MAPEHEAT THERMO CONNECT

User Guide

MAPEI

MAPEHEAT THERMO CONNECT

User Manual

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Description

The **Mapeheat Thermo Connect** is a smart and easy to use touchscreen thermostat for electrical underfloor heating. It is designed to combine the best comfort with the lowest energy consumption. The **Mapeheat Thermo Connect** is equipped with an ambient sensor and a floor sensor and is thus capable of monitoring and controlling your electrical floor heating in 4 different sensing modes (Room sensing mode / Floor sensing mode / Room sensing mode with floor limiter / No sensor mode) depending on your needs.

The controlling and setup of the thermostat is incredibly intuitive thanks to the smart navigation enabled by the newest technologies: capacitive touchscreen, full color LCD display, enhanced processing power and controlling with swiping method.

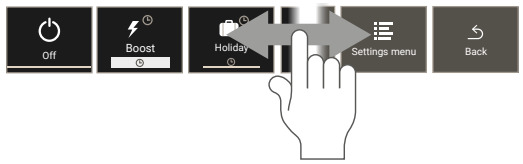
The **Mapeheat Thermo Connect** can be controlled by a smartphone app (iOS and Android) that can be downloaded for free on the App Store or on Google Play. It can also be controlled by voice command using an Amazon Alexa or Google Assistant compatible smart speaker.

Certification

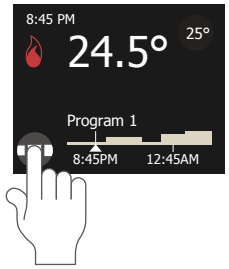
CE UKCA

Navigation Principal

The **Mapeheat Thermo Connect** is a touchscreen thermostat. The buttons on the thermostat can be activated by touching the screen. In order to scroll up and down through the menus or to change values on the wheels, the swiping method is used.

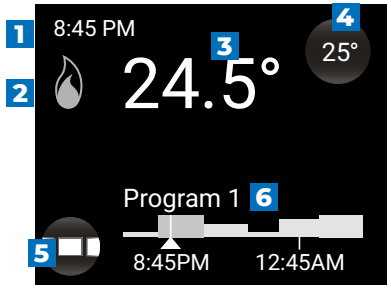


The **Mapeheat Thermo Connect** thermostat is controlled by a central menu where the user can choose between different Working Modes and a simple set of settings. Touch the Menu button to activate the central menu.



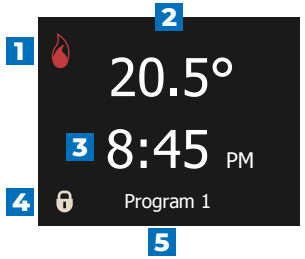
HOME SCREEN

1. Time
2. Heating active symbol
3. Actual temperature
4. **Set temperature button**
5. **Menu button**
6. Visualization of the schedule and working mode

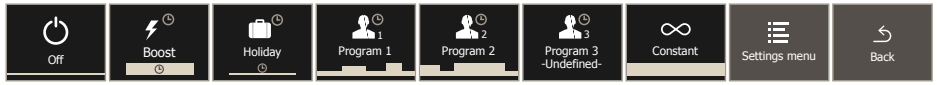


SCREEN SAVER

1. Heating active symbol
2. Actual temperature
3. Time
4. Lock symbol
5. Working mode



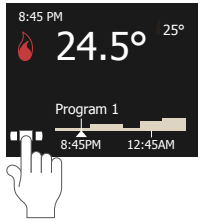
CENTRAL MENU



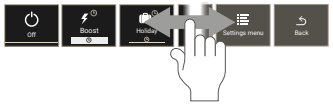
NAVIGATION EXAMPLE

How to set the thermostat in constant mode.

Touch the menu button

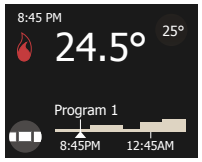


Swipe to the right



Touch the constant mode symbol

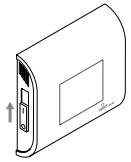
You are now in constant mode
(1 set temperature only)



In this example, the set temperature is +25° and the measured temperature is +24.5°. The thermostat is heating the floor.

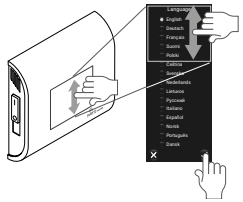
Getting Started

Once the **Mapeheat Thermo Connect** is installed according to the installation instructions, the thermostat can be started up. Use the 2-pole main switch to start up the thermostat.



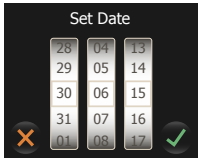
The **Mapeheat Thermo Connect** will start with a design wizard. The wizard will ask for the following topics:

1. Select Language

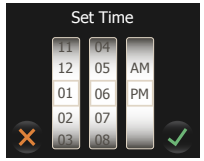


There are 15 languages to choose from

2. Set Date



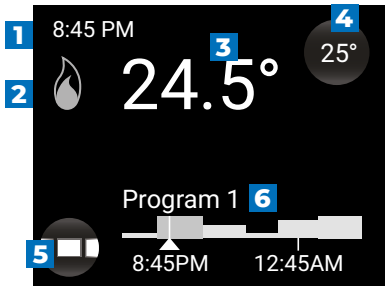
3. Set Time



Navigation Structure

HOME SCREEN

1. Time
2. Heating active symbol
3. Actual temperature
4. **Set temperature button**
5. **Menu button**
6. Visualization of the schedule and working mode



From the home screen, the user can only press two buttons:

4. **Set temperature button**
5. **Menu button**

A button on the home screen is always represented by a round area with a shadow. Besides the Set temperature button and the Menu button, there are also the following buttons:

Boost Duration button (See BOOST mode)

Planned Holiday button (See HOLIDAY mode)

Holiday button (See HOLIDAY mode)

All the other information that can be found on the home screen is information on the status or on the future status of the thermostat.

Time

WIFI symbol

Shows if the WIFI is active and connected to the wireless router.

Actual temperature

Shows the actual measured temperature. This can be the floor or the room temperature depending on the settings of the thermostat (see Sensor Application).

Schedule display

Shows the weekly schedule for the past hour and for the next 5 hours.

Heating symbol

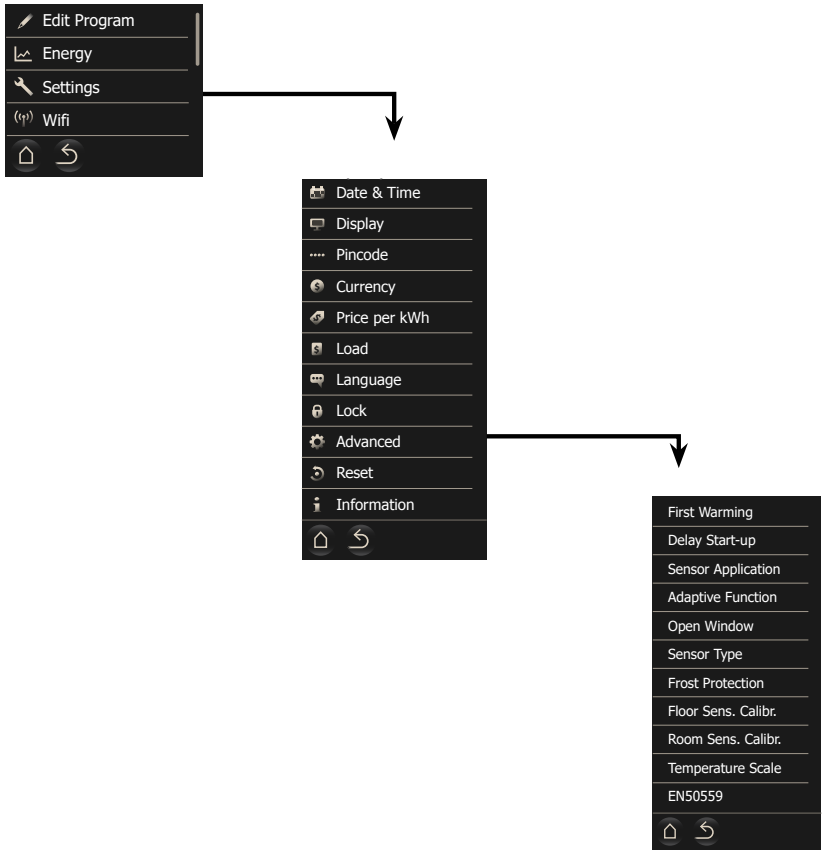
The heating symbol is active when the heating is ON.

CENTRAL MENU

When pressing on the Menu button the user enters the Central Menu. They will see a list of working mode buttons followed by a settings menu and back button.

Using the Working mode buttons, the user can activate the different working modes (see Working Modes).

When entering the “Settings Menu”, the user will navigate and update the settings. The structure of the Menu is represented in the graph below.



Working Modes

Working Mode	Description	Symbol
Off	The OFF Mode is the stand-by mode for the **Mapeheat Thermo Connect.**	
Boost Mode	Using the Boost Mode, the user can decide to temporarily boost the temperature. The user can choose the temperature and the boost's duration.	
Holiday Mode	The Holiday Mode is used to plan a holiday period (this means a period of multiple days where nobody will be present in the area heated by the thermostat).	
Program 1	Program 1 is the first pre-set and adjustable weekly schedule of the **Mapeheat Thermo Connect.**	
Program 2	Program 2 is the second pre-set and adjustable weekly schedule of the **Mapeheat Thermo Connect.**	
Program 3	Program 3 is the third adjustable weekly schedule of the **Mapeheat Thermo Connect**. The third schedule has not been pre-defined as a factory default and can be fully customised by the user.	
Constant Mode	In the Constant Mode, the **Mapeheat Thermo Connect** is aiming for 1 temperature only. You can adapt this set temperature by clicking on the set temperature icon.	

The **Mapeheat Thermo Connect** is controlling the underfloor heating in order to bring a certain comfort feeling. It does this by activating the heating system that is embedded in the floor. This results in a comfortable warm floor and has the effect of heating the room to a certain temperature. In order to achieve this goal, the **Mapeheat Thermo Connect** has to be set in one of the 7 working modes.

Each working mode has a slightly different home screen, this makes it easy to understand in which mode the **Mapeheat Thermo Connect** is working.

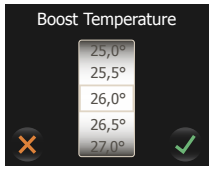
OFF MODE

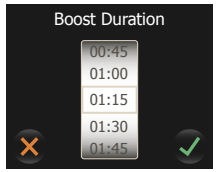
The OFF working mode is the stand-by mode of the **Mapeheat Thermo Connect**. In the OFF mode, the thermostat can still be asked to keep the temperature above the freezing point (See Frost Protection).

In the **Mapeheat Thermo Connect**, the thermostat can still be reached by the App or by voice control through an Amazon Alexa or Google Assistant compatible smart speaker even when it is in OFF mode.

BOOST MODE

The BOOST mode is a temporary override of one of the other working modes for a couple of hours. At the end of the BOOST mode, the **Mapeheat Thermo Connect** will return in the working mode that was active before the activation of the BOOST mode.

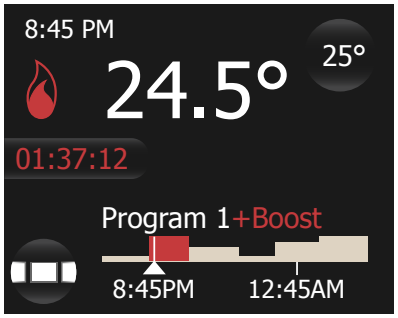




The user can choose the set temperature and the duration of the BOOST mode. When activating the BOOST mode for the second time, the **Mapeheat Thermo Connect** will remember the selection of the Temperature and the desired duration.

On the home screen of the BOOST Mode, the remaining BOOST duration is counting down on the screen. In addition to this, a visualization of the BOOST time and temperature is shown on the schedule bar.

The remaining BOOST time is a button and can be pressed by the user at any time to adapt the remaining BOOST duration.



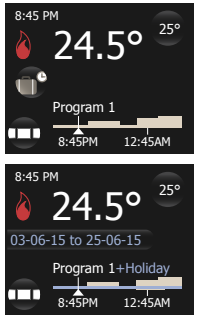
HOLIDAY MODE

The HOLIDAY mode is a temporary override of one of the other working modes for a couple of days (or for a longer period). At the end of the HOLIDAY mode, the **Mapeheat Thermo Connect** will return in the working mode that was active before the activation of the HOLIDAY mode.

The Holiday mode can be programmed in advance. When done so, a Planned Holiday Button will appear on the screen.

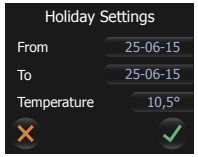
By pressing on this Planned Holiday Button, the user can adapt the Holiday schedule.

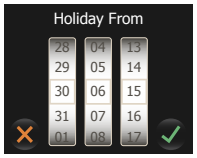
As soon as the start date of the Holiday is reached, the home screen will change into the following screen:

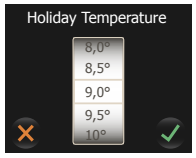


In this screen, you will see that the holiday is ongoing from 03/06/2015 to 25/06/2015 and that the **Mapeheat Thermo Connect** will return in Program 1 after this Holiday period. By pressing on the Holiday Button, the user can adapt the schedule.

When initiating the Holiday Mode, the user will fill in the Holiday period and the desired temperature to maintain during this period.







When activating the Holiday for the second time, the thermostat will remember the preferred Holiday temperature.

Note that any change through a voice command with a Google Home or Amazon Alexa smart speaker will cancel the Holiday Mode.

PROGRAMMABLE MODES

The PROGRAM Modes are the weekly schedule modes. These modes are the most energy efficient modes as they are programmed to aim for different temperatures when people are supposed to be in the rooms they are heating.

PROGRAM 1 and 2 are pre-programmed, but can be customised to the user's needs. PROGRAM 3 is not configured when the thermostat leaves the factory.

PRESET FOR PROGRAM 1

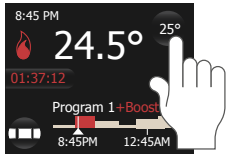
Days	Event Time Start	Event Time End	Event Set-Point
Mon - Fri	00:00	06:00	16
	06:00	08:00	23
	08:00	17:00	23
	23:00	23:59	16
Sat - Sun	00:00	06:00	16
	06:00	23:00	2
	23:00	23:59	16

PRESET FOR PROGRAM 2

Days	Event Time Start	Event Time End	Event Set-Point
Mon - Fri	00:00	06:00	16
	08:00	18:00	23
	18:00	23:59	16
Sat - Sun	00:00	23:59	16

The combination of a good weekly schedule and the Adaptive Function is recommended to have the lowest energy consumption at a desired comfort level. The Adaptive Function is activated in the factory settings and can be de-activated by the user in the Advanced Settings (see Adaptive Function).

In the Program Modes, when the user changes the temperature using the Set Temperature Button, the temperature is adapted temporarily until the next planned temperature change (based on the schedule of the Program). This change is highlighted in the Schedule temperature bar (see image)

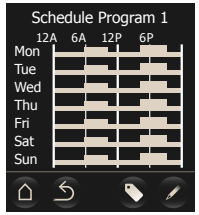


Changing the temperature through a voice command like “Alexa, raise living room by 2°C” will result in a change of Set Temperature for a period of 2 hours. The thermostat will resume the active programme after 2 hours.

UPDATING THE PROGRAMMABLE MODES

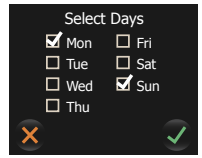
The Event settings are used in order to programme or adapt a weekly schedule used in the Event Mode.

In the Setting Menu, select Edit Program and select the programme you want to edit (Program 1, 2 or 3). A screen with the weekly schedule overview will appear.

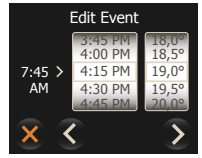


Use the name-tag button to change the Program name (in the **Mapeheat Thermo Connect**, changing the name can be done via the App).

Use the pen button to programme the weekly schedule. Programming the weekly schedule is done in 2 steps:



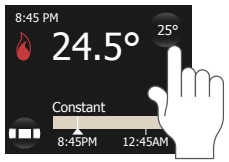
Step 1: Select a day or a sequence of days to programme



Step 2: Programme up to 7 periods for this day / these days. One period is consisting of a start time, a stop time and a temperature you want to maintain during this period

CONSTANT MODE

In the constant mode, the **Mapeheat Thermo Connect** is aiming at 1 temperature only. This is a very easy to use mode, but be aware that there are more energy efficient ways to control your temperature (See PROGRAM 1, 2 and 3 mode).



When using the Set Temperature Button on the constant mode, unlike in the programme mode, the temperature is adapted until the user is changing the temperature again using the Set Temperature Button again.

In constant mode, changing the temperature through a voice command like: “Hey Google, set Bathroom to 22 degrees” will result in a permanent change of the Set Temperature.

Settings

When selecting the Settings Menu in the Central Menu a set of settings is available for the user:

Edit program
Used to create or adapt the weekly schedules of Program 1, Program 2 or Program 3.

Energy
Used to visualise the energy consumption of the underfloor heating system.

Settings
Used to change the settings of the thermostat.

WIFI
Used to set-up a WIFI connection between the **Mapeheat Thermo Connect** and the App to control the thermostat.

ADVANCED SETTINGS

FIRST WARMING

The First Warming of the screed is a function that will help cure newly installed screeds. The goal of this function is to activate the underfloor heating gradually over 21 days. This function should only be used if this is in accordance with the screed manufacturer.

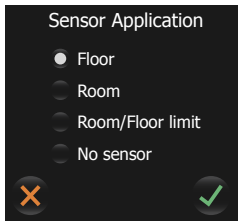
While the screed is curing, the thermostat will be blocked during 21 days (unless the user decides to de-activate the function).

DELAY START-UP

After a power interruption, it can be advisable not to start all electrical supplies at the same time. The Delay Start-Up makes it possible to start each thermostat with a delay of 1 to 15 minutes after restoring of the power supply.

SENSOR APPLICATION

In Sensor Application, the user can select the sensor that will control the floor heating.



The **Mapeheat Thermo Connect** can work in the following Sensing Modes:

- **Floor: Mapeheat Thermo Connect** is controlling the heating based on the floor temperature.
- **Room: Mapeheat Thermo Connect** is controlling the heating based on the ambient temperature of the room.
- **Room/Sensor limit: Mapeheat Thermo Connect** is controlling the heating based on the ambient temperature but cuts off the heating as soon as the floor has reached the temperature defined by the limiter (see Temperature Scale).
- **No Sensor: Mapeheat Thermo Connect** works as a regulator with cycles and is activating the relay for a % of each cycle.

Factory setting: Floor sensing mode if the external floor sensor has been attached to the **Mapeheat Thermo Connect** before the first power up of the thermostat.

Note: If a floor sensor is physically attached to the **Mapeheat Thermo Connect**, then only the Floor and Room/Sensor limit modes are available. If there is no floor sensor attached to the **Mapeheat Thermo Connect**, then the thermostat will give a warning message, and the installer will need to select one of the available sensor applications (Room or No Sensor).

If the Sensor application is set to No Sensor, then controlling the **Mapeheat Thermo Connect** through a smart speaker will not be possible.

ADAPTIVE FUNCTION

The **Mapeheat Thermo Connect** thermostat is a smart thermostat that adapts to the floor construction as well as to seasonality. It learns how and when to start heating in order to have the room or floor at the desired temperature at the desired time.

When the Adaptive Function is not active, the **Mapeheat Thermo Connect** starts heating when a new event is reached. When the Adaptive Function is active, the **Mapeheat Thermo Connect** starts heating earlier in order to reach the desired temperature on time. As the **Mapeheat Thermo Connect** is constantly learning, the thermostat adapts to the external conditions to optimise the comfort feeling while staying extremely energy efficient.

Factory setting: The function is active.

Note: In order to make sure that the comfort is guaranteed, the **Mapeheat Thermo Connect** thermostat will start pre-heating up to 4 hours in advance. In the first couple of weeks, this might seem to be starting excessively early, but the thermostat is learning the floor construction and the external conditions, which will give it the capability to start heating closer and closer to the desired schedule. In other words, your thermostat will become more and more energy efficient as it learns about your floor.

OPEN WINDOW

The **Mapeheat Thermo Connect** is equipped with an Open Window function. This function is making sure that the thermostat is not heating while a window is opened for ventilation. If the thermostat is detecting a sudden temperature drop, it will stop heating for 30 minutes and start heating again after this short period of interruption.

Factory setting: The function is active.

SENSOR TYPE

The **Mapeheat Thermo Connect** is delivered with a 12kΩ sensor, but is compatible with many other sensors. If you have installed a different sensor than the one provided with the thermostat, you can use the Sensor Type to select the sensor used in combination with the **Mapeheat Thermo Connect.**

To change the sensor associated to the **Mapeheat Thermo Connect** thermostat, select the sensor you want, swipe down and validate.

The **Mapeheat Thermo Connect** is compatible with sensors with the following resistance values at +25°C: 2kΩ, 10kΩ, 12kΩ (Factory Sensor), 15kΩ, 33kΩ and 100kΩ.

FROST PROTECTION

When the **Mapeheat Thermo Connect** is put in the OFF mode, the thermostat can protect the floor from freezing by activating the underfloor heating in order not to reach temperatures under a certain threshold. This threshold is called the Frost Protection temperature. The Frost Protection function can be activated or deactivated and the Frost Protection temperature can be set into this menu.

Factory setting: OFF

FLOOR SENSOR CALIBRATION

The user can calibrate the floor sensor to the actual floor temperature by using the calibration menu. The floor temperature can differ from temperature measured by the floor sensor depending on the floor construction.

Factory setting: By default, an offset of 4°C is programmed in the floor sensing mode. This is done in order to be closer to the actual floor covering (like tiles) temperature of the floor. This means that if the floor sensor is measuring +23°C, it will display a +19°C for the floor temperature. For most floor coverings and floor construction, this will be closer to the real temperature as the actual measurement in the floor.

ROOM SENSOR CALIBRATION

You can calibrate the ambient sensor to the actual room temperature by using the calibration menu. The **Mapeheat Thermo Connect** is performing an auto calibration of the room sensor after each factory reset (or after first installation).

The manual calibration of the room sensor should only be performed after this automatic calibration and only in the few cases where the automatic calibration seems not to be 100% accurate.

Please do not calibrate the room sensor before 10 days of operation of the system.

TEMPERATURE SCALE

The temperature scale settings provide the possibility to limit the minimum and maximum settable temperature in the thermostat as well as the minimum and maximum temperature of the floor limiter.

The minimum/maximum temperature limits are defining what the floor limiter should do. If under the minimum temperature limit, the heating will always be ON, if over the maximum temperature limit, the heating will always be OFF.

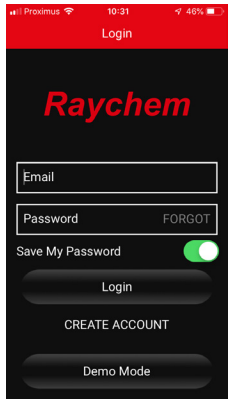
The minimum/maximum temperature scale will limit the setting of the desired temperature within the min/max range. When the user wants to change the temperature, he will only be allowed to do so within the selected range.

WIFI Set-up

Download the SENZ-WIFI App
You can find the App on Google Play
and App Store.

- Create an account using the App

To create an account, you only need to click on the Create Account button in the App and follow the instructions.



Setup the WIFI on each thermostat

On the thermostat go to Settings menu/WIFI and follow the WIFI wizard.
You will be asked to:

- **Choose a network**
  A list of available networks will be shown on the thermostat screen.
- **Enter a network key for the selected network**
  This is the password of the LAN (also known as the WIFI password).
- **Enter a name for the thermostat**
  It is possible to enter a name for the thermostat, but it is more advisable to do this later with the App as this goes faster and is easier on a mobile device. If you do not want to provide a name at this stage, just click on the next icon.
- **Provide an e-mail address**
  This e-mail address will be the link between the App and the thermostat, so it is important to use the same e-mail address as used in the App to create an account.

Once you have done the WIFI set-up on the thermostat, you will receive an e-mail to link the thermostat with the account. Click on the link in the e-mail and follow the instructions to get started with this thermostat in the App.

SETTING UP THE VOICE CONTROL THROUGH GOOGLE ASSISTANT

In the GOOGLE HOME App, you can add the **Mapeheat Thermo Connect** thermostats by doing the following:

- On the home screen, press on the +
- Choose “Set up device”
- Choose “Works With Google”
- Search for “**SENZ-WIFI** Thermostat”
- And follow the instructions on the screen*.

** During the setup you will need your SENZ WIFI account login and password to link your **Mapeheat Thermo Connect** to the Google Home App.*

SETTING UP THE VOICE CONTROL THROUGH AMAZON ALEXA

In the Amazon Alexa App, you can add the **Mapeheat Thermo Connect** thermostats by doing the following:

- On the home screen, select “More”
- Choose “Skills & Games”
- Search for “**SENZ-WIFI** Thermostat”
- And follow the instructions on the screen*

** During the setup you will need your SENZ WIFI account login and password to link your **Mapeheat Thermo Connect** to the Amazon Alexa App.*

Trouble Shooting

If a fault or error occurs, the thermostat will display one of the following error messages:

E0: Internal failure. The thermostat is defective. The thermostat must be replaced.

E1: Internal sensor defective. The thermostat must be replaced.

E2: External wired floor sensor disconnected, defective or short-circuited. Contact your installer for reconnection or replacement.

E5: Internal overheating. Contact your installer to have the installation inspected.

Technical Specification

Supply voltage	230VAC +/- 10%, 50Hz
Method of mounting	Flush mounting
Main power switch	2-pole
Relay output	230V, max. 13A
Protection class	IP21
Terminals	2.5mm² screw cage clamp
Terminal wire size	2.5mm²
Floor sensor with 3m cable	12k at +25°C +/- 0.75°C (no:38165)
Maximum length of floor sensor cable	100m, 2 x 1.5mm² (230VAC cable)
Control modes	Floor Sensor (active when floor sensor installed and connected)
	Room sensor with floor limiter (active when floor sensor installed and connected)
	Room sensor (active when no floor sensor is connected)
	No Sensor % regulator with cycles of 20 minutes (active when no floor sensor is connected)
Temperature regulation method	PWM (pulse width modulation method) with PI control loop
Type of action	1.B.
Control pollution	Degree 2
Purpose of control	Electronic thermostat for electric floor heating

Rated impulse voltage	4kV
Temperature for the ball pressure test	+125°C
SELV limits realized	24V
Software class:	A
Overvoltage category	III

TECHNOLOGY FROM

nVent RAYCHEM

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