



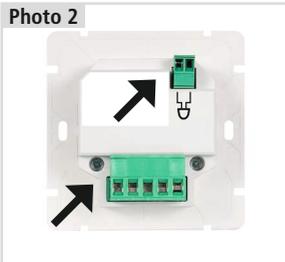
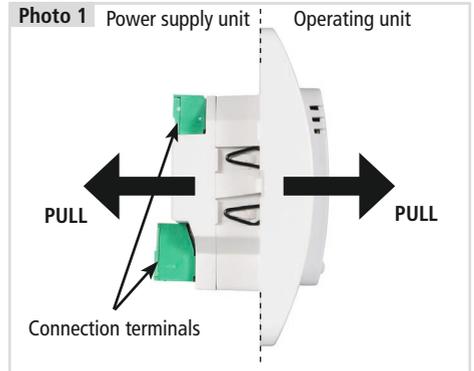
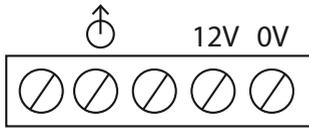
# Room thermostat UP

System E-ENERGY CARBON

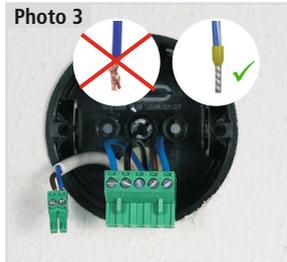


## Installation instructions

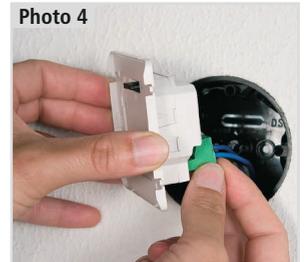
## Connection diagram:



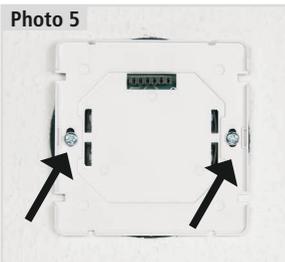
PULL and remove the connection terminals.



Connect as shown in the connection diagram.



Connect as shown in the connection diagram.



Screw the power supply unit into the cavity wall box.



The plug and metal spring openings.



PRESS and fit the operating unit on the power supply unit.

**SPARE BATTERY (rechargeable NiMH):** The thermostat is equipped with a spare battery; the charging time for the battery is about 24 hours. If there is a power cut, the system automatically switches to a spare battery (relay is off). The actual time is maintained for more than 100 hours, set programmes are stored permanently in the E-EPROM memory. When mains power supply returns, the thermostat operates in the mode that was set last. **After the system is started for the first time, the spare battery takes about 24 hours to charge!**

**SYSTEM PLUG-IN = fast and easy installation.** The thermostat has a power supply unit and a microprocessor control unit, which are connected simply by inserting connection terminals. The connection wires (and/or the external sensor) are connected in the connection section of the power supply unit and are attached in the cavity wall box, while the operating unit is fitted onto the power supply unit, after which the installation procedure has been completed.

## Description

The Room thermostat UP is a digital thermostat with a room and floor sensor that has been designed specially for radiant heating systems. A combination of external and internal sensors (see page 7 for setting instructions) enables control of:

- |  |   |
|--|---|
| 1) <b>Room temperature</b> (External sensor)<br>(Thermostat) | Locate external sensor where a pleasant room temperature is required<br>Fit the thermostat at a suitable location, where no distortion of the temperatures measured can be expected   |
| 2) <b>Floor temperature</b><br>(External sensor)             | Suitable, for example, for bathrooms, where the temperature needs to be independent of the room temperature   |
| 3) <b>Combination</b> (both sensors)                         | The thermostat measures the room temperature and the external sensor controls the maximum floor temperature; a pleasant room temperature is required, while the floor temperature is checked at the same time (suitable for wood and laminate floors) |

9 weekly programmes and 6 temperature changes per day can be set. There is a choice of control (page 6) and other functions that are necessary in order to regulate the room and floor temperature effectively.

## Installation

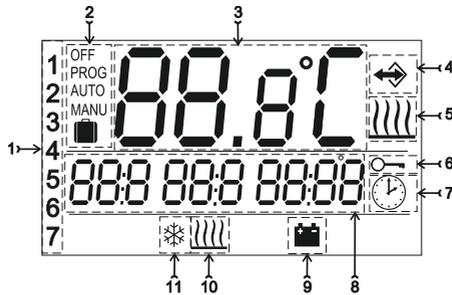
Please install the **thermostat** at a suitable location (about 1.2 – 1.5 m above the floor), where there is no direct cold or warm air flow or sunshine and there are no other disturbing influences. Please avoid installation on an external wall too. At locations with higher moisture levels (bathroom, kitchen), please comply with applicable standards and install the thermostat as far away as possible from the bathtub, shower and washbasin.

The **external floor sensor** (model HT-Z001) must be installed in a flexible plastic pipe fitted in the floor as close as possible to the surface. The pipe must be grounded and protected against the penetration of building materials in such a way that it is if at all possible easy to replace the floor sensor. It must not be located parallel to the three-phase electric power wire! It can be extended to a maximum length of 30 m. Installation may only be carried out by trained personnel with appropriate expertise! **Installation may only be carried out with the electricity supply turned off!**

- 1) Switch off the main power circuit breaker.
- 2) Check the position of the cavity wall box; installation should be parallel to the wall.
- 3) Detach the power supply unit of the thermostat from the microprocessor (operating unit), see photo 1.
- 4) Pull the connection terminals off the back of the thermostat, see photo 2.
- 5) Connect the cable to the connection terminals in accordance with the connection diagram (photo 3).
- 6) Insert the terminals in the thermostat terminals and fit the power supply unit in the cavity wall box, see photos 4, 5.
- 7) Insert the plug of the operating unit into the power supply unit and press it in; the metal springs need to be fitted in the relevant openings, see photos 6, 7.
- 8) Switch the main power circuit breaker on. The thermostat is ready for operation. The backlighting does not work until the backup battery has been charged (takes up to about 24 hours).
- 9) Set constant 9 (page 8) according to the power consumption of the electrical load; if this is not done, the actual temperature may be displayed incorrectly.

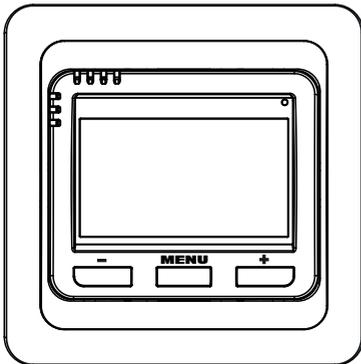
Note: after the work has been completed, it is advisable to check whether the connections have been established correctly with the help of the TEST function (page 10).

## LCD Description



1. Current day (the number of days for settings is selected in the PROG mode)
2. Operating mode  
OFF / PROG / AUTO / MANU / HOLIDAY
3. Current room temperature
4. Room temperature display, measured by the external sensor
5. Heating mode display (ON / OFF)
6. Button lock display
7. CLOC mode display (setting of the actual day and actual time)
8. Display for the required temperature and the actual time/list with modes (this line and the details are explained in each mode)
9. Battery supply display (see page 3)
10. Display for the setting of the external sensor that acts as the floor sensor
11. Freeze protection temperature 3°C

## Description of the control buttons



**MENU** key:

**Press for a short time** = open main menu and confirm (ENTER)

**Press for a long time (about 3 seconds)** = back from the current mode

**+ / -** key:

**In the basic mode** = access to information (see page 9)

**In the main menu** = search for and setting of the current figures

Simultaneous pressing of the **MENU** key and the **-** key (in the basic mode) = key lock

Simultaneous pressing of the **MENU** key and the **+** key (in the basic mode) = key release

Simultaneous pressing of the **MENU** key and the **+ / -** key (in the main menu) = back to the basic mode

**Note:** whenever a button is pressed for the first time, the LCD backlight is activated first!

## Operating modes

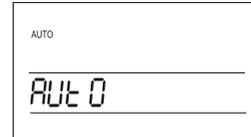
Whenever any button is pressed for the first time, the LCD backlight is activated (if the backlight is not working, the batteries have not been charged). It is necessary to charge the thermostat for about 1 day). By pressing the **MENU** key briefly, you reach the main menu, where you can choose further operating modes.

### AUTO

The thermostat operates according to the preset weekly programme.

Press the **MENU** key and select AUTO mode using the **+** / **-** keys.

Confirm by pressing the **MENU** key.

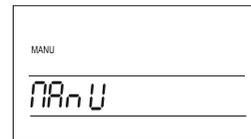


### MANU (factory setting: 21°C)

The thermostat operates according to the temperature setting, which remains constant until the next manual change is made.

Press the **MENU** key and select MANU mode using the **+** / **-** keys.

Confirm by pressing the **MENU** key.

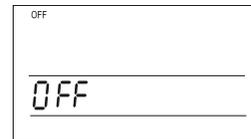


### OFF

The thermostat remains switched off until a manual change is made.

Press the **MENU** key and select OFF mode using the **+** / **-** keys. Confirm

by pressing the **MENU** key. The freeze protection function is always active!



### HOLIDAY

The thermostat makes sure that the required temperature is maintained until the set date and time. Once the set date / time has been reached, it returns to AUTO or MANU mode.

Press the **MENU** key and select AUTO mode or MANU mode using the **+** /

**-** keys. Confirm by pressing the **MENU** key. Press the **MENU** key again and

select  mode using the **+** / **-** keys. Confirm by pressing the **MENU**

key. The temperature flashes on the display. Set the temperature required for

the holiday period using the **+** / **-** keys and confirm this by pressing the

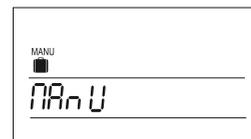
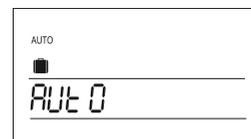
**MENU** key. Then enter the hour, minute, day, month and year for the end of your

holiday and confirm each setting by pressing the **MENU** key.

Once you have completed the settings, the HOLIDAY mode

switches on within 1 minute!

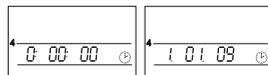
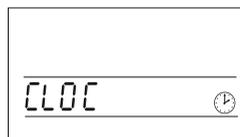
**The end of the holiday (date) is shown on the display!**



## CLOC

### Current time and date setting.

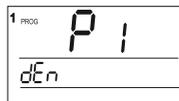
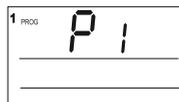
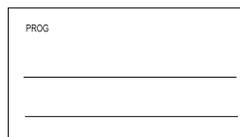
Press the **MENU** key and select CLOC mode using the **+** / **-** keys. Confirm your choice by pressing the **MENU** key. The current time of day flashes on the LCD. Set the current actual time of day using the **+** / **-** keys and confirm this by pressing the **MENU** key. Set the minutes and then the seconds and information about the day in the same way. After this, press the **+** / **-** keys again and set the current day, month and year. Each setting is confirmed by pressing the **MENU** key.



## PROG

Setting of weekly programmes (there is a choice of 9 weekly programmes with 6 changes per day). Press the **MENU** key and select PROG mode using the **+** / **-** keys. Confirm your choice by pressing the **MENU** key.

PI (first weekly programme) flashes on the display. Confirm this by pressing the **MENU** key and the number of days for this setting flashes on the display. Choose one of the options using th **+** / **-** keys (one day after another or Mon. – Fri., Sat. – Sun. and Mon. – Sun. can be set). Confirm your choice by pressing the **MENU** key. U1 now flashes on the display for the setting chosen for the first temperature change. Set the temperature using the **+** / **-** keys and confirm this by pressing the **MENU** key. Now set the time this temperature is to be switched on by pressing the **+** / **-** keys and confirm your choice using the **MENU** key; U2 now flashes on the display for the setting chosen for the second temperature change. Use the same method as when setting the first temperature change. You can set up to six temperature changes per day in this way. Simultaneous pressing of the **MENU** key and **+** / **-** keys returns you to the basic mode.

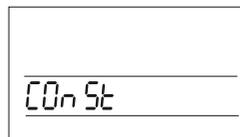


### CHOOSING EVEN/UNEVEN WEEKS

The 2 final programmes (PU = even calendar weeks, PL = uneven calendar weeks) are provided for setting the programmes for the even and uneven weeks. They are useful for shift operation, for which a different programme is required each week. If this function is activated (see page 10), the programmes PU and PL are changed automatically every week.

## CONST

Setting the constants for control purposes. Press the **MENU** key and use the **+** / **-** keys to choose CONST mode. Confirm your choice by pressing the **MENU** key and the first constant appears on the LCD:



### 1 PI CONTROL OR HYSTERESIS

Use the **+** / **-** keys to choose a control type and confirm your choice by pressing the **MENU** key. When choosing PI control, constant 2 is skipped automatically; instead of this, constants 3, 4 and 5 appear, which are associated with setting PI control. After hysteresis selection has been made, figures from 0.1 to 5°C can be set. If hysteresis is, for example, 1°C and the required temperature is 20°C, then the thermostat switches off at 20°C and switches back on again at 19°C.



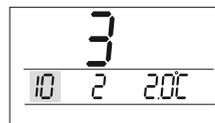
## 2 MINIMUM ON TIME FOR HYSTERESIS

A minimum on time for the heating system in minutes is set for hysteresis. A range of **1 to 5 minutes** can be chosen. Set the relevant figure using the **+ / -** keys and then confirm your choice by pressing the **MENU** key.



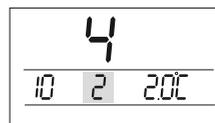
## 3 TIME PERIOD FOR PI CONTROL

The range that can be chosen is from 5 to 20 minutes. The length of this time period depends on stabilisation of the room temperature. The optimum setting for underfloor heating is 10 – 15 minutes. Set the relevant figure using the **+ / -** keys and then confirm your choice by pressing the **MENU** key.



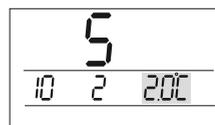
## 4 MINIMUM ON TIME FOR THE HEATING SYSTEM IN PI CONTROL

The range that can be chosen is from 1 to 5 minutes. (The setting depends on the type of heating system and the choice of time period.) The optimum setting for underfloor heating is 4 minutes. Set the relevant figure using the **+ / -** keys and then confirm your choice by pressing the **MENU** key.



## 5 PROPORTIONALITY RANGE IN PI CONTROL

Diese Angabe bestimmt den Wert, bei dem die PI-Regelung funktionsfähig ist. This setting determines the point at which PI control is operational. The required temperature is, for example, 22.0°C and the proportionality range is 1.5°C. The source will then heat completely up to 20.5°C and PI control starts to operate once this temperature has been reached. The proportionality range can be set from 1 to 3°C. Set the relevant figure using the **+ / -** keys and then confirm your choice by pressing the **MENU** key.



## 6 SELECTION OF THE EXTERNAL SENSOR

The external sensor is selected according to the type of control:

1. Control based on the room temperature – the sensor is installed in the room (choice - - -)
2. Control based on the floor temperature – the sensor is installed in the floor (choice - - -)
3. Control of the maximum floor temperature – the sensor is installed in the floor (choice 15 to 99.5°C)

Choose the type of control using the **+ / -** keys and then confirm your choice by pressing the **MENU** key.

### EXTERNAL SENSOR AS A ROOM SENSOR:

- - - If it is connected, the external sensor measures the temperature where the sensor has been installed (this solution is appropriate for the bathroom, for example, which is supposed to have a warm floor irrespective of the room temperature). A sensor used in this way is shown on the LCD with the symbol  bezeichnet.



### EXTERNAL SENSOR AS A FLOOR SENSOR:

15...99,5°C If it is connected, the external sensor measures the floor temperature. A maximum temperature is set for the underfloor heating (controls the temperature on the basis of the room temperature, while the floor temperature is checked at the same time as well).



The floor sensor (control sensor) is shown on the LCD with the symbol . If the temperature limit that has been set is exceeded, the thermostat switches off irrespective of the room temperature and STOP appears on the LCD. The heating system does not switch on again until the temperature of the external sensor has dropped by 0.5°C. If the sensor has not been connected or is broken, the fault message C2.Err appears on the LCD.

**When the external sensor has been connected, a RESET operation MUST be carried out (constant 12)!**

## 7 MINIMUM TEMPERATURE OF THE UNDERFLOOR HEATING

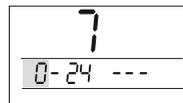
This setting is only possible if the external sensor is connected and the function "External sensor as a floor sensor" has been chosen. It determines a period of time for which the minimum floor temperature is maintained. This makes it possible to reach a pleasant floor temperature in the set time. If the temperature drops below the set limit, the floor is automatically heated up to the minimum temperature.

Set the beginning of the time period for maintenance of the minimum floor temperature using the **+** / **-** keys and then confirm your choice by pressing the **MENU** key.

Set the end of the time period for maintenance of the minimum floor temperature using the **+** / **-** keys and then confirm your choice by pressing the **MENU** key.

Set the minimum floor temperature using the **+** / **-** keys and then confirm your choice by pressing the **MENU** key.

Note: in the example, you can see one setting – the floor temperature is not allowed to drop below 10°C throughout the day.



## 8 CORRECTION OF THE CURRENT TEMPERATAURE

The purpose of this is to correct the temperature measured by the thermostat. The setting may only be made after 12 operating hours, once the temperature inside the thermostat has stabilised. Measure the room temperature and, if it differs from the temperature that the thermostat is indicating, then set a correction in a range between **-5°C to +5°C**. Set the relevant figure using the **+** / **-** keys and then confirm your choice by pressing the **MENU** key.



## 9 POWER CONSUMPTION OF THE CONNECTED LOAD

The power consumption of the radiant heating system connected is set in watts. The figures are chosen in 100 W stages in a range between **0 and 2,700 W**. The maximum possible power level is 2,760 W. More precise control is achieved by choosing this constant.

Set the relevant level using the **+** / **-** keys and then confirm your choice by pressing the **MENU** key. Use 0 when the power consumption is lower than 100 W.



## 10 PRICE PER kWh

This function enables the price per kWh to be set in a range between 0.00 and 99.99. HT-R010 calculates the total consumption on the basis of this price and the operating hours (see page 10 for the display). Set the relevant price using the **+** / **-** keys and then confirm your choice by pressing the **MENU** key.



## 11 "OPEN WINDOW" FUNCTION (factory setting: 1.5°C)

**0.5 to 5°C** If the actual temperature drops by this temperature setting within 2 minutes, the OPEN WINDOW function is activated and the heating system switches itself off.

---- **The function is disabled**

Set the required temperature using the **+** / **-** keys and then confirm your choice by pressing the **MENU** key.



## 12 FIRMWARE VERSION / RENEWAL OF THE FACTORY SETTING

Information about the firmware version. If you press the - button for a longer period of time (for about 3 seconds), "RESET" appears on the LCD and the factory setting is renewed! You can leave the CONST mode at any time by pressing the **MENU** key and the **+** / **-** keys simultaneously (return to the basic menu).



### Further functions

#### INFO

You can find the following information or set further functions in the basic menu:

#### REQUIRED TEMPERATURE

If you press the **+** / **-** keys in the basic menu, the required temperature appears on the display and can be changed using the **+** / **-** keys (changes in AUTO mode are only maintained until the next set programme change, while changes in MANU mode are maintained permanently). You reach the number of the programme chosen by pressing the **MENU** key again.



#### NUMBER OF THE PROGRAMME CHOSEN – only in AUTO mode

The purpose of this function is to make a quick change of the programme chosen in AUTO mode. Following setting, e.g. after a week, both programmes P1 and P2 can be changed using the **+** / **-** keys. By pressing the **MENU** key again, you reach ...



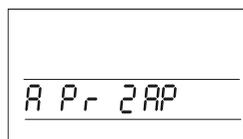
#### SUMMER OPERATION (factory setting – = disabled)

In this mode, the heating system cannot be switched on. It is meant for summer, when it is not necessary to heat. You activate the mode by using the **+** / **-** buttons and choosing the option A (the message LETO = SUMMER appears on the LCD), which you confirm by pressing the **MENU** key. Then you go to the function ...



#### TURNING THE HEATING SYSTEM ON EARLY (factory setting – = disabled)

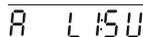
Thanks to this function, you reach a required temperature at the required time. Over a period of two days, the thermostat determines the heat constants in the room and the heating system is then switched on the necessary time in advance. The time for switching the heating system on early is restricted to 2 hours. You activate this function by using the **+** / **-** keys and choosing the option A, which you confirm by pressing the **MENU** key and then you go to ...



## CHOICE OF AN EVEN/UNEVEN WEEK

(factory setting – = disabled)

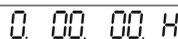
This function is meant for cases where you have set programmes PU (even calendar week) and PL (uneven calendar week) – see page 6. After this function has been selected, the programmes set alternate each week. They are useful for shift operation, for which a different programme is required each week. You activate this function by using the **+** / **-** keys and choosing the option A, which you confirm by pressing the **MENU** key. Then you go to ...



A L15U

## OPERATING HOURS

The operating hours of the heating system are shown on the LCD. The counter can be set to zero by pressing the **-** key for 3 seconds. Then you press the **MENU** key and go to ...



0 00 00 H

## TOTAL CONSUMPTION

This is displayed when CONST10 (PRICE PER kWh) is set. The consumption of connected loads is indicated in kW (kilowatts). Max. display: 99.999 kW. If you press the **MENU** key again, you reach ...



0 SP0t

## TOTAL PRICE

This is displayed when CONST10 (PRICE PER kWh) is set. Information about the total price of connected loads is provided. Max. display: 99.999. If you press the **MENU** key again, you reach ...



0 CErA

## TEST

The display TEST appears on the LCD and can be started by pressing the **+** / **-** keys (the output relay is switched on and off once). On the LCD: Test on / Test off.

It is recommended that this function is used when the thermostat is started up for the first time, in order to check that the connections have been established correctly!

If the **MENU** key is pressed again, the final information appears, which is that the external sensor has been connected as a floor sensor (control sensor).



tEST

## CURRENT TEMPERATURE MEASURED BY THE FLOOR SENSOR

This is enabled if the external sensor has been connected as a floor sensor (see CONST6). Information about the current temperature measured by the floor sensor appears on the LCD.

You reach the basic menu by pressing the **MENU** key for a longer period of time (for about 3 seconds)!



400 °C  
⏏

## LOCK

The buttons are locked by pressing the **MENU** key and the **-** key in the basic menu simultaneously (a key appears on the display). The buttons are released again by pressing the **MENU** key and the **+** key simultaneously.

## FREEZE PROTECTION MODE

When the temperature drops below 3°C, the heating system switches on automatically (the ❄ symbol appears on the display). When the temperature increases again, the preset mode is activated.

## EXAMPLE – PROGRAMME SETTING

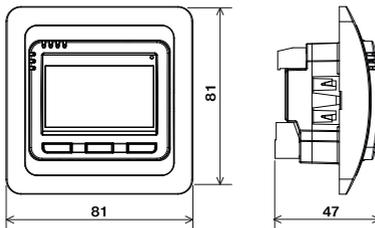
Programme no.: P1												
Time period	U1		U2		U3		U4		U5		U6	
	T [°C]	t [hours]										
Mon. – Fri.	23	6:00	19	9:00	21	13:00	23	16:00	25	18:00	19	22:00
Sat.–Sun.	23	8:00	20	11:00	23	15:00	19	21:00				

## TABLE WITH YOUR PROGRAMMES

Programme no.: P1												
Time period	U1		U2		U3		U4		U5		U6	
	T [°C]	t [hours]										
Mon. – Fri.												
Sat.–Sun.												

Programme no.: P2												
Time period	U1		U2		U3		U4		U5		U6	
	T [°C]	t [hours]										
Mon. – Fri.												
Sat.–Sun.												

Dimensions:



## DIGITAL ROOM THERMOSTAT UP

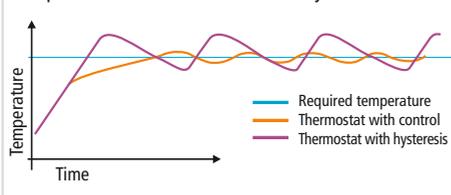
The purpose of the thermostat is to regulate the **E-ENERGY CARBON** radiant heating system. It enables the temperature to be regulated on the basis of the room temperature, with the possibility of controlling the floor temperature. The thermostat checks the heat constant in the room and is able to determine a time that is needed to reach the required temperature ("Turning the heating system on early" function). The PI control system makes sure that the temperature is increased and then maintained while optimising energy consumption at the same time.

### Characteristics:

- 9 weekly programmes with 6 temperature changes per day
- Backlit display
- Choice of control: PI control or hysteresis
- Setting of the minimum time for switching on the heat source
- Advance heating (guarantees the required temperature at the required time)
- Operating modes: AUTO / MANU / OFF / HOLIDAY
- Setting of the maximum limit for the floor temperature
- Setting of the minimum limit for the floor temperature, with the option of determining a period of time for which the temperature is to be maintained

- Summer mode
- Choice of an even / uneven week
- "Open window" function (automatic reduction mode when the temperature decreases suddenly)
- Fast changing of the required temperature
- Information about operating hours
- TEST function to check that the connections have been established correctly
- Child safety lock – button lock
- Power reserve of more than 100 hours if an electricity failure occurs
- Simple installation

Comparison between PI control and hysteresis:



Technical Data	
Power supply	12 V
Number of temperature changes per day	6 different temperatures for each day
Hysteresis	0.1 to 5°C
Minimum programming time	10 minutes
Temperature setting range	+3°C to 99.5°C
Temperature setting	0.5°C
Minimum display interval	0.1°C
Measurement accuracy	± 0.5°C
Power reserve in the case of an electricity failure	More than 100 hours
Protection rating	IP20
Output	Semiconductor
Working temperature	0°C to +40°C

Please send the product to the manufacturer's address when claims are being made in and after the guarantee period:

### External sensor:

Is **not** included in the kit  
 Model HT-Z001,  
 2 x 0.5 mm,  
 10 kΩ, length 3 m,  
 PVC plastic housing



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