is selected.



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.

10.1 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

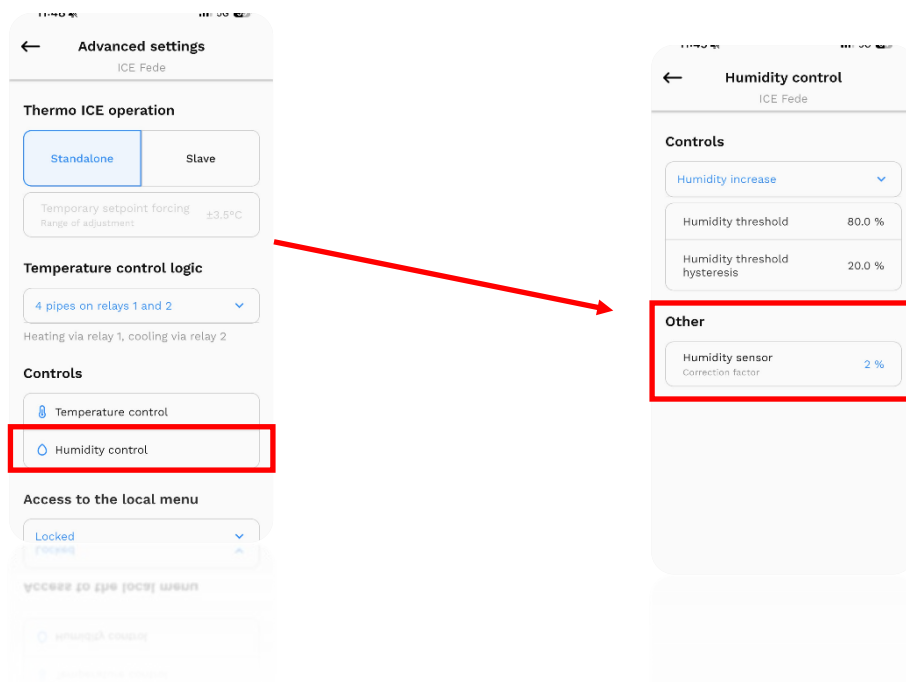
10.1.1 LOCAL REGULATION OF THE “CORRECTION FACTOR FOR THE INTERNAL HUMIDITY SENSOR” (P10)

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

10.2 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%



10.3 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

10.4 Activating/deactivating humidification/dehumidification via the app

See “Setting humidity control via the app”.

10.5 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

10.6 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.
- Click 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 1% steps.

10.7 Local regulation of the humidity threshold hysteresis

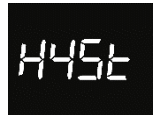
If advanced parameter P11 has been set with a value of 1 or 2, the user can access the basic parameters “**Humidity threshold**” and “**Humidity threshold hysteresis**”.

- 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

10.8 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**”
- Click on it 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%, with 1% step.

AUXILIARY TEMPERATURE SENSOR

11 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.

11.1 Local enabling of the auxiliary input (P18)

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

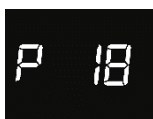
This advanced parameter can only be accessed if the thermostat is set as Stand-Alone and the advanced parameters have been enabled via the app

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:

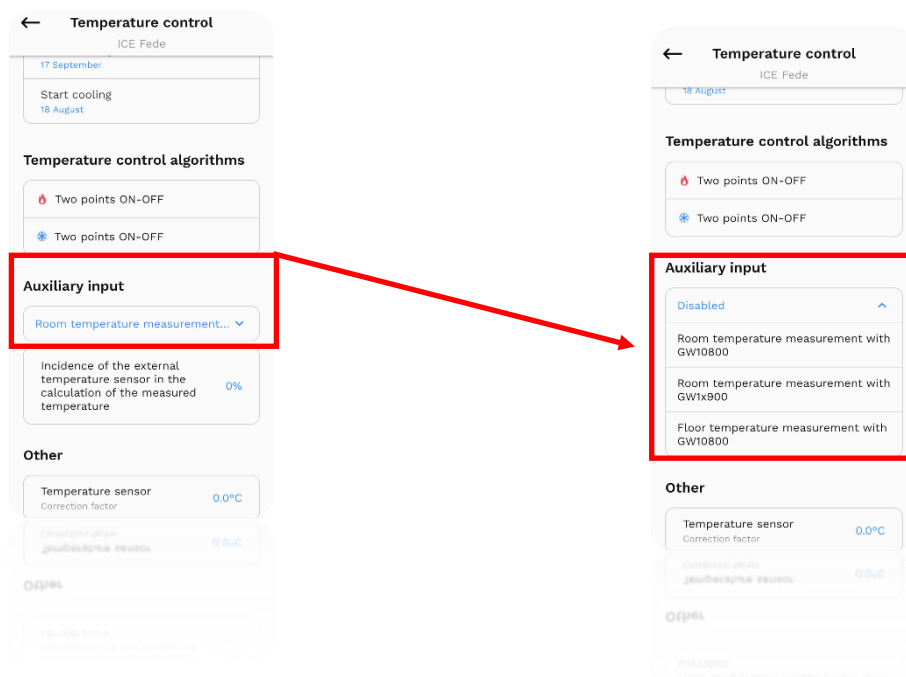
SUMMARY OF VALUES FOR PARAMETER P18	
0	Disabled
1	Enabled for GW1x900
2	Enabled for GW10800
3	Enabled for GW10800 (floor)

- 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

11.2 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

11.3 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”**

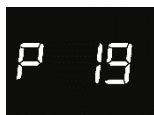
Used to modify the incidence of the auxiliary temperature sensor in the weighted average made to determine the overall temperature value measured by the device.

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



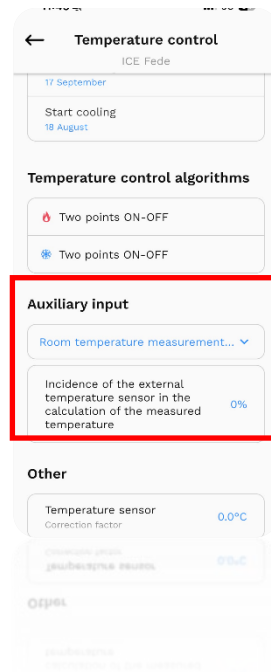
- Select the parameter using the Mode button key 
- The screen will show a numerical value indicating the incidence of the auxiliary temperature sensor in the weighted average made to determine the overall temperature value
- Use the circular slider or the Next button key  to alter this value. The value can be selected within an interval from 0% to 100%
- Use Mode  to confirm your choice
- Click on Set  to quit the advanced parameters area

11.4 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 it, 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 0% to 100%

11.5 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”**

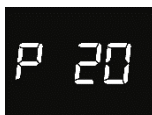
Used to modify (using the CIRCULAR slider) the max. temperature value beyond which the floor temperature alarm is triggered.

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”**
- 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

11.6 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 it 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

DISPLAY REGULATION

12 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.

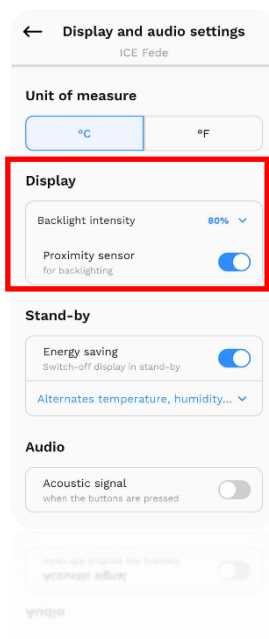
12.1 Setting the thermostat display via the app

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 and Audio

12.2 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%)



12.2.1 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

12.2.2 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

12.2.3 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

12.3 Setting the thermostat display locally

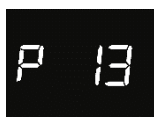
You can regulate the lighting intensity, and activate/deactivate the proximity sensor, standby and audio signal locally if the thermostat status is Stand-Alone and access to the advanced parameters has been enabled via the app by the Administrator.

12.3.1 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

12.3.2 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

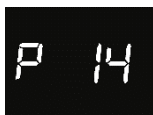
12.3.3 STANDBY ACTIVATION/DEACTIVATION

12.3.3.1 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

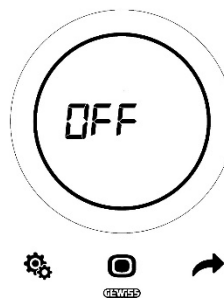
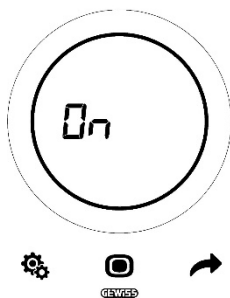
- Select 0 to deactivate standby mode, or 1 to activate it
- Use Mode  to confirm your choice
- Click on Set  to quit the advanced parameters area

12.3.3.2 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

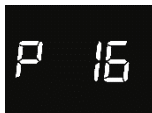


12.3.4 AUDIO ACTIVATION/DEACTIVATION

- 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

12.4 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



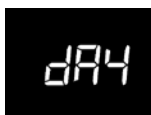
- Use the circular slider or the Next button key  to change the minutes shown on the thermostat
- After setting the required value, press Mode  again to confirm your choice
- Use Set  to quit the menu

12.5 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

13 Usage statistics

The Thermo Ice Wi-Fi 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.

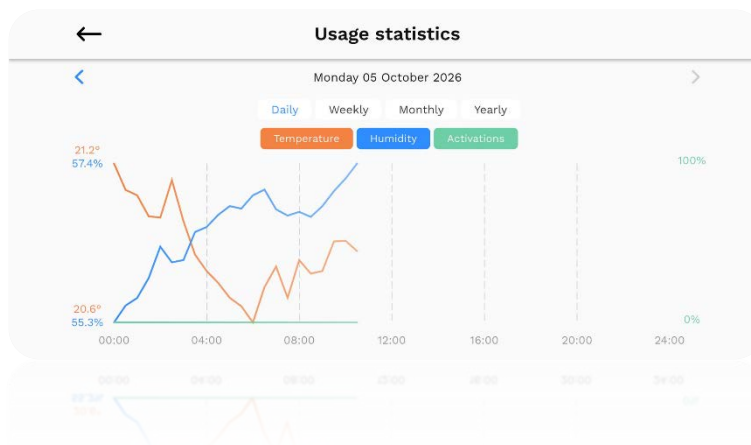
This function offers you immediate visual feedback about the behaviour of the thermostat.

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

1. Open the Thermo Ice Wi-Fi app
2. Select the thermostat that you want to see the data for
3. The home page of the selected thermostat is displayed
4. Click on the  icon



5. You will see a page showing the following chart. There are three variables:
 - a. Temperature
 - b. Humidity
 - c. 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 of the temperature levels registered.

The y-axis to the left of the chart shows the extreme values 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:

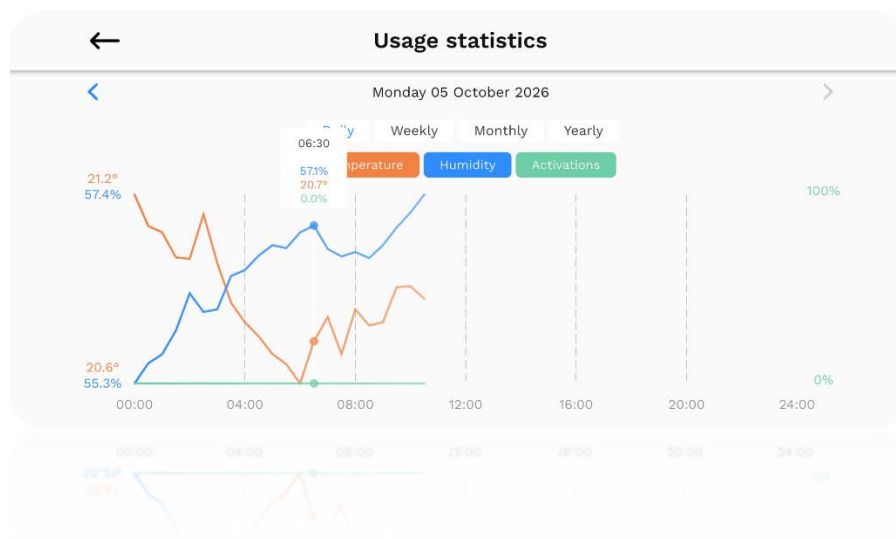
- Yearly
- Monthly
- Weekly
- Daily

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.



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

14 Maintenance

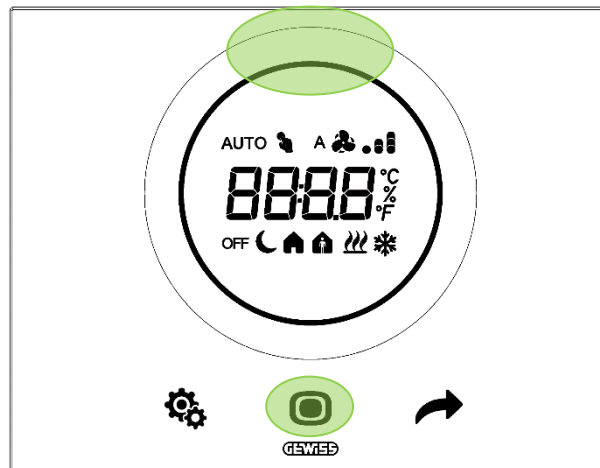
The user may need to clean the plate if it gets dirty. There is a special function that allows you to do this without accidentally altering the thermostat settings.

14.1 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

15 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
- Click on the  button key
- The “**Settings**” page will open. The last item on this page is “**Remove the Thermo ICE from the list**”
- Click on this item to delete the system from the list

16 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
- Inside “**Mange users**” you will find 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 Administrators, there will be two possible options:
 - Remove Administrator privileges
 - Delete “*User name*”

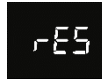
Selecting the second option, the user will be removed from the list

RESETTING THE FACTORY CONDITIONS

17 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

18 Parameters: basic and advanced

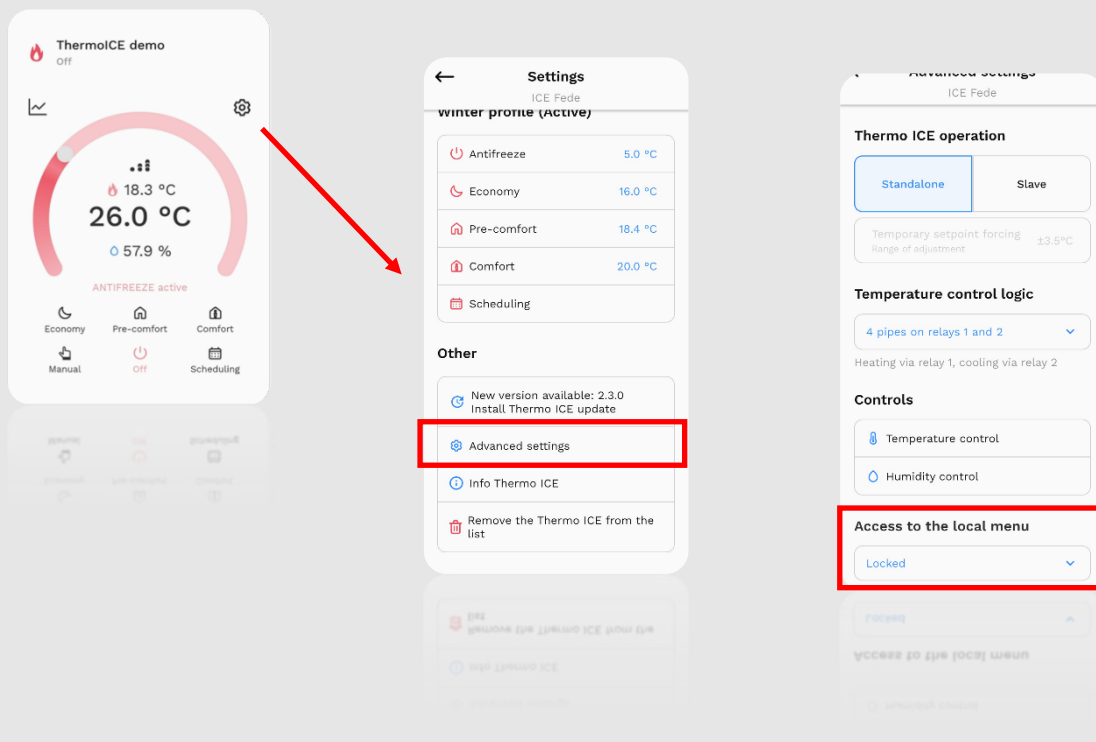
Thermostat operation is governed by a series of parameters that can be activated/deactivated and regulated by the user. Depending on the settings defined via the app, these parameters may be enabled or disabled, enabled for Administrators only, accessible or not accessible locally.

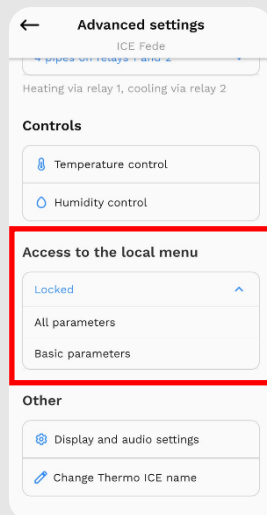
Local access to the basic and advanced parameters must be enabled by an Administrator via the app.

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, 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.

18.1 Basic parameters

These are the parameters most 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.

From the relative humidity page, you can define the humidity threshold and hysteresis level.

From the page showing the current time, you can regulate the hour, minutes and day shown on the thermostat.

18.2 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.

18.2.1 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	
P15	Temperature/Humidity/Time visualisation	P14 = ON
P16	Audio signal	
P17	Proximity sensor	
P18	Enabling of the auxiliary sensor for temperature sensor	
P19	Auxiliary sensor incidence in measured temperature calculation	P18 = 0, 1, 2
P20	Floor temperature alarm threshold	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

18.2.2 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

18.2.3 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

18.2.4 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

18.2.5 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

18.2.6 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

18.2.7 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

18.2.8 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"

18.2.9 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

18.2.10 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%

18.2.11 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".

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.

18.2.12 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)

18.2.13 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%

18.2.14 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

18.2.15 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

18.2.16 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

18.2.17 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

18.2.18 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.

18.2.19 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%	

18.2.20 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	

18.2.21 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
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.

18.2.22 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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