LG
Life's Good

ENGLISH
ITALIANO

OWNER'S MANUAL

AIR CONDITIONER

Please read this manual carefully before operating your set and retain it for future reference.

THERMAV™
(Air-to-Water Heat Pump)
Original instruction

P/NO : MFL69676301

www.lg.com

TABLE OF CONTENTS

FOR YOUR RECORDS

Write the model and serial numbers here:

Model #

Serial #

You can find them on a label on the side of each unit.

Installer's Name

Purchased Date

■ Staple your receipt to this page in the event you need it to prove date of purchase or for warranty issues.

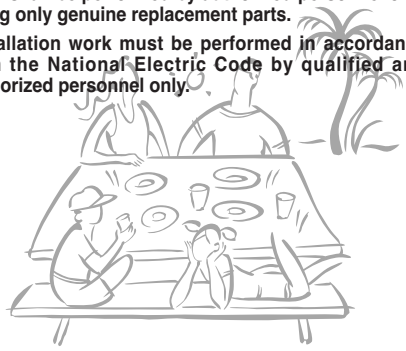
READ THIS MANUAL

Inside you will find many helpful hints on how to use and maintain your AWHP properly. Just a little preventive care on your part can save you a great deal of time and money over the life of your product.

You'll find many answers to common problems in the chart of troubleshooting tips. If you review our chart of **Troubleshooting Tips** first, you may not need to call for service at all.

PRECAUTION

- **Contact the authorized service technician for repair or maintenance of this unit.**
- **Contact the installer for installation of this unit.**
- **AWHP is not intended for use by young children or invalids without supervision.**
- **Young children should be supervised to ensure that they do not play with AWHP.**
- **When the power cable is to be replaced, replacement work shall be performed by authorized personnel only using only genuine replacement parts.**
- **Installation work must be performed in accordance with the National Electric Code by qualified and authorized personnel only.**



Safety Precautions

To prevent injury to the user or other people and property damage, the following instructions must be followed.

■ Incorrect operation due to ignoring instruction will cause harm or damage. The seriousness is classified by the following indications.

⚠ WARNING	This symbol indicates the possibility of death or serious injury.
⚠ CAUTION	This symbol indicates the possibility of injury or damage.

⚠ WARNING

Always ground the product.

• There is a risk of electric shock.

Do not use a defective or underrated circuit breaker. Use the correctly rated breaker and fuse.

• There is risk of fire or electric shock .

Do not use a multi outlet. Always use this appliance on a dedicated circuit and breaker.

• There is risk of fire or electric shock.

For electrical work, contact the dealer, seller, a qualified electrician, or an Authorized Service Center. Do not disassemble or repair the product by yourself.

• There is risk of fire or electric shock.

Always ground the product as per the wiring diagram. Do not connect the ground wire to gas or water pipes lightening rod or telephone ground wire.

• There is risk of fire or electric shock.

Install the panel and the cover of control box securely.

• There is risk of fire or electric shock due to dust , water etc.

Use the correctly rated breaker or fuse.

• There is risk of fire or electric shock.

Do not modify or extend the power cable. If the power cable or cord has scratches or skin peeled off or deteriorated then it must be replaced.

• There is risk of fire or electric shock.

For installation, removal or reinstall , always contact the dealer or an Authorized Service Center.

• There is risk of fire, electric shock, explosion, or injury.

Do not install the product on a defective installation stand. Be sure that the installation area does not deteriorate with age.

• It may cause product to fall.

Never install the unit on a moving base or a place from where it can fall down.

• The falling unit can cause damage or injury or even death of a person.

When the product is soaked (flooded or submerged) in water , contact an Authorized Service Center for repair before using it again.

• There is risk of fire or electric shock.

Be sure to check the refrigerant to be used. Please read the label on the product.

• Incorrect refrigerant can prevent the normal operation of the unit.

Do not touch , operate, or repair the product with wet hands.

• There is risk of electric shock or fire.

Do not place a heater or other heating appliances near the power cable.

• There is risk of fire and electric shock.

Do not allow water to run into electric parts. Install the unit away from water sources.

- There is risk of fire, failure of the product, or electric shock.

Do not store or use or even allow flammable gas or combustibles near the product.

- There is risk of fire.

Wiring connections must be secured tightly and the cable should be routed properly so that there is no force pulling the cable from the connection terminals.

- Improper or loose connections can cause heat generation or fire.

Safely dispose off the packing materials. Like screws, nails, batteries, broken things etc after installation or service and then tear away and throw away the plastic packaging bags.

- Children may play with them and cause injury.

Make sure to check that the power device is not dirty, loose or broken and then turn on the power.

- Dirty, loose or broken power device can cause electric shock or fire.

In unit the step-up capacitor supplies high voltage electricity to the electrical components. Be sure to discharge the capacitor completely before conducting the repair work.

- An charged capacitor can cause electrical shock.

When installing the unit, use the installation kit provided with the product.

- Otherwise the unit may fall and cause severe injury.

Be sure to use only those parts which are listed in the service parts list. Never attempt to modify the equipment.

- The use of inappropriate parts can cause an electrical shock, excessive heat generation or fire.

Do not use the product in a tightly closed space for a long time. Perform ventilation regularly.

- Oxygen deficiency could occur and hence harm your health.

Do not open the front cover or grille of the product during operation. (Do not touch the electrostatic filter, if the unit is so equipped.)

- There is risk of physical injury, electric shock, or product failure.

If strange sounds, smell or smoke comes from product, immediately turn the breaker off or disconnect the power supply cable.

- There is risk of electric shock or fire.

Ventilate the product room from time to time when operating it together with a stove, or heating element etc.

- Oxygen deficiency can occur and hence harm your health.

Turn the main power off when cleaning or repairing the product.

- There is risk of electric shock.

Take care to ensure that nobody especially kids could step on or fall onto the unit.

- This could result in personal injury and product damage.

Take care to ensure that power cable could not be pulled out or damaged during operation.

- Almost the antifreeze is a toxic product.

Do not touch any electric part with wet hands. you should be cut power before touching electric part.

- There is risk of electric shock or fire.

Do not touch refrigerant pipe and water pipe or any internal parts while the unit is operating or immediately after operation.

- There is risk of burns or frostbite, personal injury.

If you touch the pipe or internal parts, you should be wear protection or wait time to return to normal temperature.

- Otherwise , it may cause burns or frostbite, personal injury.

Do not touch leaked refrigerant directly.

- There is risk of frostbite.

Make sure to install mixing valve (field supply). The mixing valve is setting the water temperature. The hot water temperature maximum values shall be selected according to the applicable legislation.

Do not heated to a temperature of more than provided by the product.

- Otherwise, it may cause fire or damage of product.

⚠ CAUTION

Do not install the product where it will be exposed to sea wind (salt spray) directly.

- It may cause corrosion on the product.

Keep level even when installing the product.

- To avoid vibration or noise.

Do not install the product where the noise or hot air from the unit could damage or disturb the neighborhoods.

- It may cause a problem for your neighbors and hence dispute.

Always check for gas (refrigerant) leakage after installation or repair of product.

- Low refrigerant levels may cause failure of product.

Do not use the product for special purposes, such as preserving foods, works of art, etc. It is a consumer AWHP, not a precision refrigeration system.

- There is risk of damage or loss of property.

Do not block the inlet or outlet of air flow.

- It may cause product failure.

Use a soft cloth to clean. Do not use harsh detergents, solvents or splashing water etc .

- There is risk of fire, electric shock, or damage to the plastic parts of the product.

Do not step on or put anyting on the product.

- There is risk of personal injury and failure of product.

Do not insert hands or other objects through the air inlet or outlet while the product is operating.

- There are sharp and moving parts that could cause personal injury.

Be cautious when unpacking and installing the product.

- Sharp edges could cause injury.

If the refrigerant gas leaks during the repair, do not touch the leakaing refrigerant gas.

- The refrigernat gas can cause frostbite (cold burn).

Do not tilt the unit when removing or uninstalling it.

- The condensed water inside can spill .

Do not mix air or gas other than the specified refrigerant used in the system .

- If air enters the refrigerant system, an excessively high pressure results, causing equipment damage or injury.

If the refrigerant gas leaks during the installation, ventilate the area immediately.

- Otherwise it can be harmfull for your health.

Dismantling the unit, treatment of the refrigerant oil and eventual parts should be done in accordance with local and national standards.

Do not expose your skin or kids or plants to the cool or hot air draft.

- This could harm to your health.

Use a firm stool or ladder when cleaning, maintaining or repairing the product at an height.

- Be careful and avoid personal injury.

The hot water may not be available immediately, during disinfection operation or depending on the amount of hot water.

During floor heating operation it is important to limit the minimum/maximum water temperature.

Instructions for the use of owner's manual

Before first use, read owner's manual thoroughly and learn its content. You will learn the purpose, functions and the handling procedures for the device.
In case of malfunctions of the heating system first consult Section(Disruptions in operation, alarms and troubleshooting) and consult your installer who will find the reason for the malfunction and resolve it. In case the malfunction cannot be resolved, he will contact the customer service of the manufacturer who will resolve the malfunction.

Important information

The instructions are written to give you information on all the needed activities before the first and further use. The manual describes the process of setting up and use of the device.

NOTE

In case the product shall be given to a third person for use, the manual has to be handed over to them as well.

Incorrectly set parameters of the control unit can lead to stoppage or incorrect operation of the device. To reduce risk the manual points out important information with the use of symbols. Follow all general safety instructions and warnings connected with the operation.

Glossary of used terms and conceptions

In case of unfamiliar terms in the document you can find the explanation here.

- ALTERNATIVE SOURCE: The heat source is used for systems with solar collectors, masonry heaters and wood stoves when we either do not have a heat source on hand at any moment or an automatic switch through the signal from the controller of the device (i.e. in a wood stove) is not possible.
- AUXILIARY EXTERNAL SOURCE: The heat source found alongside the device (i.e. oil/gas/pellet/ external heater furnace) and can be used either alongside the device alternatively (the either-or system) - automatic switch through the signal from the controller of the device. In case of a device malfunction (in the so-called anti-freeze programme) the alternative source can take over the task of heating for a short time.
- SPARE SORCE or Backup source: The flow heater which is installed in the device and turns on in the case of device malfunction (in the so-called antifreeze programme). This ensures temporary operation for bridging the time until an authorized person from the service company arrives and corrects the error. The spare or additional source can be used as “assistance” to the device under the so-called bivalent point when the capacity of the device does not cover the losses of the building.
- HEATING WATER: The liquid which flows inside the heating system (pipelines, floor, wall and radiator heating).
- DHW: The water intended for sanitary use (cleaning, showering, washing ...).
- HEAT PUMP (HP): The device which takes energy from the environment and supplied mechanical work and adds warmth to heating and DHW. In the text below the term ‘device’ will be used for the heat pump.
- HW: The device takes heat from the earth.
- AW: The device takes heat from the air.
- WW: The device takes heat from groundwater.
- Parameter NORMAL: The desired temperature of heating in the Normal mode of operation.
- Parameter ECO: Lowering the desired temperature in the Eco mode of operation.
- Parameter COMFORT: Raising the desired temperature in the Comfort mode of operation.

TERMOTRONIC™ controllers

General

TERMOTRONIC™ is a self-adapting controller for controlling the heat pump (hereinafter the DEVICE) and the heating system. It controls the operation of the device so as to ensure the most efficient way to produce the desired temperature of the building based on the needs of the heating system and outside temperature.

The TERMOTRONIC™ controller offers controlling of the device and the heating system of the building (no more than 4 heating circuits) as well as controlling the heating with an alternative heat source, active cooling with the device, heating DHW with the device and/or alternative heat source and/or backup source.

Controlling the device and heating system

The device and heating system can be controlled with the use of 4 buttons on the controller interface TERMOTRONICTM. The controller interface has a 4-line LCD screen which displays the current state of the device or controller and a LCD light indicator of malfunctions in the operation of the devic (ALARM).

The controller interface TERMOTRONICTM in devices:

BUTTON	BUTTON FUNCTION
MENU	**MENU**: Scrolling through the main menu and sub-menus.
OK	**ENTER**: On, off, accessing the menu, accessing the settings and confirming selected values.
^	»**+**«: Selecting the values, scrolling up the menus and sub-menus.
v	»**-**«: Selecting the values, scrolling down the menus and sub-menus.
	ALARM: Indicator of device malfunction.

Activating the device

After switching on the main switch or installation breaker the interface screen displays the current state of the device - standby for the short delay time. The device is not operational yet.

Standby.....	
Heating	**35.5°C**
Return	**35.3°C**
DHW	**49.0°C**

NOTE

- The temperature values can differ from the ones displayed on the picture. This also applies for all following pictures.
- If before shut down the device was in a state of HP STOP (HP STOP), it returns to the HP STOP mode after switching on the main switch or installation breakers. The display displays HP STOP. The device is turned on by holding the (ENTER) key OK for 3 seconds - see below for more information.

Operation of the device

After the start-up delay time the device starts operating in the selected mode (heating, cooling or heating DHW) according to present needs. The display displays the status:

Heating.....	
Heating►	**35.5°C**
Return	**35.5°C**
DHW	**49.0°C**

In the case the set temperature parameters (*Heating, Return, DHW* ...) is reached, the device displays Standby.

NOTE

Depending on the type of device the delay lasts from 30 to 300 seconds.

Standby

The device enters standby state when the values of the selected parameters *Heating, Cooling, DHW*, device protection ... are reached. The display of the interface displays the status:

Standby.....	
Heating	**35.5°C**
Return	**35.3°C**
DHW	**49.0°C**

NOTE

The device enters the standby mode also when any operation protection is active (compressor start-up delay, insufficient water flow).

Operation HP STOP

In case you want to shut down the device, press the OK (ENTER) key and hold it for 3 seconds. The operation of the device is interrupted but the device is still live.

Standby.....	
Heating	**35.5°C**
Return	**35.3°C**
DHW	**49.0°C**

The device can be turned on again by pressing the OK (ENTER) key and holding it for 3 seconds.

Device HP STOP

The device can be disconnected from the power supply by switching the main switch to position “0” or disconnecting the installation breaker (the electrical power supply fuses).

NOTE

Devices must not be disconnected from the power supply for a longer time (via the main switch or circuit breakers) because by doing so you disable the devices protection against water freezing in the system which leads to complete device malfunction. Here the requirements from the installation manual have to be considered.

Power outage

In case of a power outage the device ceases to operate. After power is restored the device undergoes 300 seconds of protection mode and then automatically returns to the mode before the power outage. In the case of a power outage the controller retains all settings set before the outage.

NOTE

In case of a power outage longer than 2 hours air-water models with a water connection, water has to be drained from the connecting pipes between the external and internal device. Operate in accordance with the requirements in the installation manual.

Display of the state of the device

After activating the power supply the device displays the current state of the device on the display according to the operating mode and values of basic parameters of the heating/cooling system of the building.

Standby.....
Heating 35.5°C
Return 32.3°C
DHW 49.0°C

Keys [^] and [v] allow moving up and down the basic display.

READING ON THE DISPLAY		DESCRIPTION
Standby		Current condition of operation.
Heating	35.5 °C	Set or calculated temperature of heating (only in winter mode).
Return	32.3 °C	Current temperature of the return.
DHW	49.0 °C	Current temperature of DHW.
T outside	7 °C	Current outside temperature.
HT60 after 12 days		Time left until the start of DHW heating (i.e. next heating will begin in 12 days). Setting of DHW heating is controlled by changing parameters ***HT*** and ***HT Each*** described in section located in the main menu ***DHW***.
2016/02/10 12:24 TUESDAY		Current time and day of the week.

Setting parameters

All parameter settings of the device's operation and heating/cooling system of the building are set as described below.

1 For entering the user menu press the key MENU (MENU) on the basic display.

```
Standby.....................
Heating              35.5°C
Return               32.3°C
DHW                  49.0°C
```

2 The currently chosen menu is marked by the symbols > < (CHOOSE). Keys ∧ or ∨ select the desired menu. To enter the selected menu, press the OK (ENTER) key. For exiting the menus to the basic display press the MENU (MENU) key. *The display shows only those menus which were actually activated during the start-up of the device!*

```
>          Heating          <
        1. Circuit
        2. Circuit
        3. Circuit
```

3 After entering the selected menu the initial parameter is marked with the symbols > < (CHOOSE). The key ∨ selects the parameter you want to change. When you select the parameter, press key OK (ENTER).

```
 C/W                  I
 Schedule
>Normal              35.5°C <
 Eco                  -2.0°C
```

4 The signs * * along the chosen parameter indicate the "mode setting" (SET). The value of the chosen parameter can be changed to the desired value by using keys ∧ or ∨. To confirm the settings press key OK (ENTER).

```
 C/W                  I
 Schedule
*Normal              35.5°C *
 Eco                  -2.0°C
```

5 After confirming the settings by pressing key OK (ENTER), the signs * * (SET) change back into signs > < (CHOOSE). For changing the value of other parameters, repeat the process. After completing the settings you can return to the main menu by pressing the key MENU (MENU).

```
 C/W                  I
 Schedule
>Normal              39.1°C <
 Eco                  -2.0°C
```

<NOTE>

MARK	DESCRIPTION
> <	The arrows on the sides indicate the presently selected parameter/menu (CHOOSE).
* *	The stars on the sides indicate the mode of setting the chosen parameter (SET).
▶	A full arrow with the name of the parameter (i.e.: DHW ▶ 50°C) indicates the current operation of the circulation pump or the position of the switching valve (i.e. DHW). In the case of more circulation pumps of the heating system being in operation, more full arrows are displayed.

Setting the language

The controller enables setting different display languages. To set a language of your choice, follow the steps below.

1 Press key MENU (MENU) in the basic menu.	**Standby.....** **Heating 35.5°C** **Return 32.3°C** **DHW 49.0°C**
2 Use the key ∨ to choose the **Mode** ***(Mode, Regime, Betriebsart, Nacin).*** To confirm the settings press key OK (ENTER).	**> Mode <** **Temperatures**
3 Use the button ∨ to choose the parameter ***Langugage EN (Jezik SI, Lingua IT, Sprache DE, Jezik CRO).*** To confirm the settings press key OK (ENTER).	**C/W ALL I** **D8-PV Cooling** **Silent mode** **>Language EN <**

Quick settings

NOTE

The parameters of the TERMOTRONIC™ controller were set according to project documentation of the heating/cooling system, recommendations of the manufacturer of the device and your requests by the authorized contractor. At handover, the contractor is obliged to thoroughly present you with the possible ways of the device's operation and explain the setting modes of the parameters important for the user.

The basic function of the device is heating the heating and DHW. The controller of the device calculates the optimal needed temperature of the heating water to achieve the desired air temperature of the room by using the information about the winter/summer operating mode, the chosen heating/cooling and according to the external temperature.

Setting the temperature of heating/cooling

The temperature in the heated/cooled room is controlled in two stages, by setting the temperature:

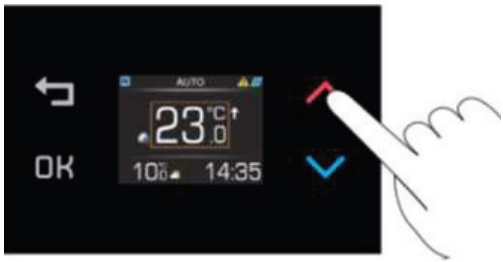
1. of the room with the spatial corrector or thermostat and
2. the heating/cooling water in the accumulator and heating/cooling circuits on the controller TERMOTRONIC™.

NOTE

In case despite the change in the setting of the temperature with the spatial corrector or thermostat after a longer period of operation of the heating/cooling circuit (in floor heating this could last up to 4 days) the desired room temperature was not achieved, check the heating water temperature settings.

- **Setting room temperature with the spatial corrector KT-2**

  The spatial corrector KT-2 enables an advanced and very easy settings of room temperature and basic functions of the device.



By pressing the key ∧ or ∨ the display displays the currently set room temperature. The temperature is marked by an orange border.

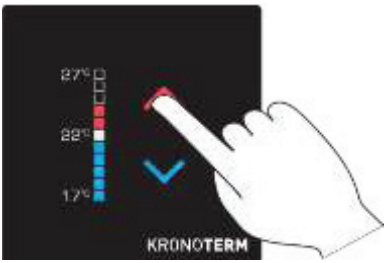
By pressing the key ∧ or ∨ again you adjust the desired room temperature. You confirm the change by pressing the OK button, although, the change auto-saves in 8 seconds.

NOTE

- The space corrector influences the whole heating circuit and not the temperature of the individual room. The desired room temperature where the spatial corrector is located in the reference temperature for all other rooms of the heating circuit controlled by this spatial corrector. This is why it must be located in a room where the desired temperature is as close to the desired average temperature of other rooms (halls, living room). It must not be located close to other heat sources (fireplace, TV, direct sunlight, etc.).
  Before raising the temperature of heated water or the desired room temperature on the spatial corrector make sure the valves on the heat sources in the room where it is too cold for you, are completely or sufficiently opened. If the temperature of other rooms is too high or too low it is necessary to sufficiently open or close the heat sources in the rooms where the deviations from the desired temperature take place.
- For maintaining the correct operation of the heating system you have to choose a suitable operating mode - winter (heating and DHW) or summer (DHW and cooling - only in certain models).
- A detailed description of the settings and additional functions (weather report, DHW, operating mode, information about the state of the device ...) see the manual for the spatial corrector KT-2.

• **Setting room temperature with the spatial corrector KT-1**

The spatial corrector KT-1 enables basic settings of room temperature.



By pressing the key ∧ or ∨ the LED display displays the currently set desired room temperature. By pressing the key ∧ or ∨ again you adjust the desired room temperature. By pressing the keys you adjust the values by 0.5 °C. The change is confirmed automatically.

Quick setting: By pressing and holding the key the temperature setting changes in steps of 1 °C.

NOTE

- The space corrector influences the whole heating circuit and not the temperature of the individual room. The desired room temperature where the spatial corrector is located in the reference temperature for all other rooms of the heating circuit controlled by this spatial corrector. This is why it must be located in a room where the desired temperature is as close to the desired average temperature of other rooms (halls, living room). It must not be located close to other heat sources (fireplace, TV, direct sunlight, etc.). Before raising the temperature of heated water or the desired room temperature on the spatial corrector make sure the valves on the heat sources in the room where it is too cold for you, are completely or sufficiently opened. If the temperature of other rooms is too high or too low it is necessary to sufficiently open or close the heat sources in the rooms where the deviations from the desired temperature take place.
- For maintaining the correct operation of the heating system you have to choose a suitable operating mode - winter (heating and DHW) or summer (DHW and cooling - only in certain models).

NOTE

You can find a detailed description of settings and additional functions in the manual for the spatial corrector KT-1.

- **Setting the room temperature with a room thermostat**
  For setting the room temperature with a room thermostat consult the manual which come with the thermostat or consult the installer.

NOTE

- In case the thermostat is turned on all this time and the heating system does not heat/cool the space to the desired temperature, check the settings of temperatures of the heating system on the device.
- For choosing the function of heating or cooling an appropriate thermostat has to be installed which allows both functions.
- For maintaining the correct operation of the heating system you have to choose a suitable operating mode - winter (heating and DHW) or summer (DHW and cooling - only in certain models).

Setting the temperature of heated water

Upon start-up the control of the heated water temperature of your heating system was set to Heating curve mode which ensures the most energy efficient operation of the device. In case the automatically calculated temperature of the heated water (in accordance with the external temperature) is insufficient for ensuring the comfort of living in the rooms, the temperature of the heated water can quickly be raised or lowered by changing the parameter of cooler/hotter (C/W).

The values of the parameter C/W are adjusted in the menus 1. Circuit 2. Circuit 3. Circuit or 4. Circuit depending on which temperature you want to change. If you want to change (raise/lower) the temperature of the heated water for the whole building or heating system, change the parameter C/W in the menu Heating.

NOTE

Upon start-up the heated water temperature control was set to Heating curve mode.

The authorized contractor entered your perceptions of the heating circuit with heated water which hold for your heating system into Chapter(Settings of your heating system at start-up) upon commissioning.

By setting the parameter C/W you set the number of temperature steps for which you want to raise or lower the temperature of heated water. You perform the settings in the following steps:

1 Press key [MENU] (MENU) in the basic menu.	**Standby.....** **Heating 35.5°C** **Return 32.3°C** **DHW 49.0°C**
2 In the user interface, use the key [∨] and choosel menu 1. ***Circuit*** and press the key [OK] (ENTER).	**Heating** **> 1. Circuit <** **2. Circuit** **3. Circuit**
3 The first line has the parameter ***C/W*** selected. To set the parameter press key [OK] (ENTER).	**>C/W I <** **Schedule** **Normal 35.5°C** **Eco -2.0°C**
4 * * appear along the chosen parameter. The keys [∧] and [∨] change the value of the parameter ***C/W***. This raises or lowers the temperature of heated water.	***C/W I *** **Schedule** **Normal 35.5°C** **Eco -2.0°C**
5 Each pressing of the key [∧] raises/ [∨] lowers the temperature of the heating circle for one temperature step (<, >). To confirm the settings press key [OK] (ENTER).	***C/W I>> *** **Schedule** **Normal 35.5°C** **Eco -2.0°C**
6 After conformation the controller calculates the new temperature setting for the heating circuit or heated water according to the external temperature (in case of weather control). For returning to the basic view press the key [MENU] (MENU) twice.	***C/W I>> *** **Schedule** **Normal 35.5°C** **Eco -2.0°C**

For advanced changing the temperature of the heated water control mode of the heating system see Chapter(Heating setting).

NOTE

- The temperature of heated water can be raised or lowered for no more than four temperature steps.
- The heating and individual circuits settings are separated from the cooling, this is why all settings for heating remain unchanged with the change of the mode into cooling. The same is true for parameter settings in the menu Cooling, 1. Circuit, 2. Circuit, 3. Circuit, 4. Circuit and Heating, which are separated so as to maintain all settings when changing the heating Mode (winter/summer).
- For heating curve you can choose various temperature modes of operation with setting daily and weekly schedules.
- In case of radiator heating for a significant change, change the parameter H/T for 2 or 3 temperature steps at once but only for 1 temperature step in case of floor heating.
  Please note that the responsiveness of the heating system in the case of radiator heating is quicker than in the case of floor heating. By changing the parameter H/T several hours can pass (in the case of floor heating) before the heating system responds properly and you can feel the change of the adjustment.

Setting the temperature of DHW

The device heats the water in a DHW via heat exchanger. In the case of the need heating DHW, the controller switches the device from heating the building to heating DHW. Heating DHW has priority over other modes of operation.

Setting the temperature of DHW is performed in the following steps:

1 Press key [MENU] (MENU) in the basic menu.	**Standby.....** **Heating 35.5°C** **Return 32.3°C** **DHW 49.0°C**
2 In the user menu choose the menu DHW with the key [∨] and press the key [OK] (ENTER).	**> DHW <** **Additional source** **Mode** **Temperatures**
3 In the menu DHW in the first line the parameter DHW is chosen. To set the parameter press key [OK] (ENTER).	**>DHW 50.0°C<** **Hysteresis 5.0°C** **Schedule** **Circulation Sched.**
4 * * appear along the chosen parameter. The keys [∧] and [∨] change the value of the parameter ***DHW***. This raises or lowers the temperature of DHW. To confirm the settings press key [OK] (ENTER).	***DHW at 50.0°C*** **Hysteresis 5.0°C** **Schedule** **Circulation Sched.**
5 Next to the set parameter you can again find the symbols > <. For returning to the basic view press the key [OK] (ENTER) twice.	**>DHW at 50.0°C<** **Hysteresis 5.0°C** **Schedule** **Circulation Sched.**

NOTE

- The actual reached temperature of heated water in the DHW depends on the adequacy of the DHW, pipelines, flow and ventilation of the system.
- For controlling the temperature settings of DHW in the DHW you can set different modes of operation (ECO, Comfort), daily and weekly schedules.

Changing the operational mode - winter/summer mode

The mode of operation - winter or summer, is chosen according to season. In the time when you do not need heating or want to cool the rooms, switch to summer operating mode. In case heating is needed, switch to winter mode. The choice can be automatic or manual.

NOTE

- If you do not switch into the summer mode operation in the summer, this can result in higher energy consumption. The operational costs will be increased for two reasons:
  - ▶ The main circulation pump will switch on from time to time to check whether the need for heating has arisen.
  - ▶ The additional source could also be turned on (for the protection of the heating system) if the temperature falls below a certain point (18 °C depending on the start-up settings).
- The cooling function is only provided by reversible devices and the passive models of the devices.

The function of the device according to the chosen mode of operation: Mode	OPERATION		
	Heating	DHW	Cooling
Winter	YES	YES	NO
Summer	NO	YES	YES

NOTE

In the winter mode (heating and DHW) the heating system works only for heating the heating water of activated circles and DHW. By using the built-in external switch we can launch manual switch on/off of the cooling mode of the device.

• **Changing the operating mode**

Changing the operation from winter to summer mode is performed in the following steps:

1	Press key [MENU] (MENU) in the basic menu.	**Standby.....** **Heating 35.5°C** **Return 32.3°C** **DHW 49.0°C**
2	In the user interface, use the key [∨] and choose menu Mode.	**> Heating <** **1. Circuit** **2. Circuit** **3. Circuit**
3	To choose the menu Mode press key [OK] (ENTER).	**> Mode <** **Temperatures**
4	The first line has the parameter Mode Winter selected. To set the parameter press key [OK] (ENTER).	**>Mode Winter<** **Screed drying NO** **Initial** **Maximal**
5	* * appear along the chosen parameter. The key [∧] or [∨] changes the value of the parameter into: ***Mode summer*** for cooling and preparation of DHW or Mode winter for heating and preparation of DHW or ***Mode AUTO*** for automatic switch between winter and summer mode of operation. To confirm the settings press key [OK] (ENTER).	***Mode Winter*** **Screed drying NE** **Initial** **Maximal**
6	For returning to the basic view press the key [OK] (MENU) twice.	**>Mode Summer<** **Screed drying NO** **Initial** **Maximal**

NOTE

Setting the ***AUTO*** mode allows an automatic switch of the operating mode after the external temperature at 9 PM is higher or lower than the temperature of the switch (12 °C) for 3 days. This setting can be changed with the parameter ***Temp. mode*** in the menu ***Mode***

Setting the cooling temperature

In the operating mode (Summer, AUTO) which enables cooling you can adjust the temperature of cold water for the cooling circuits. The controller only enables the mode of controlling the temperature of cold water with maintaining constant temperature.

NOTE

For setting the cooling of the building the Summer or AUTO Mode must be chosen.

If you set 1. Circuit, 2. Circuit, 3. Circuit or 4. Circuit, always make sure the Cooling menu has the parameter Normal set to a value at least equal to or lower than the value of the circuit with the lowest setting.

Setting the temperature of cold water is performed in the following steps:

1	Press key MENU (MENU) in the basic menu.	Standby..... Cooling 13.5°C Return 14.3°C DHW 49.0°C
2	Choose the menu Cooling or use the key ∨ to choose the desired Circuit in the first menu. To set the parameter press key OK (ENTER).	> Cooling < 1. Circuit 2. Circuit 3. Circuit
3	In the menu Cooling (or Circuit) use the key ∨ to choose the parameter Normal and press the key OK (ENTER).	C/H I Schedule >Normal 13.0°C < Eco -2.0°C
4	* * appear along the chosen parameter. Use the key ∧ or ∨ to change the value of the parameter Normal; by doing so you raise or lower the temperature of the accumulator (or circuit). To confirm the settings press key OK (ENTER).	C/H I Schedule *Normal 12.5°C* Eco -2.0°C
5	For returning to the basic view press the key MENU (MENU) twice.	C/H I Schedule >Normal 12.5°C< Eco -2.0°C

NOTE

- The cooling and individual circuits settings are separated from the heating, this is why all settings for cooling remain unchanged with the change of the mode into heating.
- In the case of floor, ceiling or wall cooling appropriate settings and protection have to be ensured in order not to cause surface condensation.
- For controlling the temperature settings of cooling water you can set different temperature modes, daily and weekly schedules.
- The response of the cooling system in convector cooling is faster than in floor, ceiling or wall cooling.

Switching on an auxiliary heat source

In case the thermal power of the device is not sufficient for covering thermal losses of the building under given weather conditions, you can increase the power by switching on the Backup source.

The device has a Backup source, a flow electric water heater fitted as standard which can function as an auxiliary heat source by activating the parameter Backup source. Basically, the controller is set to activate the additional source which operates parallel to the device if the external air temperature falls below -7 °C. This setting is set according to the building at commissioning and can be changed later. Before setting the parameter we advise consulting the contractor for commissions.

NOTE

In case you would like to use an oil/gas/pellet furnace or external electric heater as auxiliary heat source, you have to ask the contractor for commissions to perform the setting.

Activating the additional source manually is performed in the following steps:

1 Press key [MENU] (MENU) in the basic menu.	**Standby.....** **Heating 35.5°C** **Return 32.3°C** **DHW 49.0°C**
2 In the user menu choose the menu Additional source with the key [∨] and press the key [OK] (ENTER).	**> Additional source <** **Mode** **Temperatures**
3 In the first line choose the parameter Switch o and press the key [OK] (ENTER).	**>Switch o Need<** **Bi-point -5.0°C** **Delay 30 min** **Mode Parallel**

4	* * appear along the chosen parameter. The keys [^] and [v] change the value of the parameter Switch o constant. The auxiliary source will operate together with the heat pump. To confirm the settings press key [OK] ENTER.	***Switch o constant*** **Bi-point -5.0°C** **Delay 30 min** **Mode Paralle**
5	For returning to the basic view press the key [MENU] (MENU) twice.	**>Activate constant <** **Bi-point -5.0°C** **Delay 30 min** **Mode PARALLEL**
6	In the first row, after switching on the Backup source, the main display will display the information about the status of the device ***Heating+AdHeater***.	**Heating + add. source** **Heating ► 40°C** **Return 32.3°C** **DHW 49.0°C**

NOTE

From an economic standpoint we advise using the additional source only if necessary because using it means higher heating costs. This is why we recommend to switch the auxiliary heat source from Switch on back to Need when there is no more need for additional heat power.

Manual activation of the auxiliary power source

In case the device has a malfunction or heating with the device is not possible for whatever reason, we recommend activating the backup source- the flow electrical water heater which will take over the heating of the heating and DHW.

Activating the backup source manually is performed in the following steps:

1	Press key [MENU] (MENU) in the basic menu.	**Standby.....** **Heating 35.5°C** **Return 32.3°C** **DHW 49.0°C**
2	In the user menu choose the menu Additional source with the key [v] and press the key [OK] (ENTER).	**> Additional source <** **Mode** **Temperatures**

3 In the menu Additional source choose AddSourceOnly NO with the key and [∨] press the key [OK] (ENTER).	**Delay OFF** **Mode PARALLEL** **Rise for 5.0°C** **>AddSourceOnly NO<**
4 * * appear along the chosen parameter. Use the key [∨] to change the value of the parameter to Only add. source YES. Only the source will run. To confirm the settings press key [OK] (ENTER).	**Delay OFF** **Mode PARALLEL** **Rise for 5.0°C** *** AddSourceOnly NO***
5 For returning to the basic view press the key [MENU] (MENU) twice.	**Delay OFF** **Mode PARALLEL** **Rise for 5.0°C** **>AddSourceOnly YES<**
6 In the first row, after switching on the Backup source, the main display will display the information about the status of the device Heating - AddSourceOnly -.	**Heating - AddSourceOnly -** **Heating ► 40 °C** **Return 32.3°C** **DHW 49.0°C**

NOTE

The device in this mode can heat the heating and DHW.

- The heating water will heat to the temperature set in the basic menu Heating, 1. Circuit, 2. Circuit, 3. Circuit, and 4. Circuit. In the case of a FP error the temperature of heating water will heat up to the set temperature with the parameter AntiFreeze in the menu AddSourceOnly.
- The DHW will heat up to the temperature set with the parameter DHW in the menu Backup source.

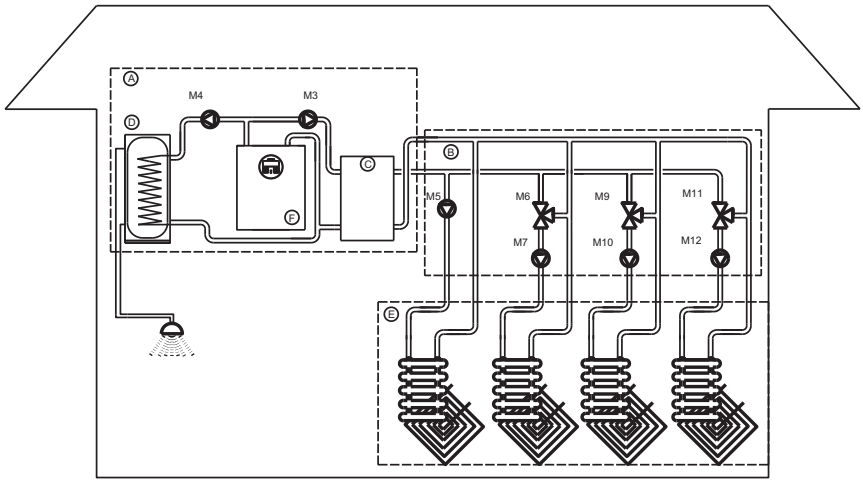
As soon as heating with the device will be made possible again, set the parameter to AddSourceOnly NO.

Advanced settings

In this chapter you will find:

- How to set the parameters of the device in case the system has no spatial corrector or thermostat built in or the settings for the temperature of heating water do not suffice the heating needs.
- How to set the control mode of the heating water.
- How to set the mode of operation for heating water/cooling water, heating/cooling circuits and heating of DHW.
- How to set working schedules ...

For easier understanding of the chapter, you can find a general scheme of the heating (cooling) system below.



ELEMENTS	MARK	CHARACTERISTICS
	A	DHW room
	B	Mixing-heating circuits
	C	Heating water
	D	DHW
	E	Heating/cooling
	F	Heat pump
M3		Main circulation pump
M4		Circulating pump for DHW
M5		Circulation pump of direct heating circle 1
M6		Circulation pump of mixing-heating circle 2
M7		Mixing valve of mixing-heating circle 2
M9		Circulation pump of mixing-heating circle 3
M10		Mixing valve of mixing-heating circle 3
M11		Circulation pump of mixing-heating circle 4
M12		Mixing valve of mixing-heating circle

NOTE

- Heating circle 1 (M5) can only be a direct heating circle (without mixing valve).
  For this circuit we always choose the heating circle which requires the highest temperature (i.e. radiators).
- Heating circuits 2, 3 and 4 (M6, M9, M11) can be direct (without a mixing valve) or mixing circuits. In case of direct circuits, temperature settings of heating water can be adjusted in the menu Heating.

Heating settings

NOTE

While setting or changing the desired temperature of heating water please note that the values set as Normal and Correction in the menus Heating and Circuit 1 have to be equal and higher than the setting of desired values in the mixing circuits (2. Circuit, 3. Circuit, and 4. Circuit) if they are active.

In case one of the circuits (2. Circuit, 3. Circuit or 4. Circuit) is direct, it can have the same setting as 1. Circuit.

• **Heating water control mode**

The controller of the device enables two ways of controlling the temperature of heating water at the exit of the device or the entry into individual heating circuits:

a) Heating Curve: Setting the desired temperature of heating water according to external temperature.

b) Constant: The temperature of heating water is kept constant regardless of the external temperature.

The control mode of the heating water suitable for individual buildings depends on various factors such as the type of building, its size, make of heating system ...; this is why the control mode for heating water temperature is set by a qualified person at commission (the authorized contractor for commissions) nevertheless, you can change the setting later.
The recommendation of the device's manufacturer is, if acceptable from the standpoint of comfort, etc., to set the heating water control mode to heating curve; this is why the present document regards this setting as the default setting - the setting set at commission. Heating curve means a more effective operation of the heating system because by raising external temperature the desired temperature of heated water is lowered, which means a more effective operation of the device.

Control modes for heating water have to be set separately by type in menus:

▶ Heating……
▶ 1. Circuit,
▶ 2. Circuit,
▶ 3. Circuit,
▶ 4. Circuit,

Here it is necessary to take account the final NOTE! The method of adjustment is the same in all cases and is described on the example of heating curve in Section (Weather controlled heating) and on the example of control at constant temperature in Section (Heating based on constant temperature)

• **The change in heating control heating curve - constant temperature**
You can switch the heating control from heating curve to control by maintaining constant temperature in the following manner:

1	Press key [MENU] (MENU) in the basic menu.	**Standby.....** **Heating 35.5°C** **Return 32.3°C** **DHW 49.0°C**
2	Choose the menu Heating or use the key [∨] to choose the desired Circuit. To set the parameter press key [OK] (ENTER).	**> Heating <** **1. Circuit** **2. Circuit** **3. Circuit**
3	Choose the Heating curve parameter by pressing [∨] and [OK] press the (ENTER) key.	**Normal 35.5°C** **Eco -2.0°C** **Standby 3.0°C** **>Heating curve .....<**
4	* * appear along the chosen parameter. By pressing the key [∨] adjust the value of the Heating curve parameter into Const. temperature and confirm the settings by pressing the key [OK] (ENTER).	**Normal 35.5°C** **Eco -2.0°C** **Standby 3.0°C** ***Const. temperature.....***
5	For returning to the basic view press the key [MENU] (MENU) twice.	**Normal 35.5°C** **Eco -2.0°C** **Standby 3.0°C** ***Const. temperature.....***

- **Weather controlled heating**

  Weather controlled heating means water temperature in the heating system is adjusted to the current air temperature. The lower the external temperature, the higher the losses and as a result a higher temperature of heating water is needed in the heating bodies (floor, wall or radiator heating...) to compensate for the losses.

  The opposite is true in case of higher external temperatures. In this case the heat losses are lower and a lower heating water temperature is needed in the heating bodies to compensate for the losses.

  The weather controlled heating curve shows that the temperature of the return depends on the temperature of air outside the building. The lower the external air temperature, the higher the calculated needed temperature of the return.

NOTE

Upon start-up the heated water temperature control was set to Heating curve mode.

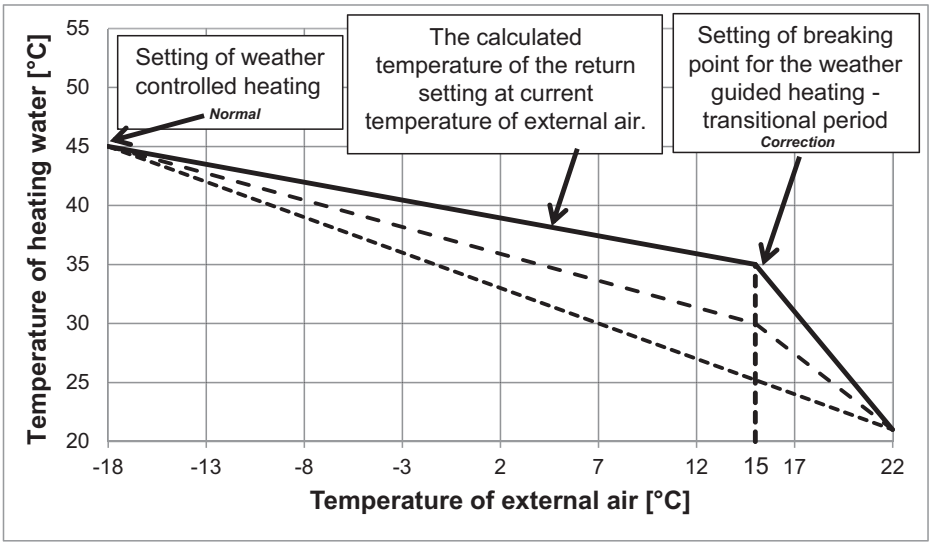
In this case the controller uses the highest set or calculated temperature of the heating circles in calculating the needed heating temperature, where it adds 3 °C to each mixing circle.

In weather controlled heating you can set three parameters:

- Normal: With this parameter you set the desired return outside temperature air temperature of -18 °C.
- Standby: With this parameter you set the desired temperature difference between the current desired temperature of the Return and the temperature of the return when the heating of the heating circuit or device turns on again.
- Correction: With this parameter you set the incline of the weather controlled heating curve outside temperature 15 °C. It is mainly important for transitional periods because the weather controlled heating curve can be too low at this time, depending on the building and desired comfort.

The parameters Normal, Standby and Correction can be changed to the desired values with keys  or  .

The weather controlled heating curve



The appropriate heating temperature setting is essential for ensuring the desired comfort. It depends on the characteristics of the house and heating bodies as well as the project temperature.
The table below lists the recommended settings which can help you decide on the appropriate parameters of the weather controlled heating.

TYPE OF HOUSE	PARAMETER	HEATING (weather controlled)			
	Heating, 1. Circuit, 2. Circuit, 3. Circuit, and 4. Circuit	Floor, wall [°C]	Convector heating [°C]	Radiation heating 55 °C	Radiation heating 65 °C
Noninsulated house	Normal	-	55	65	70
	Standby, Hysteresis	-	5	5	7
	Correction - Correction of breaking point (+15 °C)	-	10	13	15
Insulated house	Normal	35	50	55	65
	Standby, Hysteresis	2	5	5	6
	Correction - Correction of breaking point (+15 °C)	5	5	10	12
Wellinsulated house	Normal	30	40	55	55
	Standby, Hysteresis	2	5	5	5
	Correction - Correction of breaking point (+15 °C)	3	3	5	10

NOTE

In mixing heating circuits we adjust the adjustable temperature of the supply pipe; in direct heating circuits and on the device we adjust the temperature of the return.

- **Setting the temperature correction of heated water**

  By changing the value of the parameter Correction you can adjust the temperature of heated water in transitional periods and thus adjust the desired comfort in the heated building. You perform the settings in the following steps:

1	Press key [MENU] (MENU) in the basic menu.	**Standby.....** **Heating 35.5°C** **Return 32.3°C** **DHW 49.0°C**
2	The first line has the parameter Heating selected. To set the parameter press key [OK] (ENTER).	**> Heating <** **1. Circuit** **2. Circuit** **3. Circuit**
3	Choose the Correction parameter by pressing [∨] and press the [OK] (ENTER) key.	**Comfort 2.0°C** **Hysteresis 3.0°C** **Heating Curve** **>Correction 5.0°C<**
4	* * appear along the chosen parameter. The keys [∧] and [∨] change the value of the parameter Correction. The temperature can be raised for no more than 15 K (°C). For returning to the basic view press the key [MENU] (MENU) twice.	**Comfort 2.0°C** **Hysteresis 3.0°C** **Heating Curve** ***Correction 5.0°C***

- **Setting the maximal temperature of heated water**

  By setting the parameter Normal you set the maximal heating water temperature outside air temperature of -18 °C.

NOTE

After start-up of the device there is usually no need to change the parameter Normal in the menu Heating, except in cases of constructional changes in the heating system.

You perform the settings in the following steps:

1	Press key MENU (MENU) in the basic menu.	**Standby.....** **Heating 35.5°C** **Return 32.3°C** **DHW 49.0°C**
2	The first line has the parameter Heating selected. To set the parameter press key OK (ENTER).	**> Heating <** **1. Circuit** **2. Circuit** **3. Circuit**
3	Choose the parameter Normal by pressing ∨ and press the OK (ENTER) key.	**C/W I** **Schedule** **>Normal 35.5°C <** **Eco -2.0°C**
4	* * appear along the chosen parameter. The keys ∧ and ∨ change the value of the parameter Normal. This way you raise or lower the maximal temperature of heating water at outside temperature of -18 °C. To confirm the settings press key OK (ENTER). The recommended values of the maximal temperature for individual types of heating are given in chapter(Heating setting)	**C/W I** **Schedule** ***Normal 45.0°C*** **Eco -2.0°C**
5	After confirming the settings the controller calculates the new temperature setting of the heating water according to external temperature (weather control); if the external temperature is higher than -18 °C, this temperature is different from the set temperature. For returning to the basic view press the key MENU (MENU) twice	**C/W I** **Schedule** **>Normal 45°C <** **Eco -2.0°C**

NOTE

- The values of the parameter Normal in the menus 1. Circuit 2. Circuit, 3. Circuit or 4. Circuit must always be set to an equal or lower value than the value of the parameter Normal in the menu Heating.
- For economical use of heating we recommend the use of heating curve heating.
- For heating curve you can choose various temperature modes of operation with setting daily and weekly schedules.

- **Heating based on constant temperatu**

For ensuring economical operation of the whole system we recommend choosing heating curve of heating. Nevertheless, if you want to heat the rooms with constant water temperature in the system, we recommend the following settings:

TYPE OF HOUSE	PARAMETER	HEATING (with constant temperature)			
	Heating, 1. Circuit, 2. Circuit, 3. Circuit, and 4. Circuit	Floor, wall [°C]	Convector heating [°C]	Radiation heating 55 °C	Radiation heating 65 °C
Noninsulated house	Normal	38	50	50	55
	Standby, Hysteresis	3	5	5	7
Insulated house	Normal	35	45	47	50
	Standby, Hysteresis	2	5	5	6
Wellinsulated house	Normal	30	40	45	47
	Standby, Hysteresis	2	5	5	5

NOTE

In mixing heating circuits we adjust the adjustable temperature of the supply pipe; in direct heating circuits and on the device we adjust the temperature of the return.

- **Setting the temperature of heated water**

By choosing the parameter Normal you set the temperature of heating water which is maintained regardless the external temperature.

NOTE

After start-up of the device there is usually no need to change the parameter Normal in the menu Heating, except in cases of constructional changes in the heating system.

You perform the settings in the following steps:

1	Press key MENU (MENU) in the basic menu.	**Standby.....** **Heating 35.5°C** **Return 32.3°C** **DHW 49.0°C**
2	The first line has the parameter Heating selected. To set the parameter press key OK (ENTER).	**Heating** **> 1. Circuit <** **2. Circuit** **3. Circuit**
3	Choose the parameter Normal by pressing ∨ and press the OK (ENTER) key.	**C/W I** **Schedule** **>Normal 35.5°C <** **Eco -2.0°C**
4	* * appear along the chosen parameter. The keys ∧ and ∨ change the value of the parameter Normal. This way you raise or lower the maximal temperature of heating water at outside temperature of -18 °C. To confirm the settings press key OK (ENTER). The recommended values of the maximal temperature for individual types of heating are given in chapter(Heating setting)	**C/W I** **Schedule** ***Normal 45.0°C*** **Eco -2.0°C**
5	After confirming the settings the controller calculates the new temperature setting of the heating water according to external temperature (weather control); if the external temperature is higher than -18 °C, this temperature is different from the set temperature. For returning to the basic view press the key MENU (MENU) twice.	**C/W I** **Schedule** **>Normal 45°C<** **Eco -2.0°C**

NOTE

- The values of the parameter Normal in the menus 1. Circuit 2. Circuit, 3. Circuit or 4. Circuit must always be set to an equal or lower value than the value of the parameter Normal in the menu Heating.
- For economical use of heating we recommend the use of heating curve heating.
- For heating curve you can choose various temperature modes of operation with setting daily and weekly schedules.

Operating mode

The controller of the device enables heating of the heating water/ cooling of the cooling water, heating/cooling of the circuits and DHW in four different operational modes:

▶ Normal applies to heating/cooling.
▶ DHW applies to the heating of DHW.
▶ ECO.
▶ COMFORT.

These different ways of operation can later be used with setting timetables.
The parameter ECO is used for the so-called economical operation which means a lowering of heating water temperature for the set value in the heating mode; in the cooling mode it means the opposite - a raising of cooling water temperature.
The parameter COMFORT is used for the operation which means greater comfort - a raising of heating water temperature for the set value in the heating mode; in the cooling mode it means the opposite - a lowering of cooling water temperature.
In case you want to change the entire system to ECO or COMFORT operation, you can perform the adjustment in the menu mode where you change the parameter Operation AUTO to Operation ECO or Operation COMFORT.

Setting the cooling system

You turn on the cooling mode by entering the menu mode and changing the parameter mode Winter to mode Summer.

- To turn on the cooling according to schedule you have to set the operating schedule for cooling in the menu Cooling. The display and settings of the Cooling menu are enabled only if the conditions of the mode's operation listed in the Section(Changing the operational mode-winter/summer mode) are met (chosen mode + reversible heat pump).

• **Active cooling**
Cooling can be set for every parameter described in the table below separately.

In case of active cooling we recommend the following cooling settings:

PARAMETER	COOLING	
Cooling, 1. Circuit, 2. Circuit, 3. Circuit, and 4. Circuit	Floor, wall, ceiling [°C]	Convector heating [°C]
Normal	19-20	12-15
Standby	2	3-4

NOTE

- In mixing heating circuits we adjust the adjustable temperature of the supply pipe; in direct heating circuits and on the device we adjust the temperature of the return.
- Active cooling works in the area set in the menu Cooling with the parameters T.out.max.
  - external temperature above which the active cooling can operate actively and the parameter Min - external temperature until which the active cooling can operate.

Schedules

• **Operating mode**

Every function (heating, cooling, 1. Circuit, 2. Circuit, 3. Circuit, 4. Circuit, DHW, pool, silent operation and circulation) can operate in several ways. Setting the operation mode for individual functions are performed in the schedule for this function.

In heating, cooling, mixing circuits, heating of DHW and swimming pool heating there can be 4 different types of operation:

- OFF: Heating/cooling is disabled.
- HEA of COL: Operation in the heating or cooling mode (parameter Normal).
- ECO: In this mode the controller maintains the temperature which is lower by the value of the ECO parameter than the set temperature in the parameter Normal. In case of cooling the temperature set in this mode is higher by the value of the ECO parameter than the set temperature in the parameter Normal. In this mode operation is more economical.
- COM: In this mode the controller maintains the temperature which is higher by the value of the COM parameter than the set temperature in the parameter Normal. In case of cooling the temperature set in this mode is lower by the value of the COM parameter than the set temperature in the parameter Normal. In this mode operation is less economical, depending on the setting it can also be more comfortable.

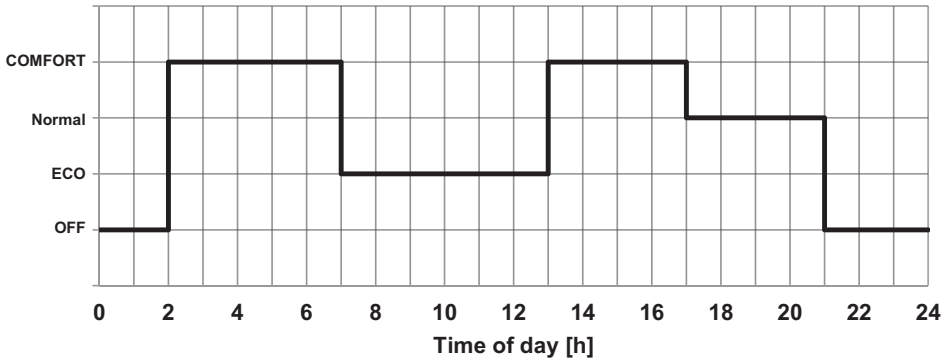
In direct heating circuits and circulation of DHW two operation settings are possible

- OFF: Heating/cooling is disabled.
- HEA or COL: Normal operation in the heating or cooling mode (parameter Normal).

These units enable two additional operation modes set in the menu Mode with the parameter Silent mode

- NRM: Normal operation in the heating or cooling mode.
- LOW: Lowered operation mode in the heating or cooling mode.

The schedule enables daily settings of 6 operation mode switches. Below is a description of heating with an example of a daily schedule.



Heating is turned off (OFF) from 00:00 to 02:00.

The heating is turned on at 02:00 in the COMFORT mode (in this mode the temperature is higher than the temperature set in the parameter Normal by the COM parameter).
The heating is turned on at 07:00 in the ECO mode (in this mode the temperature is lower than the temperature set in the parameter Normal by the ECO parameter).
At 1:00 PM the operating mode switches to COMFORT.
AT 5:00 MP the operating mode switches to Normal (the temperature set or calculated in the parameter Normal). At 9:00 PM the heating turns off (OFF).

You perform the settings in the following steps:

In the menus Heating, Cooling, Circuits, choose the parameter Schedule with the [∨] key. When the symbols > < appear next to the parameter Schedule, press the key [OK] (ENTER).	C/W I >Schedule < Normal 35.5°C Eco -2.0°C
The day blinks which the schedule refers to. Choose the day you would like to set the schedule by using keys [∧] or [∨]. When you choose the day press the key [OK] (ENTER).	MON Copy DELETE 00:00 HEA --:-- HEA --:-- HEA --:-- HEA --:-- HEA --:-- HEA
The time when the switch-over will be performed blinks. By pressing the key [OK] (ENTER) confirm you want to set the time. Symbols ***XXXXX*** start blinking over the time. Set the desired time with the key of the switch-over [∧] (in 15 min). To confirm the set time press key [OK] (ENTER). The symbols ***XXXXX*** stop blinking over the time.	MON Copy DELETE 00:00 HEA --:-- HEA --:-- HEA --:-- HEA --:-- HEA --:-- HEA

By pressing [∨] you can access the field for choosing the mode of operation. This field starts blinking. By pressing the key [OK] (ENTER) confirm you want to set the mode of operation. Symbols ***XXX*** start blinking over the operating mode. Use keys [∨] or [∨] to choose the suitable mode of operation along the set time. To confirm the operating mode press key [OK] (ENTER). Symbols ***XXX*** no longer blink over the operating mode.

MON	Copy	DELETE
00:00	OFF	--:-- OFF
--:--	OFF	--:-- OFF
--:--	OFF	--:-- OFF

NOTE

Once you have set the operating mode it continues to be used until a new one is set.
I.e. if you set the heating to OFF on Monday and you do not set anything for the following days, the heating will be OFF for all the following days as well because there was no change of operation mode.

Use the key [∨] to navigate to the time set for the next switch-over of the operating mode. Perform the settings the same as for the first switch-over.

MON	Copy	DELETE
00:00	HEA	--:-- HEA
--:--	HEA	--:-- HEA
--:--	HEA	--:-- HEA

To switch the heating to the COMFORT mode, choose COM. To switch the heating to the ECO mode, choose ECO. To switch to the Normal mode, choose HEA or COL. To switch off the heating, choose OFF.

MON	Copy	DELETE
00:00	HEA	--:-- COM
02:00	COM	--:-- COM
--:--	COM	--:-- COM

When you set the schedule you can use the key [MENU] (MENU) to return to the menu.
The set schedule can be copied to the following day by using the following steps:

Use the key [∨] to navigate to Copy which starts blinking. Press the key [OK] (ENTER).

MON	Copy	DELETE
00:00	OFF	13:00 COM
02:00	COM	17:00 HEA
07:00	ECO	21:00 OFF

The controller displays the question whether you would like to copy the currently chosen schedule to the following day. To confirm, press key [OK] (ENTER). If you do not want to confirm, press key [MENU] (MENU).

```
***************************
*        ? COPY ?         *
*       TUESDAY           *
***************************
```

Use this method to copy the schedule for all days of the week.

TUE	Copy	DELETE
00:00	OFF	13:00 COM
02:00	COM	17:00 HEA
07:00	ECO	21:00 OFF

If you made a mistake, you can delete the schedule for the chosen day using the following steps:

Use the key [∨] to navigate to delete, which starts blinking. Press the key [OK] (ENTER).	TUE Copy DELETE 00:00 HEA --:-- HEA --:-- HEA --:-- HEA --:-- HEA --:-- HEA
The controller displays the question whether you would like to delete the currently chosen schedule. To confirm, press key [OK] (ENTER). If you do not want to confirm, press key [MENU] (MENU).	******** * ? DELETE ? * ********
You have deleted all the settings for the chosen day. The chosen day uses the last settings of the previous day.	TUE Copy DELETE 00:00 OFF 13:00 COM 02:00 COM 17:00 HEA 07:00 ECO 21:00 OFF

After performing the setting you can use the key [MENU] (MENU) to return to the menu.

Alternative source

NOTE

For this function and to display the menu Alternative source on the TERMOTRONIC™ controller you need the extension regulation with the input-output module TT3003.

The alternative source function is used for using the heat from the solar collectors (SSE) or for using heat from the biomass DHW s. All settings for the alternative source can be found in the menu Alternative source. Heating the storage buffer tank or DHW begins when the temperature of the alternative source reaches the set temperature difference (parameter Dif.Min.) between the alternative source and the buffer tank or DHW. Heating the buffer tank is performed until the set temperature in the menu Alternative source.
The DHW has heating priority (parameter Prior. DHW.). When the temperature in the DHW is reached (parameter Set.Temp.) it is followed by the heating of the buffer tank. After the temperature of the buffer tank is reached the heating of the DHW is turned on again until the temperature set in the parameter Set.Temp in the menu Alternative source is reached. If the temperature of the alternative source is still higher than the temperature in the buffer tank, heating of the buffer tank continues until the parameter Max. Temp. (The maximal temperature of the buffer tank), set in the menu Alternative source.
When the buffer tank and DHW reach the maximal temperature, heating with the alternative source stops.
In case the temperature of the alternative source reaches the temperature of protection (parameter protection), a signal turns on which can control the users to lower the temperature of the alternative source.

NOTE

We recommend keeping the settings set by the authorized contractor.

1 Press key MENU (MENU) in the basic menu. In the user menu choose the menu Alternative source with the key ∨ and press the key OK (ENTER).

> **Alternative source** <
Backup source
Mode
Temperatures

Programme for drying screeds

The controller has a built in function of gradual drying of screeds which is especially important for new buildings and before installing flooring.
Before using the programme for drying screeds you have to consult the contractor for screeds. According to his requirements you can use the standard programme or adjust it.
The programme for drying screeds is located in the menu mode.

- **Standard programme**
  This programme consists of 8 steps and is normally adjusted for all systems of floor heating. Before activating this programme you have to set the maximal allowed temperature of the return water, i.e. 30 °C.

Steps 1-4: Heating
Step 5: Maintaining the reached temperature
Steps 6-8: Cooling

Steps 1 to 4 mean the heating phases which last 24 hours each (parameter Step). The needed maximal temperature of return water (parameter Maximal) is reached in four equal steps which start with 20 °C (parameter Initial). For finishing each step the time limit of 24 hours must be met.
If the temperature of individual steps is reached sooner, the device maintains this temperature for the remaining time.
In step 5 we maintain the maximal reached temperature at this level for additional 264 hours (parameter Duration). After this time the following step is possible.
Steps 6 to 8 are cooling phases performed in equal steps as the heating, only in reverse order.
Each step lasts 24 hours - which is a total of 72 hours, in this time the temperature of the return water falls from maximal temperature to 20 °C (parameter Final).
When this programme finishes completely, the device returns to normal operation.

Example:
The maximal temperature of return water is 30 °C.
Steps 1 to 4: 20/23,3/26,6/30 °C – in 96 hours
Step 5: 30 °C - constant temperature for 264 hours
Steps 6 to 8: 26,6/23,3/20 °C – in 96 hours

1 In the user menu choose the menu Mode with the key [V] and press the key [OK] (ENTER).	> Mode < Temperatures
2 Choose the Screed drying parameter by pressing [V] and press the [OK] (ENTER) key.	Mode AUTO >Screed drying NO< Initial 20°C Maximum.....30°C

3	* * appear along the chosen parameter. Choose the parameter Yes by pressing [∨] and confirming by pressing the [OK] (ENTER) key. You have thus turned on the operation of the mode Screed drying.	**Mode AUTO** ***Screed drying YES *** **Initial 20°C** **Maximum.....30°C**
4	Other parameters of the programme for Screed drying can be changed with the same procedure. For returning to the basic view press the key [MENU] (MENU) twice.	**Maximum.....30°C** **Step..... 24 h** **Maintaining 264 h** **>Final 20°C <**

Meters for operating hours

If you want to see the operating hours for individual components go to the main menu and press the key [∨] under consecutive no.1 in the table below. If you would like to examine other parameters listed in the table below use the key [∨] to move to them.

Cons. No.	Parameters of operating hours view	Parameter description
1	**Comp.HEAT.[h]: 0** **Comp.COOL.[h]: 0** **Comp.DHW [h]: 0** **D: 0 D-1: 0**	Operating hours for compressor in heating. Operating hours for compressor in cooling. Operating hours for compressor in heating DHW. D: Operating minutes of the current day. D-1: Operating minutes of the previous day.
2	**HeatSource [h]: 0** **AdHeater 1[h]: 0** **AdHeater 2[h]: 0** **MainPump.[h]: 0**	Operating hours of the heat source (ventilator, submersible pump). Operating hours of the auxiliary source 1 (flow electric heater). Operating hours of the auxiliary source 2 (external backup source). Operating hours of the main circulation pump.
3	**Passive [h]: 0** **Alt.Sourc [h]: 0** **Comp.Heata.[s/d]: 0** **Comp.CooL. [s/d]: 0**	Operating hours of passive cooling. Operating hours of backup source. Number of daily power-on of the compressor in heating. Number of daily power-on of the compressor in cooling.
4	**Comp.DHW [s/d]: 0** **Defrost [s/d]: 0**	Number of daily turn-on for compressor in heating DHW. Number of daily power-on of the compressor in defrost.

Setting the date, hour and day of the week

In case of incorrect time and date on the TERMOTRONIC™ controller, follow the steps below:

1 Press key ∨ in the basic menu.	**Standby.....** **Heating.....35.5°C** **Return 32.3°C** **DHW 49.0°C**
2 Press key ∨ until the display shows the following: To change the year press key OK (ENTER).	**DHW OFF** **T outside 10°C** **HT60 OFF** **2017/03/03 13:45 Mon**
3 The selected value 2017 starts blinking. Now use key ∧ or ∨ to choose the proper value and press key OK (ENTER). Now you can adjust the month 03, day 01, name of the day using the same procedure as you did by setting the year. For returning to the basic view press the key MENU (MENU) twice.	**DHW OFF** **T outside 10 °C** **HT60 OFF** **2017/03/03 13:45 Mon**

Remote turn on/off and smart grid

The basic regulation enables remote turn off via an external signal or control system of the building (BMS). After a new external signal the device operates in the state before shut down.

NOTE

External turn off can be performed only in case the device was fitted with an externally controlled switch upon installation.

PV signal

The PV signal can be turned on in the menu mode with the parameter D8-PV. It allows factory and user settings:

- The factory control setting enables the control of the temperature operating mode. This means that in the case of the winter mode (heating) you can turn on cooling. The parameter is set to D8-PV Cooling. It is most often used in combination with photovoltaic systems.
- The user control setting with parameters D8-PV Rise 1, 2, 3 ... enables the parameters listed below to raise various operating modes and with it to change the temperature of the mode:
  a) Rise 1: Comfort mode for the buffer tank.
  b) Rise 2: Comfort mode for the DHW.
  c) Rise 3: Comfort mode for the circuits.
  d) Rise 4: Comfort mode for the buffer tank and circuits.
  e) Rise 5: Comfort mode for the DHW and circuits.
  f) Rise 6: Comfort mode for the buffer tank and DHW.
  g) Rise 7: Comfort mode for the buffer tank, DHW and circuits.

Silent operation mode

Devices enable two additional operation modes set in the menu Mode with the parameter Silent mode: The setting NRM switches the mode of operation into normal heating or cooling mode. The setting LOW lowers the parameters of power and noise of the device in the heating or cooling mode. The time and day of operation for these two parameters can be adjusted in a similar manner as the schedule. The lowered frequency of operation of the device means that the compressor and ventilators will operate with a lower power and consequently the operation of the device will be less noisy and its power correspondingly smaller.

1 In the menu mode use the key [∨] to choose the parameter Silent mode. When the symbols > < appear next to the parameter Silent mode, press the key [OK] (ENTER).	Temp. mode 12°C H/T all 0°C DI8 > Silent mode <
2 The day blinks which the schedule refers to. Choose the day you would like to set the schedule by using keys [∧] or [∨]. When you choose the day press the key [OK] (ENTER).	MON Copy DELETE 00:00 NRM --:-- NRM --:-- NRM --:-- NRM --:-- NRM --:-- NRM

User menus and parameters

NOTE

The display of the TERMOTRONIC™ controller interface shows only those menus dependent on the type of device and were actually activated during the start-up of the device.

Menu structure

Basic menu	Parameter name	Adjustable value	Scope [°C]	Parameter description
HEATING				
	C/W I	I		By setting this parameter, we can raise/lower the temperature for up to 4 temperature steps. Example: I>> means that the currently set temperature of the circuit (the setting in the parameter Normal) is raised for 2 temperature steps.
	Schedule			For settings, see chapter(schedules)
	Normal	19.9	19.9…max.	The desired temperature of heating in the Normal mode of operation.
	Eco	-2.0	-10.0…0.0	Lowering the desired temperature in the Eco mode of operation.
	Comfort	2.0	0.0…10.0	Raising the desired temperature in the Comfort mode of operation.
	Hysteresis	3.0	0.0…10.0	By setting this parameter, we change the desired temperature of the restarted device with the parameter Hysteresis from 0 °C to 10 °C. Example: The parameter Heating is 56 °C. The device will be in standby from 53 °C to 56 °C.
	Const. Temperature	50		Heating with constant temperature “Const. Temperature” or optimised heating according to external temperature “Heating Curve” OG. MK.
	Correction	5.0	0.0…15.0	The correction of the breaking point of the weather curve at +15°C.
COOLING	**Parameter name**	**Adjustable value**	**Scope [°C]**	**Parameter description**
	Schedule			For settings see chapter(schedules)

	Normal	19.9	10.0…19.9	The desired temperature of cooling in the Normal mode of operation.
	Eco	-2.0	0.0…10.0	Lowering the desired temperature in the Eco mode of operation.
	Comfort	2.0	-10.0…0.0	Raising the desired temperature in the Comfort mode of operation.
	Hysteresis	3.0	0.0…10.0	By setting this parameter we change the desired temperature of the restarted device with the parameter Standby from 0 °C to 10 °C. Example: The parameter Cooling is set to 23 °C. The device will be in standby from 20 °C to 23 °C.
The parameters are adjusted only in case of active cooling.				
	T.outside min	20	0.0…55.0	Setting the external temperature above which the cooling will activate.
	Max	40	0.0…55.0	Setting the external temperature at which the cooling will deactivate.
1. CIRCUIT/ 2. CIRCUIT/ 3. CIRCUIT/ 4. CIRCUIT	**Parameter name**	**Adjustable value**	**Scope [°C]**	**Parameter description**
	C/W	I		By setting this parameter we lower the temperature for up to 4 °C or raise it for up to 4 °C. Example: I>> means that the currently set temperature of the circuit (the setting in the parameter Normal) is raised for 2°C.
	Schedule			For settings see chapter (Schedules)
	Normal	19.9	19.9…max.	By setting this parameter we change the desired temperature in the Normal operating mode of the HP.
	Eco	-2.0	-10.0…0.0	By setting this parameter we change the desired temperature in the ECO operating mode of the HP.
	Comfort	2.0	0.0…10.0	By setting this parameter we change the desired temperature in the Comfort operating mode of the HP.
	Hysteresis	2.0	0.0…10.0	By setting this parameter we change the desired temperature of the Hysteresis parameter of the mixing valve from 0 °C to 10 °C. Example: The parameter Hysteresis is 50 °C. The mixing valve will be in standby from 48 °C to 52 °C.
	Const. temperatur	50		Heating with constant temperature Const. Temperature or optimised heating according to external temperature Heating Curve.

	Correction	5.0	0.0…10.0	The correction of the breaking point of the weather curve at +15 °C. By setting this parameter you change the desired temperature of Correction.
	In space	22.0		Desired room temperature which can be set from 17 to 27 °C.
	Stan.space	0.5	0.1…2.0	Standby with regulation of the room temperature.
DHW	**Parameter name**	**Adjustable value**	**Scope [°C]**	**Parameter description**
	DHW	OFF	25.0…55.0	By changing the parameter OFF to the selected temperature i.e. of 40°C you turn on the DHW.
	Hysteresis	7.0	0.0…10.0	By setting this parameter we change the desired temperature Hysteresis of the device which means again turning on the heating of DHW in the DHW. Example: The parameter Hysteresis is 7 °C. The water temperature in the DHW falls from 40 °C to 32 °C and heating of the DHW turns on again.
	Schedule			For settings seechapter(schedules)
	Circulation Sched.			By setting this parameter we enable the circulation of the water. See chapter (Schedules) for settings, the settings are similar to the ones for the schedule.
	TD	60		The heating temperature for preventing the development of legionella.
	TD Every	OFF		By changing the parameter OFF to 1...99 days we turn on the thermal disinfection of water performed every 1...99 days.
	Start at	0:00		Setting the start of thermal disinfection (from 00:00 to 21:59). If the electrical heater is integrated we recommend the use of this function during the night so as not to interfere with the heating.
	Maximum	2		Maximal allowed time of DHW heating [1…4 hours]. In case of an internal flow electric heater the max. time is 12 h, in case of a heater installed in the DHW, the heating can continue simultaneously.
	Eco	-2.0	-10.0…0.0	By setting this parameter we change the desired temperature in the ECO operating mode of the HP
	Comfort	2.0	0.0…10.0	By setting this parameter we change the desired temperature in the Comfort operating mode of the HP.
	Alarm unde	30,0	25,0…50,0	Set an alarm for minimum temperature of water in DHW The controller reports failure if the temperature od DHW does not reach the set temperature three times in a row.

	Max ope.	600	0…999	The maximum operating time of DHW
	Time sta.	30	0…999	The standby state of DHW
ALTERNA-TIVE SOURCE	Setting heating and DHW support with the alternative source (solar collectors, solid fuel DHW ...). Display and configuration options if the alternative source is active (an expansion module is necessary).			
	Parameter name	**Adjustable value**	**Scope [°C]**	**Parameter description**
	---Heating---			Setting heating support. Additional sensor in the buffer tank.
	Set. Temp.	60	7.0…20.0	Setting the desired temperature in the buffer tank.
	Dif. Temp.	15	7.0…20.0	Min. difference between the temp. of the buffer tank and temp. of the alternative source to turn on the HP-AOG of the alternative source.
	Max. Temp.	80	60.0…90.0	Max. allowed temperature in the buffer tank up to which heating will be performed if the alternative source will have a high enough temperature.
	Min. temp.	40	20.0…70.0	The minimal temperature up to which the alternative source will heat the buffer tank.
	---Water heater ---			Settings for heating support for DHW. The DHW sensor is used (basic module).
	Set. Temp.	60	20.0…80.0	Setting the desired temperature in the DHW.
	Dif. Temp.	15	7.0…20.0	Min. difference between the temp. of the DHW and temp. of the alternative source to turn on the HP-AOG of the alternative source.
	Max. Temp.	70	60.0…90.0	Max. allowed temperature in the buffer tank up to which heating will be performed if the alternative source will have a high enough temperature.
	Min. Temp.	40	20.0…70.0	The minimal temperature up to which the alternative source will heat the DHW.
	---Common---			
	Prior. DWH	YES	100.0...120.0	By choosing the parameter YES heating of the DHW will begin first, followed by heating.
	Cooling	100	1.0…5.0	Temp. of the alternative source above which cooling is performed.
	Cooled for	5		By how many °C to cool the backup source.
	Dif. Min.	5		The min. difference between the temperature of the alternative source and the temp. of the buffer tank or temp. of the DHW for heating to continue.

	Protection	100	100.0...130.0	Setting the temperature for activating the signal which the users lowering the temperature of the alternative source can be connected to.
	DHW from alternat.	ALT		Heating the DHW directly from the alternative source or the buffer tank [ALT,CON].
ADDITIONAL SOURCE	**Parameter name**	**Adjustable value**	**Scope [°C]**	**Parameter description**
	Switch to	Need		Mode of turning on the alternative source [Never, Need or constant].
	Bi-Point	-7.0	-30.0…40.0	Bivalent point. Set outside temperature at which the additional source is activated.
	Delay	30		[0…180] Start-up delay for the additional source despite reached bivalent point.
	Mode	Parallel		[parallel, alternative] Mode of additional source operation.
	Raise for	5.0	0.0…20.0	Raising the heating temperature with auxiliary operation.
	AddSourceOnly	NO		By changing the parameter from NO to YES you can turn on the operation of the backup source (flow el. Heater) in case of a malfunction of the cooling part of the device.
	DHW	45.0	20.0…50	Turn on/off and temperature settings of DHW heating with the backup source.
	AntiFreeze	25	10.0…60.0	The antifreeze program maintains the temperature in the system using the backup source in case of a malfunction of the device. This is not true for the TZ malfunction (this temperature is adjustable).
	Remote switch	OFF		Turning on the additional source with remote turn-off.
	-Prot.w. AddSource-			**Protection the heating system with a backup source.**
	AS-on under	18.0	10.0…50.0	Turning on under 18°C of the return.
	AS-off above	20.0	10.0…50.0	Turning off above 20°C of the return.
	Delay	300		Delay of the turning on of the supply pipe.
	Immt. under	-10.0		Direct turn on of additional source under this temperature.
MODE	**Parameter name**	**Adjustable value**	**Scope [°C]**	**Parameter description**
	Mode	Winter		Changing the operating mode [Summer, AUTO, Winter].

	Screed drying	NO		Turning on the programme for Screed drying [YES, NO].
	Initial	20.0	10.0…50.0	Changing the initial temperature.
	Maximum	30.0	10.0…50.0	Setting the highest temperature up to which the screeds can be heated.
	Step	24		Setting the operating hours for the step [10…24] h
	Duration	264		Maintaining the maximal temperature reached [100…264..1000h].
	Final	20.0	10.0…50.0	End temperature.
	1. Circ.	Thermostat		Choosing the regulation for 1. Circuit, turned on via the set value of the thermostat [Thermostat], the spatial corrector [KT-1/KT-2] or constantly on [ON] or off [OFF].
	2. Circ.	Thermostat		Choosing the regulation for 2. Circuit, turned on via the set value of the thermostat [Thermostat], the spatial corrector [KT-1/KT-2] or constantly on [ON] or off [OFF].
	3. Circ.	Thermostat		Choosing the regulation for 3. Circuit, turned on via the set value of the thermostat [Thermostat], the spatial corrector [KT-1/KT-2] or constantly on [ON] or off [OFF].
	4. Circ.	Thermostat		Choosing the regulation for 4. Circuit, turned on via the set value of the thermostat [Thermostat], the spatial corrector [KT-1/KT-2] or constantly on [ON] or off [OFF].
	Reduced	NO		I case the change of the parameter to YES the device will operate in a lowered ECO mode during heating/cooling.
	Operation	AUTO		The change of the mode for the whole system [AUTO, ECO, COMFORT].
	Mode HP	ON		Turn on [ON], off [OFF] and [AUTO] modes of setting the parameters. Only when choosing AUTO operation mode you can set the schedule for individual parameters. In case the parameters are set to ON the parameter will be turned on but you will be unable to change the schedule.
	Mode DHW	AUTO		
	Mode 1. Circ.	AUTO		
	Mode 2. Circ.	AUTO		
	Mode 3. Circ.	AUTO		
	Mode 4. Circ.	AUTO		
	Mode Temp.	12		The temperature at which the mode changes 3x in a row in case of the AUTO mode at 21:00
	C/W ALL	0		The correction of the current desired temperature of the device and all circuits in the step towards + or -.

	D8-PV	Rise 1		The buffer tank will switch to the Comfort mode upon the signal from outside.
	Silent mode	NRM		The device operates in the normal mode. In case of the LOW parameter the power of heating and cooling lowers.
	Language	EN		This parameter sets the desired language Of the controller.
Tempera-tures	**Parameter name**	**Adjustable value**	**Scope [°C]**	**Parameter description**
	Flow	28.0°C		The current temperatures of individual sensors are shown. The number of sensors depends on your heating system.
	Return	36.1°C		
	DHW	48.0°C		
	Compressor	11.5°C		
	Evaporator	16.5°C		
	T outside	-5.0°C		
	2. Circuit	27.0°C		
	3. Circuit	29.0°C		
	4. Circuit	27.0°C		
	Alt. Buff t.	45.2°C		
	Alt. Source	16.7°C		

Information display of operation

The controller interface TERMOTRONIC™ displays information about the device on its main display at any time. The information is described in Line 2 and Line 2. The information about the device can also be displayed in the DIAGNOSTICS DISPLAY.

Line 1	
Line 2	
Return	**32.3°C**
DHW	**49.0°C**

The following information is displayed in Line 1:

Status of the device		
ERROR HpDHW	DHW	Standby
ERROR HpHeat	Screed drying	Heating
ERROR HpCool	Heating	Biv.Alt
ERROR LpDHW	Cooling	DHW
ERROR LpHeat	DHW +Add.source	Biv.Alt
ERROR LpCol	ScreedDry + Add.source.	OVERHEATING
ERROR Tz	Heating + DHW	DEFROST
NO WATER	Heating + Add.source	Comp.temp too high
Caution ! Flow !	Cooling + DHW	?Efficiency?
Too low T-Outlet		Defrost T.Flow ALARM
MODULE 1 ALARM	Heating-Res.source-	Max. dT
MODULE 2 ALARM	DHW-Res.source-	ERROR Sensors
MODULE 3-ALARM	-> Checking	ALARM DHW
MODULE 4-ALARM	ERROR Thermostat	ERROR CASCADE
	ALARM RTC-FAIL	

The following information is displayed in Line 2:

Status of the device
Heating FP PROG

Diagnostic displays

If you would like to check the current status of the device or check why it is malfunctioning, follow these steps:

1 For accessing diagnostics on the basic display press key [v] until the display on the left is displayed. Press the key [OK] (ENTER) to enter the menu SERVICE DISPLAY.

```
 - DIAGNOSTIC - DISPLAY -
I              IN              I
I              IN              I
----------------- IN -----------------
```

Depending on the current operation upon entry the display shows you various parameters.

2 Com: Delayed start-up of compressor.
BDV: Blockage of the supply pipe.

AT: Timer after alarm. In the case of an alarm it is not possible to reset the system 2x in this time.

AI5: Timer after detected too low or too high external temperature. In this case the HP operates in the FP_PROG mode (max. Operation time of the programme is 60 min) until the external temperature is within acceptable limits.

Info. line 1: Display of blockages (here all possible blockages are displayed for protection the HP listed in the table below).

Info. line 2: Display of warnings (here light alarms of the HP listed in the table below).

```
Com: 0s                AT:0s
BDV: 0s                AI5:0'
Information line 1
Information line 2
```

Display of the state of the device

INFORMATION LINE 1	Parameter description
HP STOP……	The operation of the device is shut down (including circuit control).
NO WATER	The warning pops up if there was no water at start-up 3 times.
DHW.....	The device heats DHW.
Screed drying.....	The programme for drying screeds is activated.
Heating……	The device operates in the heating mode (only in winter mode).
Cooling.....	The device operates in the cooling mode (only in summer mode).
DHW + Add.source	The device operates simultaneously with the heat source (the compressor and additional source simultaneously).
ScreedDry + Add.source	
Heating + Add.source	
Heating + DHW	The device operates in the heating mode parallel to the electric heater which is installed into the DHW for heating DHW.
Cooling + DHW	The device operates in the cooling mode parallel to heating of DHW.
Heating-Res.source-	The device operates in service mode. The heated water is heated in auxiliary mode with the help of the auxiliary flow electric heater source.
DHW-Res.source-	The device operates in service mode. The DHW is heated in auxiliary mode with the help of the auxiliary flow electric heater source.
Standby……	The device is in standby mode because there is no need for heating/cooling or it is in protection mode.
Heating – Biv.Alt.	The device operates simultaneously with the heat source (the compressor and additional source simultaneously).
DHW – Biv.Alt	
CompProtection	Compressor blockage - protection against too frequent startups.
Comp. start in	Delayed start-up of compressor.
INFORMATION LINE 2	**Parameter description**
Estrih timer:	The screed drying mode is activated, the timer shows the time of the program's operation.
CAUTION...Min Flow	The supply pipe has fallen below the minimal value set with the parameter Min Supp. Line. The device will turn on when the sum of the parameters set in the parameter Min Supp. Line and the parameter Standby elapse.
!!HeatSource ON!!	Manually switching on the heat source - only the heat source operates, the compressor is deactivated.
CAUTION ?T-Outlet?	Warning/protection of too-low exit water temperature.

--- Overheating ----	A thermal disinfection of DHW is being conducted (reheating).
DHW C.Pump	After heating DHW the device switches to forced heating for the set time.
Temp.check Ret	The main circulation pump is activated, it checks the temperature of the return.
CAUTION… ! FLOW! ...	The flow switch is not connected, there is no flow, depending on the set time in various types of device (DHW or WW) the submersible pump turns off and switches to compressor protection.
Start DEF in	Countdown of the delay until the start of defrosting; 300 s adjustable.
DEFROST	The device is in the evaporator defrost mode (only ZV).
Protect Lp	Protection before a new start-up of the HP with the LP error (low pressure) (only HW /WW).
--Comp.temp too high--	Too high compressor temperature.
--Remote--SHUT-OFF	HP STOP via digital input D5.
-Shut-off cascade-	Cascade turn off sequence.
..Shutdown at.	Minimal time of compressor operation. After this time in case the conditions for the shut down are met, it is enabled.
Caution flow	The flow switch is not connected, there is no flow, after 120 s the submersible pump turns off and the HP goes into compressor protection.

Disruptions in operation, alarms and troubleshooting

After instalment and successful commissioning the device is ready for regular operation.
The operation of the device is protected by multiple protection mechanisms:
- High pressure switch: in case operating pressure is too high.
- Low pressure switch: in case of too-low operating pressure.
- Flow switch: for protection flow loss.
- Temperature sensors: for protection the temperature of the return, supply pipe, compressor and evaporator.
- Safety thermostat: for protection the built-in electric heater.
- Phase controller and under- and over-voltage protection: for protection the correct sequence of electric phases and appropriate electric voltage.

In case of disruptions in the operation first check whether the display displays an error message. Find the description of the malfunction in the table below and try to resolve it in accordance with the instructions in chapter (Troubleshooting) In case you cannot resolve the malfunction alone or you are prohibited from doing so, act in accordance with the instructions 1., 2., and 3., to resolve the malfunction listed in the warranty. Contact the installer who installed your device to resolve the malfunction. In case the malfunction cannot be resolved, he will contact the customer service of the manufacturer who will resolve the malfunction.

NOTE

In case of a malfunction the display displays a red alarm light (ALARM).

Errors and alarms in normal operation mode

Display of alarms	Description of error
ERROR HpHeat	Alarm; the pressure in the system was too high during heating.
ERROR HpDHW	Alarm; the pressure in the system was too high during heating DHW.
ERROR HpCool	Alarm; the pressure in the system was too high during cooling.
ERROR LpHeat	Alarm; the pressure in the system was too low during heating.
ERROR LpDHW	Alarm; the pressure in the system was too low during heating DHW.
ERROR LpCol	Alarm; the pressure in the system was too low during cooling.
ERROR Tz	Alarm; there was overvoltage, under voltage or inverted phase sequence in the electrical grid.
ERROR **NO WATER**	Alarm; there was a switch of the heat source pump or shortage of water for the heat source (Flow error / Flow switch open)
ERROR ... SENSORS ...	Alarm; one of the sensors is not connected or is damaged.
Too low T-outlet	Alarm; the temperature of exit water is too low.
Defrost T.Flow ALARM	Alarm; the inlet water temperature during defrost is too low.
ALARM DHW	The device was unable to increase the water temperature, retry 3x time.
? EFFICIENCY?	The device does not heat (does not generate enough heat).

After fixing the cause for the error you have to restart the device with the key OK (ENTER) - hold it for 3 seconds. After the startup sequence elapses the device will start operating.

Errors and alarms in backup operation mode

Service operation mode (BACKUP)	Description of error
DHW-Res.source-	The device operates in service mode. The DHW is heated in auxiliary mode with the help of the auxiliary flow electric heater source.
Heating-Res.source-	The device operates in backup mode. The heated water is heated in auxiliary mode with the help of the auxiliary flow electric heater source.
FP PROG (2. Line)	The antifreeze programme activates in case of a serious error in the heat pump system. It maintains the temp. of 25 °C in the heating system. It uses the built-in flow electric heater.
Max. dT	The temperature difference between the supply and return is too high.

After fixing the cause for the error you have to restart the device with the key OK (ENTER) - hold it for 3 seconds. After the startup sequence elapses the device will start operating.

Troubleshooting

Resolve the errors using the procedure for resolving errors. The column Check, resolve the error prescribes how to resolve the error.

NOTE

In case you cannot resolve the malfunction alone or you are prohibited from doing so, act in accordance with the instructions 1., 2., and 3., to resolve the malfunction listed in the warranty.

• Air-water device type

Error	Description of error	Reason for the error	Procedure to resolve the error
HpHeat	Exceeded High pressure in space heating mode	Insufficient water flow through the condenser.	1. Check the heating system if the circulation pump is working or if all valves and flaps are correctly opened/closed
			2. Cleans the trainer if it is blocked
			3. Fill out the system (min.1.5–2 bar)
			4. Vent the system.
HpDHW.	Exceeded High pressure in DHW mode	Insufficient water flow through the condenser.	1. Check the heating system if the circulation pump is working or if all valves and flaps are correctly opened/closed
			2. Cleans the strainer if it is blocked
			3. Fill out the system (min. 1.5–2 bar)
			4. Vent the system.
HpCool.	Exceeded High pressure in cooling mode	Insufficient air flow through the condenser.	1. Check the operation of the fan on the heat pump
			2. Enable unobstructed flow through the condenser
			3. clean the blades of the condenser.
LpHeat.	Exceeded Low pressure in space heating mode	Insufficient air flow through the evaporator	1. Check the operation of the fan on the heat pump
			2. enable unobstructed air flow through the evaporator.
LpDHW	Exceeded Low pressure in DHW mode	Insufficient air flow through the evaporator.	1. Check the operation of the fan on the heat pump,
			2. enable unobstructed air flow through the evaporator.

Error	Description of error	Reason for the error	Procedure to resolve the error
LpHeat.	Exceeded Low pressure in space heating mode	Frozen blades of the evaporator and basin.	1. Activate manual defrost but no more than two times.
			2. Check the condenser drain
			3. Check the heating cable operation.
LpDHW	Exceeded Low pressure in DHW mode	Frozen blades of the evaporator and basin.	1. Activate manual defrost but no more than two times.
			2. Check the condenser drain
			3. Check the heating cable operation.
LpCol.	Exceeded Low pressure in cooling mode	Insufficient water flow through the evaporator.	1. Check the heating/cooling system if the circulation pump is working or if all valves and flaps are correctly opened/ closed
			2. Cleans the strainer if it is blocked
			3. Fill out the system (min. 1.5–2 bar)
			4. Vent the system.
Tz	There was an error in the electrical supply.	Phase failure.	1. Check the presence of all phases and adequacy of voltage
			2. Change the phase sequence - change the order of the phases.
NO WATER	There is insufficient flow of medium (water) between HP and the heating system.	Insufficient water flow through the condenser/evaporator.	1. Check the heating system if the circulation pump is working or if all valves and flaps are correctly opened/closed
			2. Clean the strainer
			3. Fill out the system (1.5–2 bar)
			4. Vent the system.
SENSORS.	Error on one of the sensors	Error in data acquisition	1. Disconnect the device from the power source and reconnect it in 10 minutes
Max. dT	The temperature between the return and supply line is too high.	There was a disturbance in the water flow	1. Check the heating system if the circulation pump is working or if all valves and flaps are correctly opened/closed
			2. Clean the strainer
			3. fill out the system (1.5–2 bar)
			4. vent the system.

Error	Description of error	Reason for the error	Procedure to resolve the error
Defrost T.Flow ALARM	The HP does not have enough energy to defrost.	The inlet water temperature during defrost was too low	1. Heat the buffer tank with the backup source (at least to 20 °C)
			2. Turn on the buffer tank heating together with the heat pump and backup source
			3. Gradually turns on the heat extractors from the buffer tank (1 circuit at a time).
ALARM DHW	The HP could not heat the DHW above the minimal value	Insufficient water flow through the condenser. The sensor is not in its right place.	1. Check the heating system if the circulation pump is working or if all valves and flaps are correctly opened/closed
			2. Clean the strain
			3. Fill out the system (1.5–2 bar)
			4. Vent the system
			5. Check if the sensor is in its designated place
?Efficiency?	The HP does not function efficiently enough.	The device does not reach a high enough temperature of the return.	Contact the authorized service.
ALARM RTCFAIL	There is an error on the frequency oscillator on the PLC.	The frequency oscillator on the HP electronics is damaged.	1. A reset of the error is possible by pressing and holding ENTER for 3 seconds.
			2. In case the reset does not correct the error an authorized service must be contacted.

After successfully establishing the cause of the safety element shut down and resolving the error you can manually turn on the device again by holding the key OK (ENTER) for approx. 3 seconds. After the startup sequence elapses the device will start operating.

Maintenance and Service

Maintenance Activities

In order to ensure optimal availability of the unit, a number of checks and inspections on the unit and the field wiring have to be carried out at regular intervals, preferably yearly. This maintenance should be carried out by your local agreed technician.

When the unit is not Operating

⚠CAUTION

- If the product is not used for long time, we strongly recommend NOT TO SWITCH OFF THE POWER SUPPLY to the product.
- If power is not supplied, some special product-protecting actions (such as water pump anti-locking) will not performed.

Call the service immediately in the following situations

1. Anything abnormal such as burning smell, loud noise etc. happen. Stop the unit and turn the breaker off. Never try to repair by yourself or restart the system in such cases.
2. Main power cord is too hot or damaged.
3. Error code is generated by self diagnosis.
4. Water leaks from unit.
5. Any switch, breaker (safety, earth) or fuse fails to work properly.

User must carry routine checkup & cleaning to avoid unit's poor performance.
In case of special situation, the job must be carried out by the only service person.

Settings of your heating system at start-up

In case you need help from the installer who performed the installation or an authorized service, record in the tables below:

- Your designations of rooms you control with the parameters of the control interface TERMOTRONIC™.
- The values of the parameters Normal and Correction which you have set for your heating system.
- The setting for the parameter (371) Buff.tank

The parameter in the heating mode

Type of circuit (circle it)	The set heating mode (circle it)	Conception of the circuits of the control interface TERMOTRONIC™	Recommended set temperature			Your designations of rooms
			Normal	Correction	Hysteresis	
	Weather control/ maintaining constant temperature	Heating				
direct		1. Circuit				
direct/mixing		2. Circuit				
direct/mixing		3. Circuit				
direct/mixing		4. Circuit				

The parameter in the cooling mode:

Type of circuit (circle it)	Conception of the circuits of the control interface TERMOTRONIC™	Recommended set temperature		Your designations of rooms
		Normal	Hysteresis	
	Heating			
direct	1. Circuit			
direct/mixing	2. Circuit			
direct/mixing	3. Circuit			
direct/mixing	4. Circuit			

Parameters for DHW:

Conception of the parameters of the control interface TERMOTRONIC™	Recommended set temperature		Your designations of rooms
	Normal	Standby	
DHW			

Filled out by the authorized contractor for commissions:

Setting the parameter (371) Buff.tank at start-up (circle it)	
Buff.const	Buff.if needed
Designation of hydraulic wiring diagram (Catalogue of hydraulic wiring diagrams of the device manufacturer) according to which the wiring of the DHW room is implemented	

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