

INSTRUCTION MANUAL

Heat pump controller LUXTRONIK

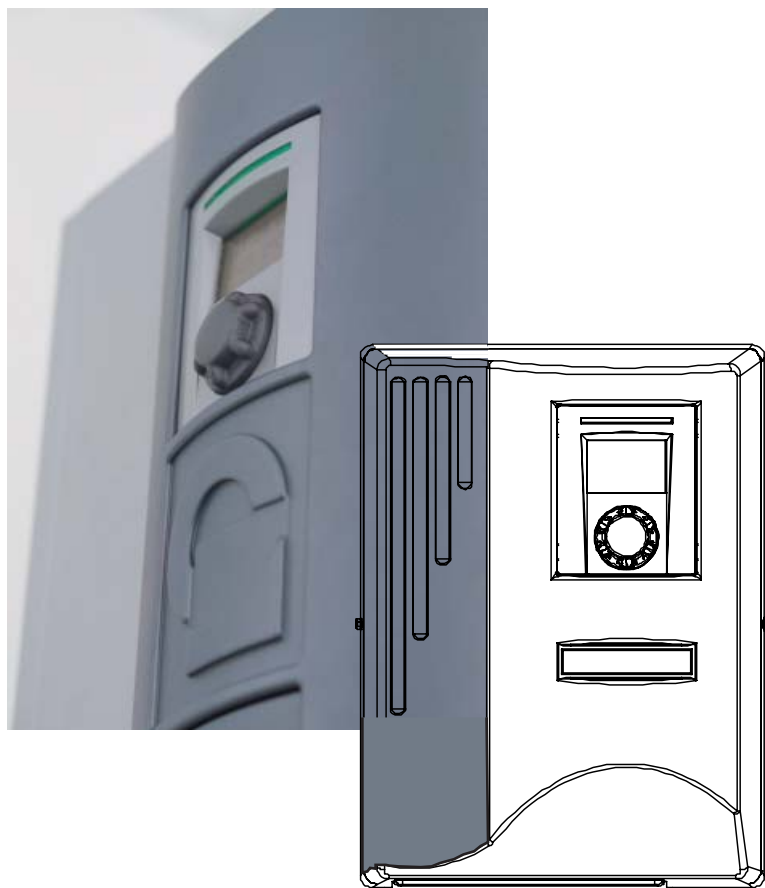











TABLE OF CONTENTS

| | page |
|--|------|
| SAFETY RECOMMENDATIONS - Important! Please observe! - | 3 |
| GENERAL | |
| Application/working mode | 4 |
| Scope of supply, accessories | 4 |
| ASSEMBLY | |
| Wall controller | 5 |
| Control circuit board | 8 |
| Accessories / sensors | 9 |
| Built-in type controller/operating element | 10 |
| OPERATING BY ENDUSER | |
|  The operating device | 11 |
| Standard screen | 12 |
| Navigation screen | 13 |
| Info-settings: heating | 14 |
| Info-settings: domestic hot water | 16 |
| Info-settings: complete installation | 17 |
| SETTINGS BY FITTER | |
|  Heating | 18 |
|  Domestic hot water | 24 |
|  Cooling (if activated at SERVICE/settings) | 26 |
|  Ventilation (only for the control of a Komfort building services centre) | 28 |
| SERVICE | |
|  Information | 32 |
| Settings | 34 |
| Ventilation program | 40 |
| Language | 40 |
| Date / time | 40 |
| Configuration of the installation | 40 |
| Screed heating (floor pavement) | 41 |
| DIAGNOSIS | |
| Error diagnosis | 42 |
| ANNEXE | |
| Technical details | 45 |
| Characteristic curve temperature sensor | 45 |
| Basic settings | 46 |
| Survey of abbreviations (alphabetical order) | 47 |
| Guarantee conditions | 49 |


LANGUAGE SELECTION:

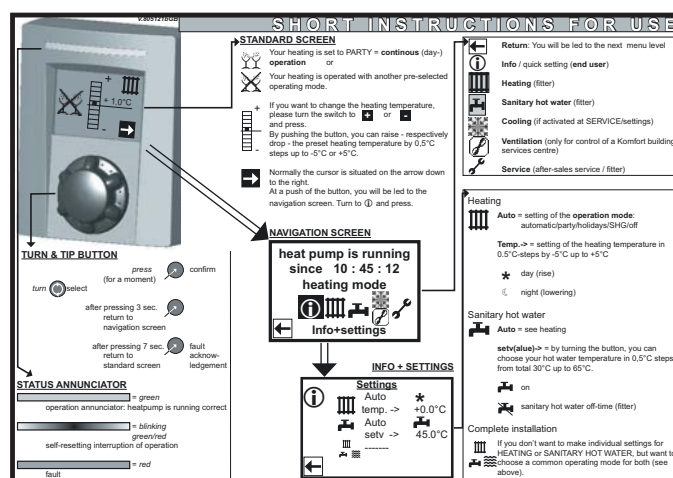

Language

German ☐
English ☒
French ☐
Norwegian ☐
Czech ☐
Italian ☐


The descriptions of all menu screens of the controller program are available in the above six languages.

After making your selections by ☒ and confirmation by , the controller program will be displayed in the chosen language.



Please attach the enclosed "short instructions for use" near your heat pump controller.

SAFETY RECOMMENDATIONS



In general, the following recommendations are referred to in this instruction manual.



Please observe **advice** concerning function and operating method!



Safety instructions
- Important! Please observe! -



Instruction manual,
further advice



Functions adjustable by the operator



Functions adjustable by after-sales service with
PASSWORD



Adjustable only by manufacturer



The cursor never jumps to a set value to be changed exclusively by after-sales service!



The installation and execution of electric works must be carried out by a competent person, taking into account the relevant IEE* safety regulations.

* German association of electricians



When doing interventions in the device not stated in the technical documentation, the **guarantee expires!**



When doing electric works, switch off all electric circuits.



The **heating circulating pump** may be approached only by the heat pump controller and must **never be switched off externally** for antifreeze reasons.



For antifreeze reasons, the **heating circuit** must **never be closed off** towards the heat pump.



At the **plug X5** of the heat pump controller and at the **clamps X4**, there is **low voltage**. Please use exclusively the original sensors made by the manufacturer (protection class II).



The settings at the heat pump controller must be carried out **only by competent persons accepted by the manufacturer and by the authorized after-sales service**.



Maybe high-resistance voltmeters measure tension at the output clamps, even though the outputs are switched off.



At the **diagnosis-interface** (9 pole SUBD), only software approved by the manufacturer is admissible at a computer.
Danger of errors!

GENERAL

Application



The heat pump controller may be operated exclusively with heat pumps released by the manufacturer.

It is intended to be used exclusively for the settings of a heat pump and the correlative components.

Only parts delivered and released by the manufacturer may be used as accessories. The instructions of the instruction manual must be observed unconditionally.

Working mode

The *heat pump controller* is in charge of the control of the entire heat pump installation, of the water heating and of the heating system.

It identifies the heat pump type automatically.

Low tension signals and 230V-signals are going to be separated consequently in order to assure highest possible interference resistance.

All the heat side components are connected to the heat pump.

The **weather-conditioned heating curve** of the heating installation with the correlative lowering and rising periods will be set at the heat pump controller.

The **heating of domestic hot water** may be done by a thermostat (to be provided by customer) or by a temperature sensor (accessory/included in the delivery of the domestic hot water tank) – as needed. The heating of domestic hot water by a temperature sensor allows intelligent, adaptive and high-convenience domestic hot water production.

Comprehensive **diagnosis components** allow simple representation of the installation by graphics display or by diagnosis interface (accessories after-sales service) with a connected PC.

Scope of Supply / Accessories

Scope of supply wall controller

- ✓ Controller, including control circuit board with clamping devices ; **casing** and operating element with “**turn-tip-controller**”
- ✓ Wall fastening material (dowels + screws + drilling jigs)
- ✓ Outside sensor for surface-mounting
- ✓ Instruction manual

Scope of supply built-in controller

- ✓ Controller, including control circuit board with clamping devices and operating device with “**turn-tip-controller**”
- ✓ Outside sensor for surface-mounting
- ✓ Instruction manual



For mounting the operating device, please see the relevant technical manual.

All further necessary temperature sensors are already built in the heat pump, for example return temperature, flow temperature, hot gas temperature.

Accessories

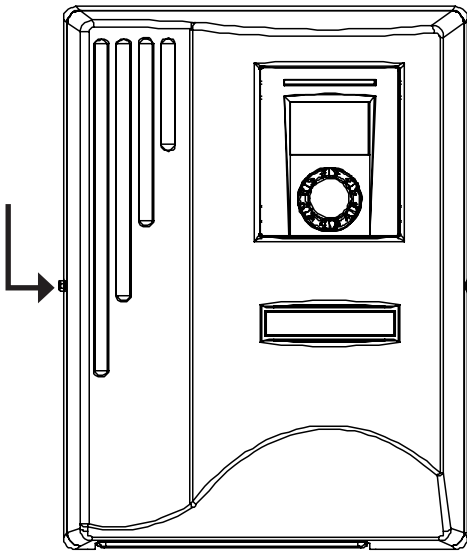
Available accessories:

- ✓ Sensor set for domestic hot water production*)
- ✓ Sensor set with external return sensor*)
- ✓ Room remote control
- ✓ Connection-set for PC-diagnosis for the after-sales service
- ✓ Update-plug for after-sales service
- ✓ Extension circuit board type Komfort (available in 2005)
- ✓ Modem connection **or**
- ✓ Bus-interface (LON) (available in 2005)
- ✓ Sensor set Solar (for board Comfort))

*) To assure trouble-free operation when using external devices, please observe the instructions of the relevant manufacturers.

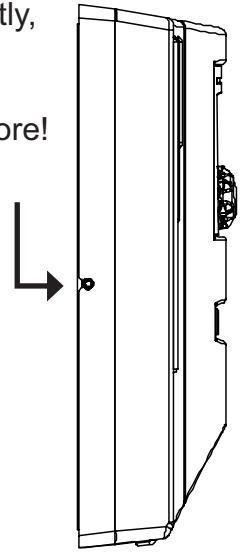
ASSEMBLY WALL CONTROLLER

Front view:

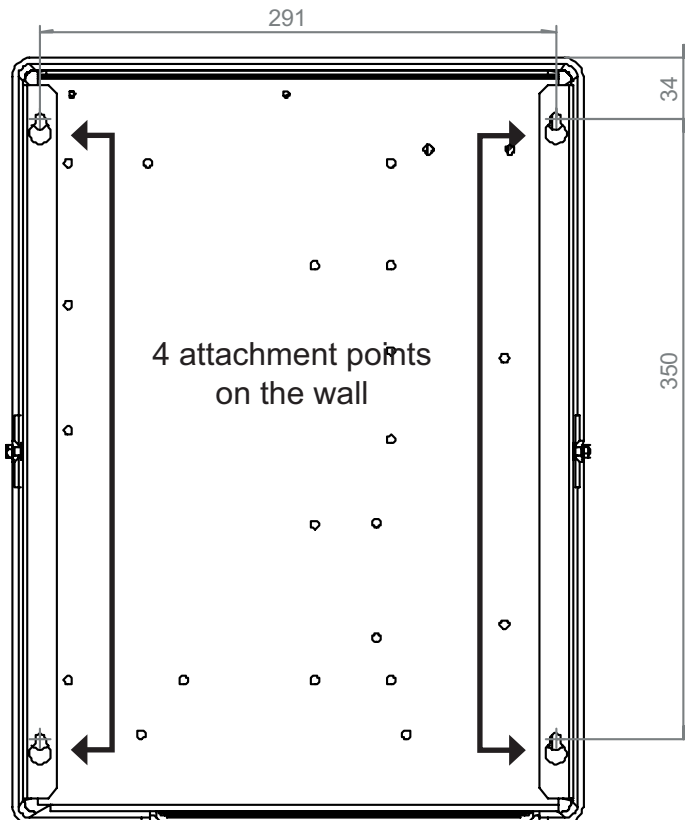


Please unscrew both casing screws only slightly, then take off of the casing.

Attention: Switch off power supply voltage before!



Rear view:



WALL FASTENING

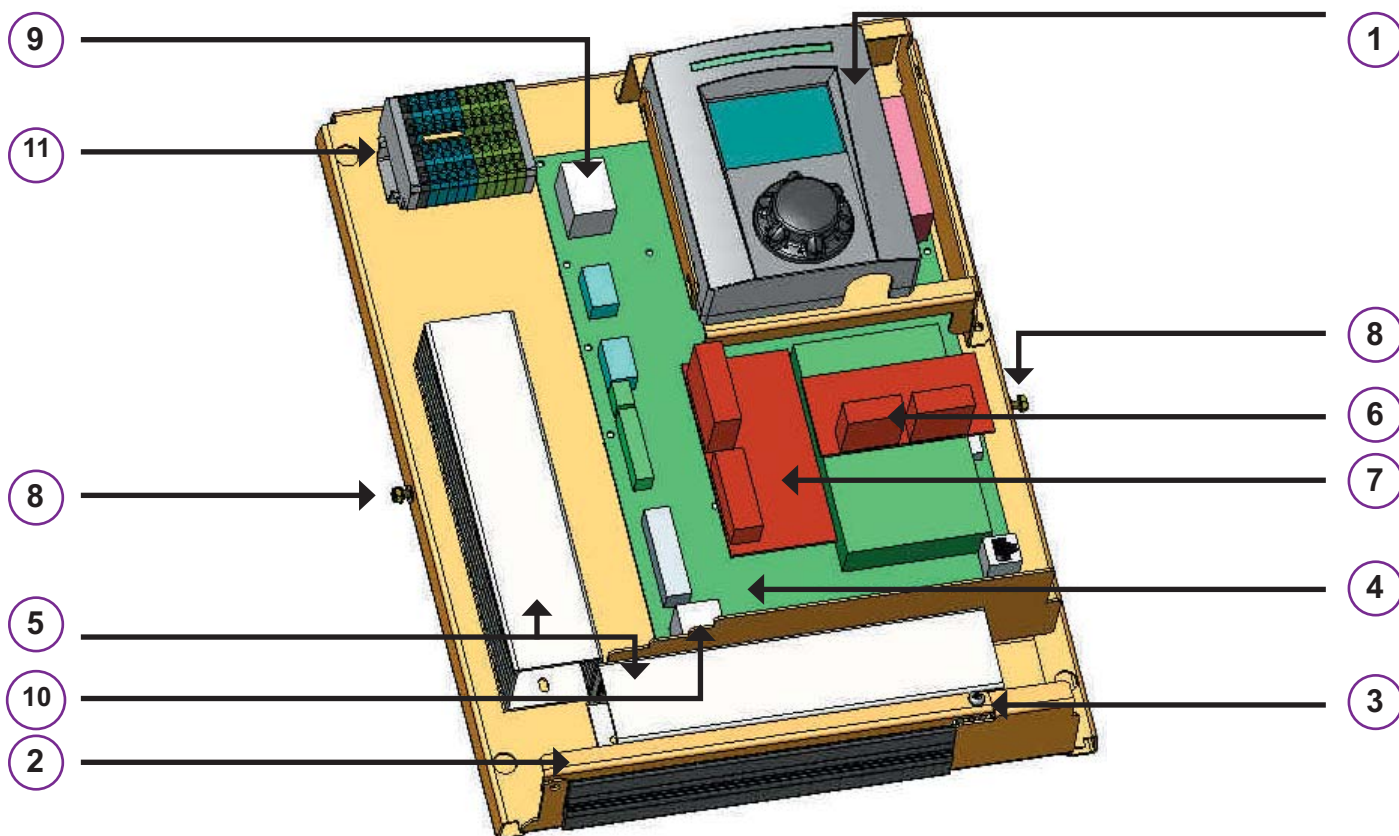
- 1) Arrange the boring template at the wall and attach it with adhesive tape (leave sufficient lateral distance to be able to release the casing screws).
- 2) Bore the holes:
Borer \varnothing 6 mm; depth 55 mm
(Look after lines/wires under the wall!)
Afterwards, remove the boring template.
- 3) Put the dowels inside the 4 holes and screw in the screws:
Set the distance wall - screw head to about 10 mm
- 4) Replace the open wall controller in the screws (care for complete = saved replacement to avoid damages!)

By means of the template inside the folding box board, the holes for wall fastening can be bored exactly.

5) Screw down the wall screws tightly.

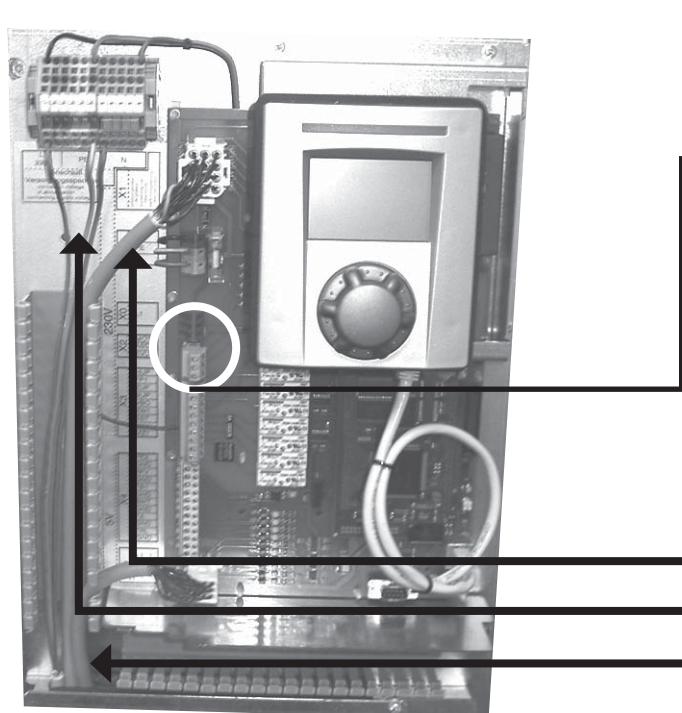
6) Put on the casing and fastening with lateral screws:

CONFIGURATION WALL CONTROLLER



- 1) Operating element
- 2) Click-bracket
- 3) Screw for opening the click-bracket
- 4) Main circuit board Luxtronik
- 5) Cable ducts with cover
- 6) Modem- or BUS-circuit board (accessories)

- 7) Comfort-circuit board (accessories)
- 8) 2 x 6 edging screw for opening the cover
- 9) Connection point for control line
- 10) Connection point for sensor line
- 11) Terminal block with power supply



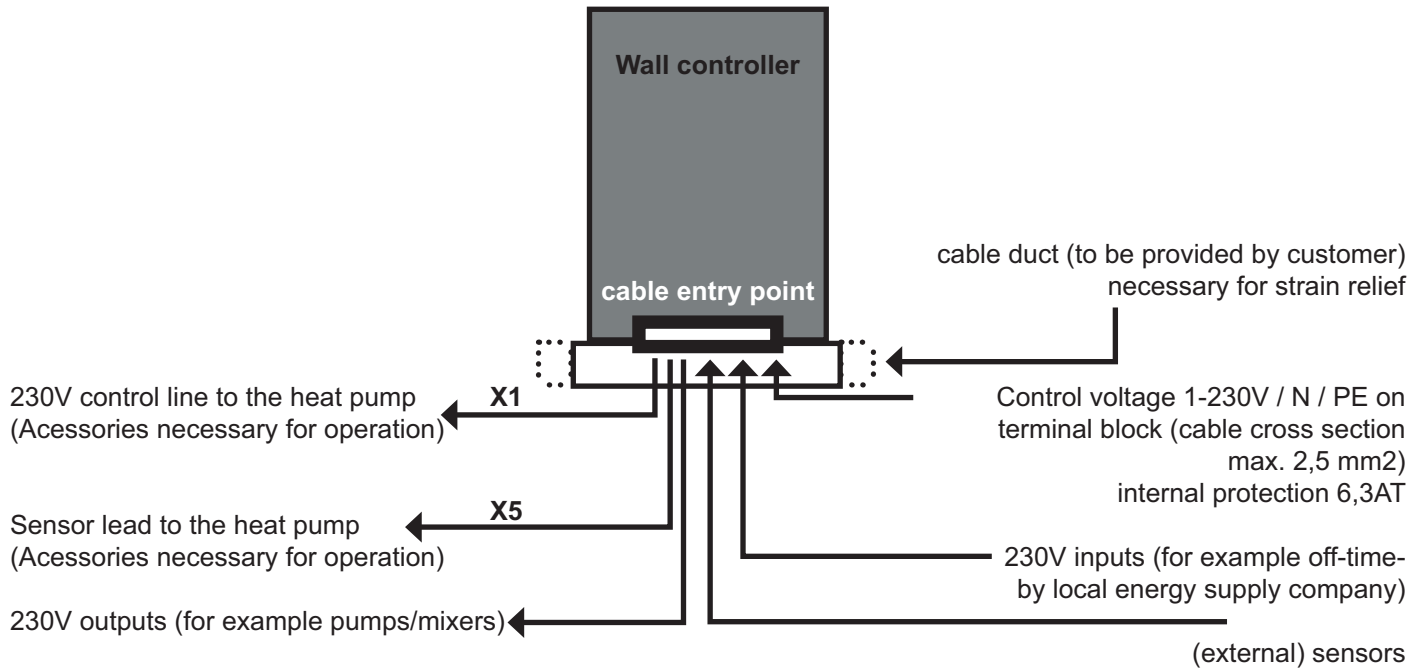
Remove EVU-bridge when connecting a floating distance contact.

Basic wiring:

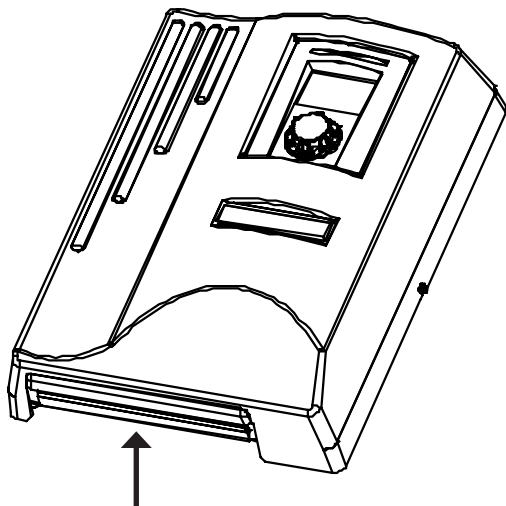
with the two connection lines and the connection point of the power supply.

- control line (heat pump)
- power supply
- sensor line (heat pump)

CABLE FANNING / ELECTRIC ASSEMBLY WALL CONTROLLER



Separate power supply of the heat pump.
Please find further instructions in the instruction manual of the heat pump!



cable way through - between the both sealings.

DESCRIPTION CABLE FANNING (see also page 6 below)

- 1) Unscrew screw (8) slightly.
- 2) Pull the pressure clamp (2) slightly down until clicking upward is possible and turn sideward.
- 3) Remove the covers of the cable ducts (5)
- 4) First of all, insert the two connection lines towards the heat pump from the left and install on the respective plugs (X1 and X5). Lay the single cable end piece at the control line for X1 on contact ZW1.
- 5) Lay the line for power supply and attach it to the terminal block (11)

Attention: spring-type terminal up to max. 2,5 mm²!

Note: when insulating the cable sheath, the end piece of the cable sheath must be situated between the seal and the internal cable duct.

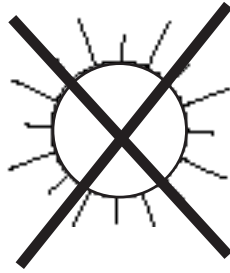
- 6) Install all additional external cables.
- 7) Sway the pressure clamp (2) back and lock in under the screw (3). Screw down the screw tightly.
- 8) Replace the cover and screw the screws (8) down tightly.

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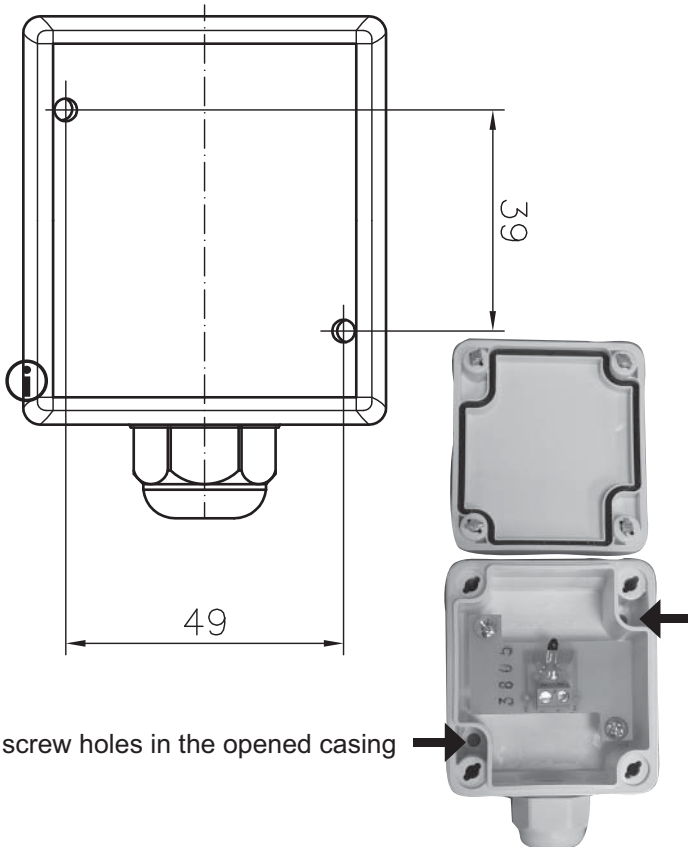
Sensors

- ⚠ Position on the north / north-east side.
Do not expose to direct insolation!



Casing back:

Distance between screws:



screw holes in the opened casing

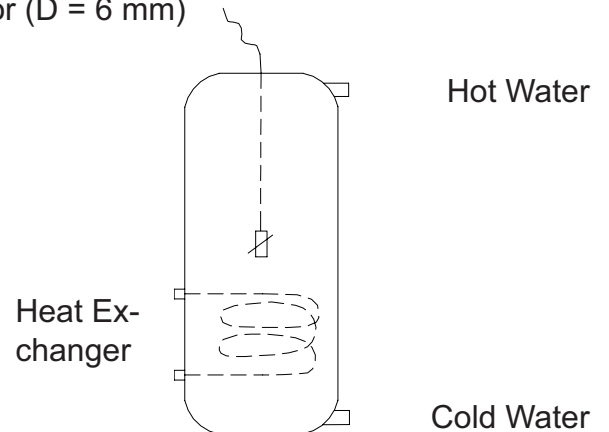
- ⓘ Distance from the ground > 2 mtrs.
Connect the sensor with a 2-wire cable, cross-section up to 1,5 mm².
Do not exceed maximum 50 m cable length.
In case of fault of the sensor or deficiency in outdoor sensors, the controller sets the outside temperature to -5°C and displays an error message.



- ⚠ mount the sensor with the screwed cable gland downward

Domestic hot water sensor

Sensor (D = 6 mm)



- ⓘ As far as not prepared by factory configuration, assembly at half height of the tank, but above the internal heat exchanger.
- ⚠ The sensor may be connected to the controller only after filling of the tank.
- ⚠ In principle, only sensors released by the heat pump manufacturer are admitted.

External return sensors

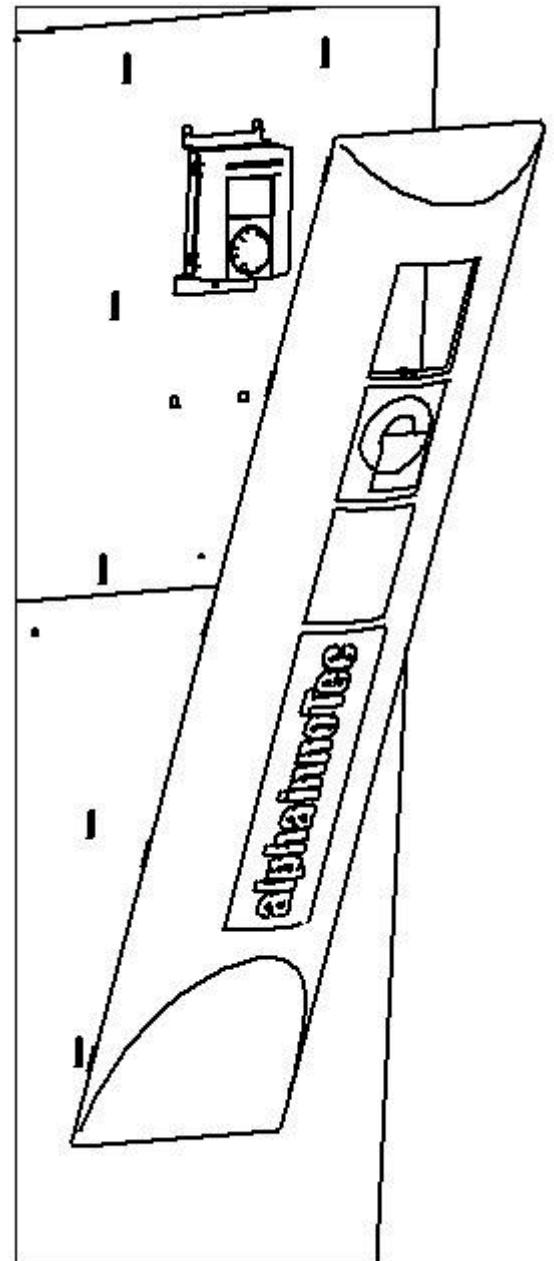
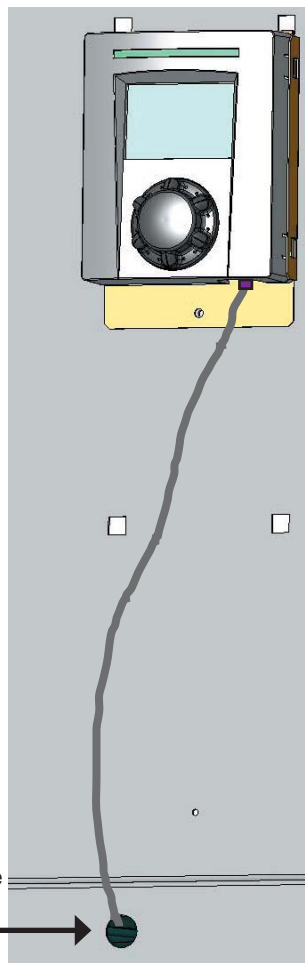
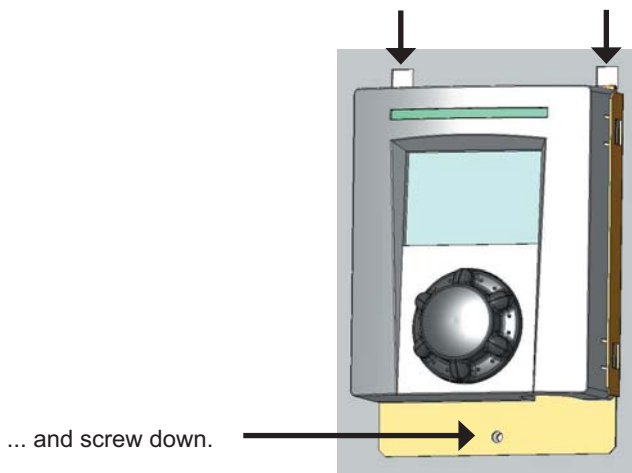
In case of hydraulic integration with separation tank (for example multifunctional tank), the return sensor must be clamped off and the sensor delivered with the multifunctional tank must be connected.

ASSEMBLY

Operating device

Please find the detailed assembly description of the operating device in the instruction manual of your heat pump.

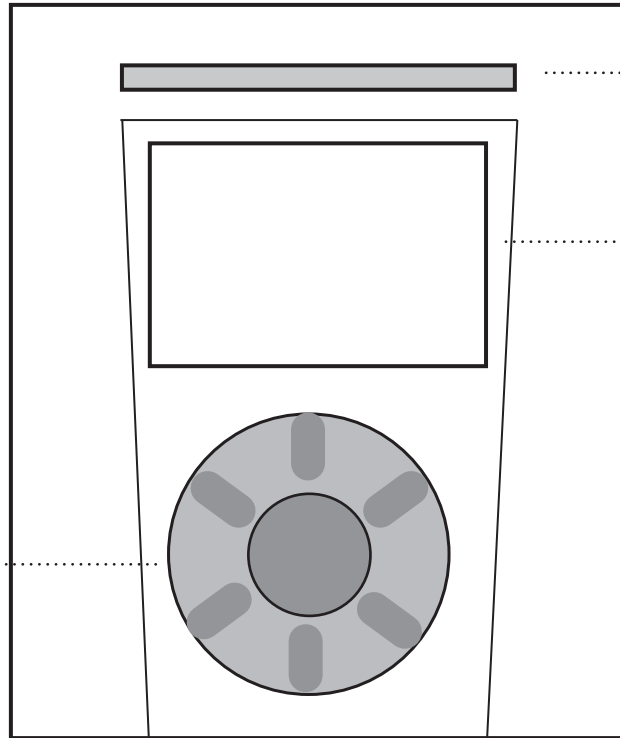
Hang up the operating device in the two square openings of the front plate (there is an alternative fastening possibility beneath)



The operating faceplate may be attached to the front plate without tools.



The operating device



TURN & TIP BUTTON

turn



select

press
(for a moment)



confirm

after 3 seconds:
return to the
navigation screen




after 7 seconds:
return to the
standard screen



fault
acknow-
ledgement

STATUS ANNUNCIATOR

 = *green*
status: heatpump is running correct

 = *blinking*
self-resetting
interruption of operation
green/red

 = *red*
fault

GRAPHICS DISPLAY

Set-point -> cursor (white fonts on black background)



forward / back



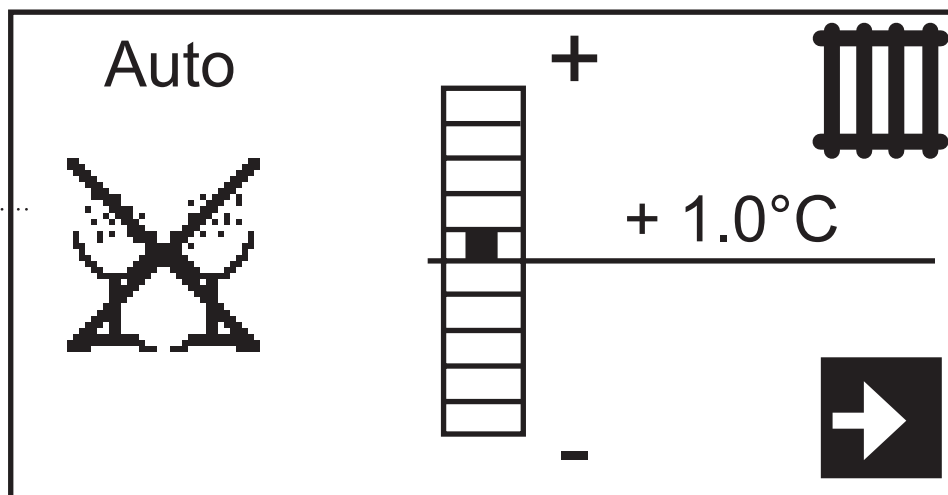
option yes / no



END USER

Standard-Screen

First screen. This screen serves for quick setting of the heating temperature. The display also appears if you don't use the operating device for more than **10 minutes**; simultaneously, the display lighting will be switched off. When moving the lock-down switch, the display will be illuminated again.



(If a modem is connected which is just communicating with the controller, the display shows "modem operation". Then, operating of the controller by the lock-down switch is not possible.)

With Party ON/OFF you set:



your heating to continuous operation
(Party) (-day-)

or



your heating will be operated with another
pre-selected operating mode.

The **operating mode** will be displayed at the left on top of the standard-screen – i.e. **"Party"** or (see above figure) **"Auto"** for automatic mode. Further possibilities:

"Holidays", **"2nd heat gen."** or **"Off"** can be set by "Info-settings".

Normally, the cursor is standing on the arrow beneath on the right:



At a push on the button, you will be led to the navigation-screen and the sequence menus.

If you want to change the heating temperature, turn the switch to



or



and press.

At a push of the button, you can raise respectively lower the preset heating temperature in 0,5°C steps by total -5°C or +5°C.



Then, the selected temperature will be transferred into the menu item:

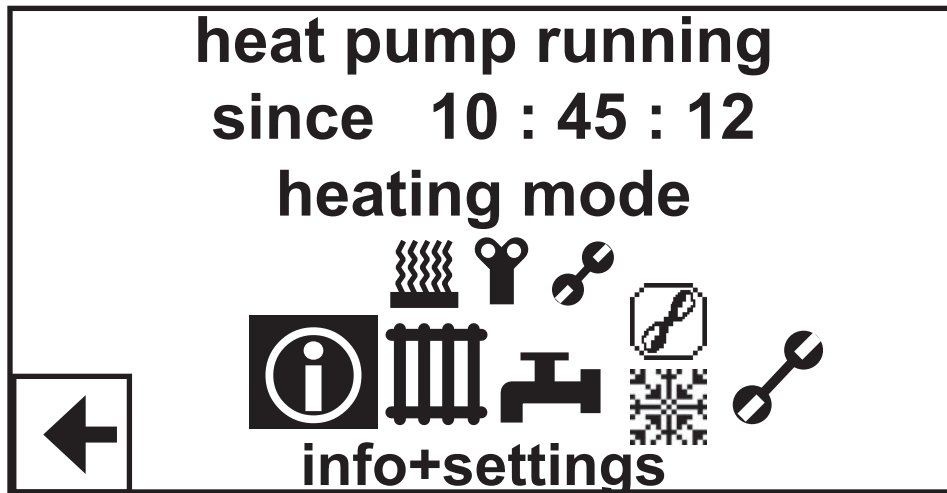
"Info-settings":

> temperature +/- 0°C



Navigation-Screen

When turning the switch to  the screen below will be displayed. The operation by the end user is basically done by .



(When turning the switch, you move back and forth in the menu. At the position of the cursor, the text is displayed on a dark background (reversed). The scroll bar (see at the right) shows whether you are at the beginning, in the centre or at the end of the menu screen).

NAVIGATION:



return.
you will be led to the next menu level:



Info / quick setting **end user**



Heating
(fitter)



Domestic hot water
(fitter)



Cooling
(if activated at service/settings)



Ventilation
(only for Komfort building serv. centre)



Service
(after-sales service)

description of the cursor-position

SPECIAL PROGRAMS:

(displayed when they are active > fitter)



screed heating (see page 33)



ventilation (see page 32)



after-sales service program (see page 24)

OPERATING STATUS:

- current status of the heat pump
- appropriate time
above example: the heat pump is running since 10 hours, 45 min. and 12 seconds
- cause of the status



END USER

Info-setting: heating

Settings

Auto
temp. -> +0.0°C

Auto
setv -> 45.0°C

Auto

heating

day (temperature rise)

night (temperature drop) (fitter)

domestic hot water

on

off-time domestic hot water (fitter)

SETTINGS OPERATION MODE

With button you will reach this screen. At a push of the button, you confirm the option: > settings heating
Turn the switch to the field operating modes (in this case: AUTOMATIC) and press:

Auto
 Temp. - >

confirm „automatic“.

Mode of op.:

Automatic ☒

Party ☐

Holidays ☐

2nd heat gen. ☐

Off ☐

| Operating mode | Heating |
|-------------------------|--|
| Automatic | Regulation according to programmer of the controller |
| Party | constant rise |
| Holidays | constant drop |
| Second heat generator | Automatic without heat pump |
| Off (= summer activity) | antifreeze (return - set value 15°C) |

By turning the switch, you choose another operating mode. When pushing the button again, your choice will be confirmed by a cross in the basket at the right (for "holidays" see operating mode "holidays").

Mode of op.:

Automatic ☐

Party ☒

Holidays ☐

2nd heat gen. ☐

Off ☐

By return you leave the menu and reach the next level „settings“. There, the selected operating mode will be displayed.



Party

Temp. - >

Operating mode „holidays“

When choosing the operating mode "holidays, the following screen will be displayed:

End of Holid.:

Year 06

Month: 06

Day: 17

Input ☒ ok ☒

Press on the respective date field: the date-values may be decreased or increased by turning to the left or to the right.

By ☒ or ☒

you confirm or cancel this.

That means your holidays will last from TODAY up to the entered date.



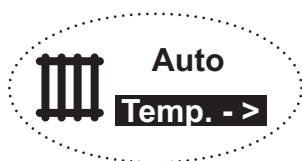
If the date you have entered is **younger** than the current date, the following will be displayed:

Input invalid



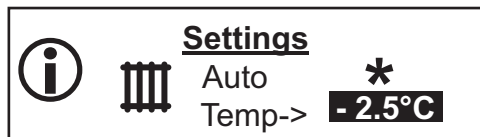
SETTINGS > HEATING TEMPERATURE

If you want to modify the temperature of your heating, please turn to.



and push the button.

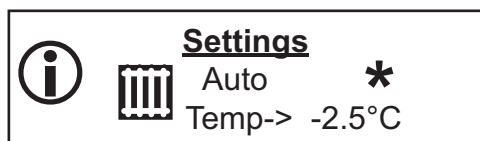
The **variation from the preset** heating curve will be displayed.



By turning the button to the left or to the right, you can raise respectively reduce this setting in 0,5°C steps by total -5°C or +5°C (this means a parallel displacement of the heating curve > see heating curves).

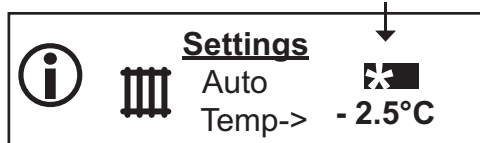
Confirmation at a push of the button.

The marker jumps back to the heating symbol.



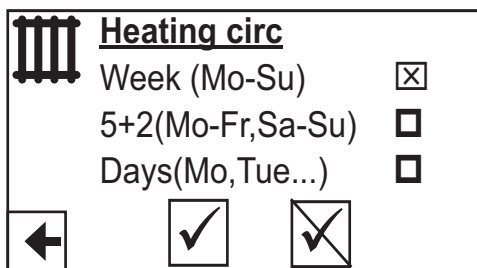
SETTINGS > DAY

Choose heating symbol - provided the operating mode is set to automatic - then turn the lockdown-switch:



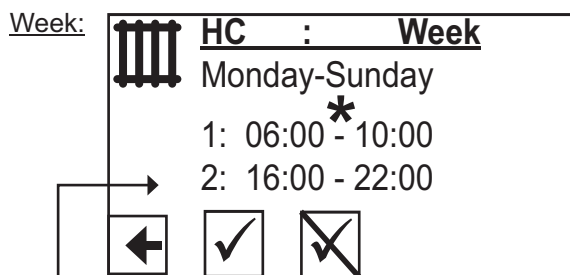
up to the symbol for day * - or night mode ☾

By pushing the button - provided that no mixing circle has been selected; if not so, select: "heating circle"



... and you reach the menu „heating circle“. There are 3 different possibilities to define your day program (rise): week / 5+2 / days.

Switching times

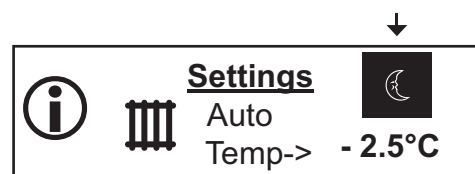


You have defined **2 times of the day** from/up to for the whole week when your heating will be into **operation**.

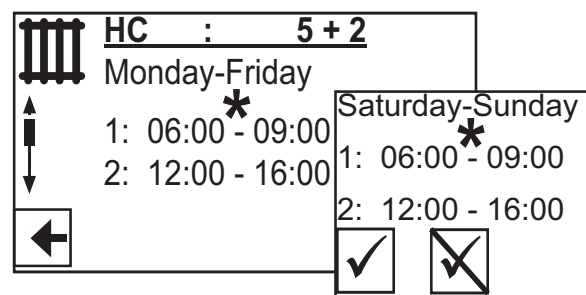


The time program 1 must not exceed midnight 12.00 p.m.! The time programs must not overlap. Time 1 must be before time 2!
If you want to enter a day-overlapping space of time, always use channel 2!

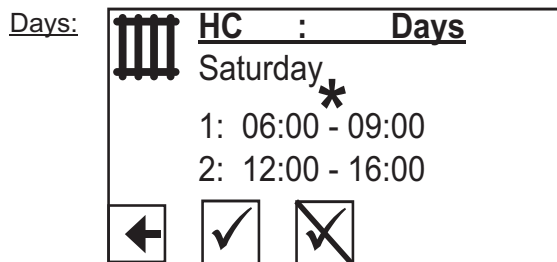
During the periods in between, a "moon" will be displayed.



5 + 2:



You can define **2 heating periods** for every weekday and additionally for the weekend. By scrolling you can move up and down in the screen.



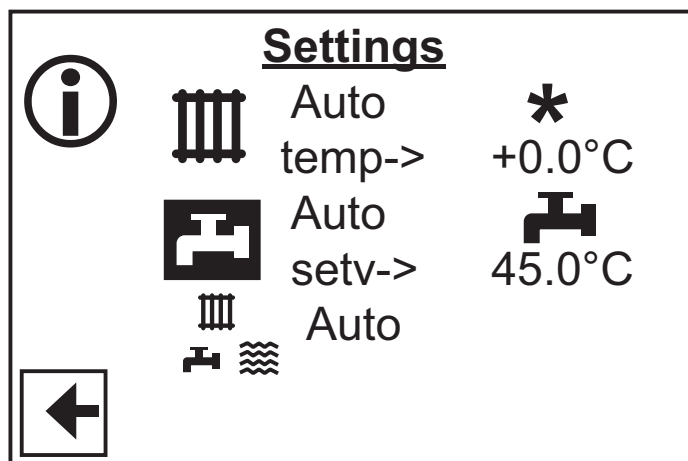
Here, you can set different heating modes for every single day.

Each single day will be displayed on the screen. When turning the button, the other days will be displayed.



END USER

Info-setting: domestic hot water



At a push of the button, you confirm the selection: > settings complete installation

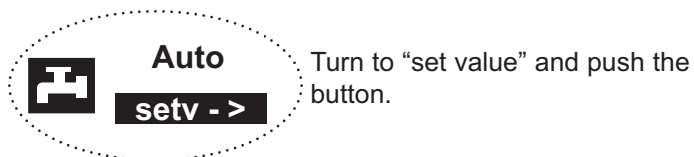
SETTINGS > OPERATING MODE

The operating modes for domestic hot water are the same than for heating.

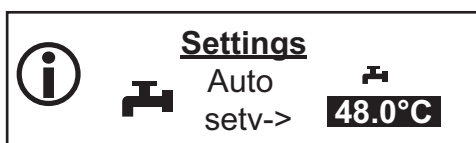
The factory-set specifications are as follows:

| Operating mode | Domestic hot water |
|-----------------------|---------------------------------|
| Automatic | release according to programmer |
| Party | constant release |
| Holidays | off |
| Second heat generator | Automatic without heat pump |
| Aus | off |

> Domestic HOT WATER TEMPERATURE

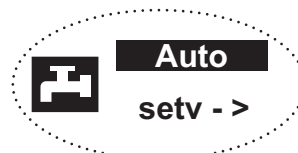


The temperature for the domestic hot water is to be entered directly (therefore SET VALUE); when turning the switch by 0,5°C steps, you can define your domestic hot water temperature between 30°C and 65°C (only with appropriate heat pump or with 2nd heat gen.):

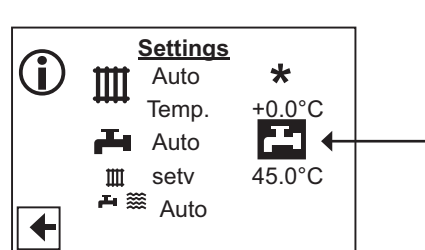


> Domestic HOT WATER OFF-TIME

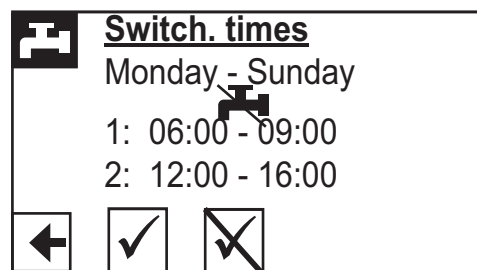
You have the possibility to switch to the symbol for domestic hot water or domestic hot water off-time





only provided that the operating mode is set to automatic. Then, you can define the respective time:



You can enter also two different off-times - per week, 5+2 or per day > see switching times heating.



In the present example, you have defined the domestic hot water off-time  for the whole week - from 6.00 a.m. to 9.00 a.m. and from twelve o'clock to 4.00 p.m (for further proceedings, see switching times on previous page).

By return  you get back to the menu INFO-SETTINGS.



Info-setting: complete installation

| <u>Settings</u> | |
|-----------------|---|
| | <div> Auto </div> <div> Temp-> +0.0°C </div> <div> Holidays <div>setv-> 35.0°C</div> </div> <div> ----- </div> |
| | |

At a push of the button, you confirm the selection: > settings „complete installation“

OPERATING MODE > INDIVIDUAL SETTING

In the above example, HEATING is set to “automatic” and Domestic HOT WATER to “holidays”.

Thus, the COMPLETE INSTALLATION is in the status:

“individual setting”
(see dashed line)

At a push of the button, you get to the screen settings operating mode:

| <u>Mode of op.:</u> | |
|---------------------|--|
| | Automatic <input type="checkbox"/> |
| | Off <input type="checkbox"/> |
| | Holidays <input type="checkbox"/> |
| | Party <input type="checkbox"/> |
| | Indiv.setting <input checked="" type="checkbox"/> |

Now, you can define a common operating mode for heating and domestic hot water.

OPERATING MODE > OFF

If you want to switch OFF simultaneously heating and domestic hot water, set the operating mode of the complete installation to OFF:

This setting will be transferred also to the respective operating mode of heating and domestic hot water.

| <u>Mode of op.:</u> | |
|---------------------|--|
| | Automatic <input type="checkbox"/> |
| | Off <input checked="" type="checkbox"/> |
| | Holidays <input type="checkbox"/> |
| | Party <input type="checkbox"/> |
| | Indiv.setting <input type="checkbox"/> |

By return, the info-settings for the mode COMPLETE INSTALLATION are displayed as follows:

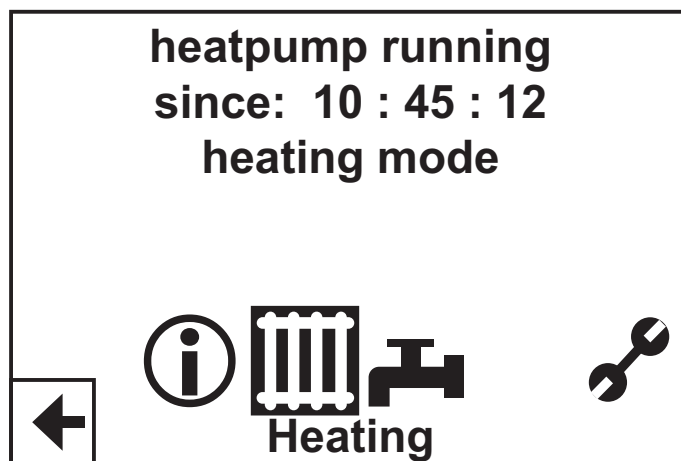
| <u>Settings</u> | |
|-----------------|---|
| | <div> Off </div> <div> Temp-> +0.0°C </div> <div> Off <div>setv-> 45.0°C</div> </div> <div> Off </div> |
| | |

For the operating modes “automatic”, “holidays” or “party” - see proceedings.

HEATING or HOUSE-HOLD HOT WATER.



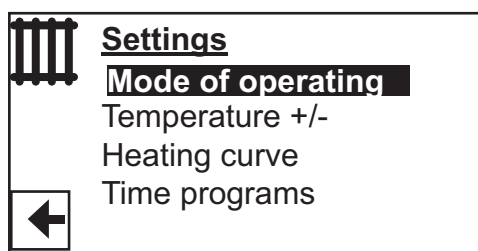
FITTER



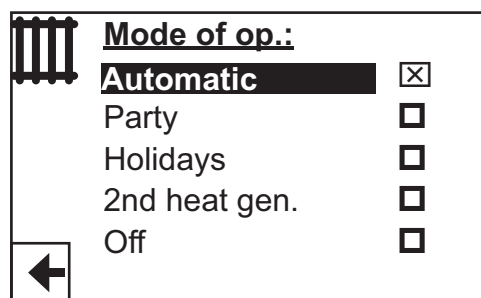
At a push of the button, you confirm the selection: > heating > settings

SETTINGS > OPERATING MODE

Turn ...



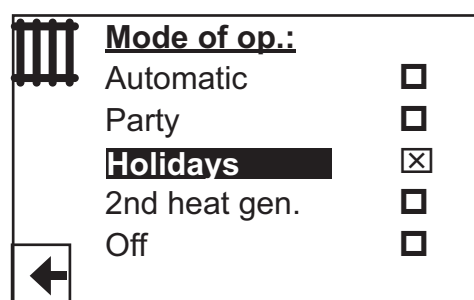
... and push the button:



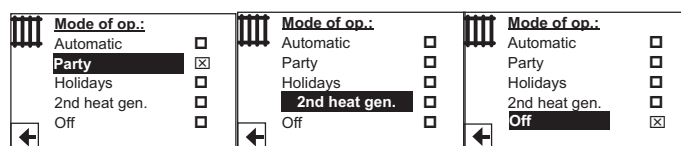
survey operating modes:

| Operating mode | Heating | Domestic hot water |
|--------------------|--------------------------------------|---------------------------------|
| Automatic | Setting according to programmer | Setting according to programmer |
| Party | Constant rise | Constant release |
| Holidays | Antifreeze (return - set value 15°C) | Off |
| 2nd heat generator | Automatic without heat pump | Automatic without heat pump |
| Off | Antifreeze (return - set value 15°C) | Off |

Example:



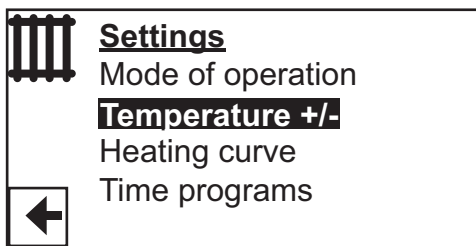
or:



The operating mode will be confirmed by the field marked with a cross and the cursor goes to "return".

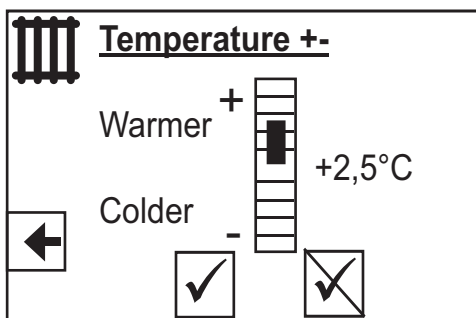


SETTINGS > TEMPERATURE +/-



This menu corresponds to the **fine adjustment** of the heating curves.

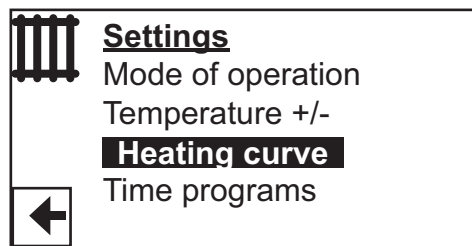
It is a **self-adaptive heating curve** - at whichever outside temperature you set a colder or warmer temperature, the controller will calculate and shift accordingly the root point or the end point of the heating curve.



This temperature change will be transferred to the next menu „heating curves“ for the heating circle as well as for the mixing circle. After you have confirmed the modification, it will be reset to zero.

SETTINGS > HEATING CURVES

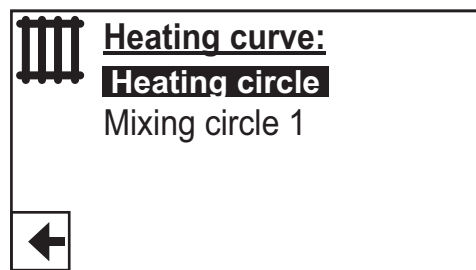
Turn the switch and select HEATING CURVES:



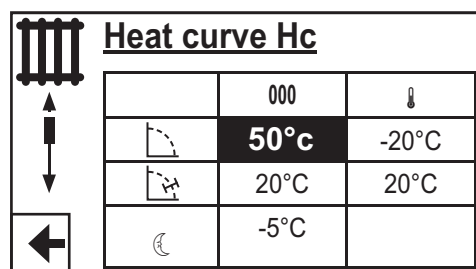
At a push of the button, you enter the menu.

If there is no mixing circle (service-settings-system-mixing circle no/charge/cool), this screen will not be displayed and directly branched to the heating curve setting for the heating circle.




If not so, select:



SETTINGS > HEATING CURVES > HEATING CIRCLE



The values in the left column define the settings of the heating curve, as well as the value following the „moon“-symbol.

-  heating curve end point
-  parallel shift
-  night (temperature drop)



FITTER

SETTINGS > HEATING CURVES > HEATING CIRCLE

Day (rise)

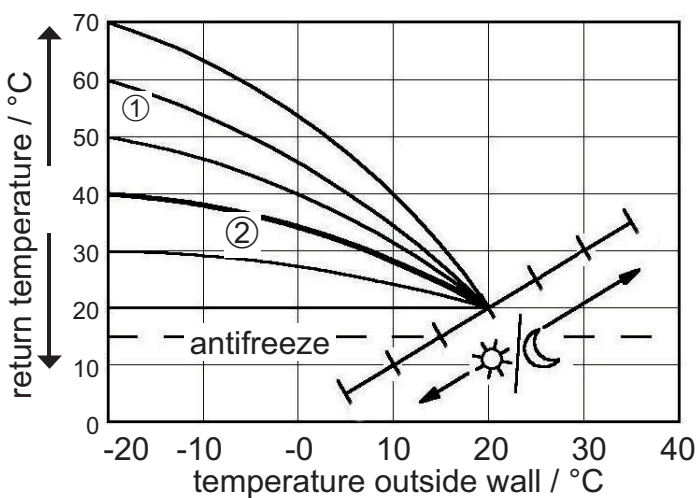
When entering the menu, the cursor is standing on the heat curve end point (here: 50°C).

| | | |
|----------------------|------|-------|
| Heat curve Hc | | |
| | 000 | ⌚ |
| ↖ | 50°C | -20°C |
| ↗ | 20°C | 20°C |
| ☾ | -5°C | |

By turning to the left or to the right in 0.5-steps, this **return temperature** value may be modified from +20°C up to +70°C.

> see ① in the heating curve-diagram.

Please find the settings for the relevant outside temperature in the heating curve diagram.



Example: setting 30°C return temperature, for example for floor heating:

| | | |
|----------------------|------|-------|
| Heat curve Hc | | |
| | 000 | ⌚ |
| ↖ | 30°C | -20°C |
| ↗ | 20°C | 20°C |
| ☾ | -5°C | |

> see ② in the heating curve-diagram.

The second line shows the parallel translation.

If the setting of the return temperature changes, the setting aside changes analogically (column: ⌚).

| | | |
|----------------------|------|-------|
| Heat curve Hc | | |
| | 000 | ⌚ |
| ↖ | 30°C | -20°C |
| ↗ | 20°C | 20°C |
| ☾ | -5°C | |

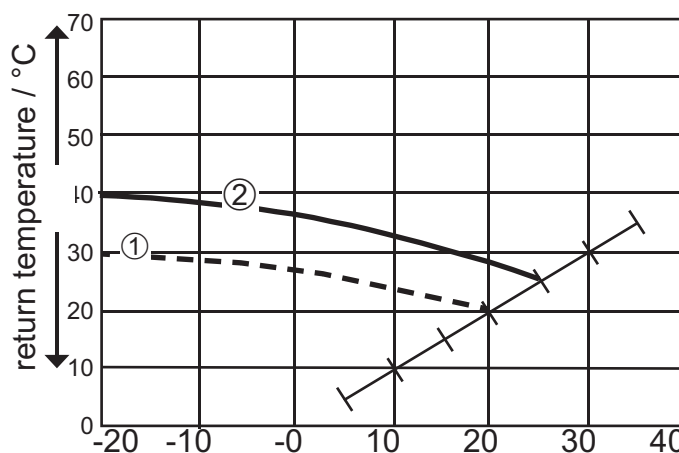
By turning to the left or to the right by 0.5-steps, this setting may be modified from +5°C up to +35°C.

> see ① in the heating curve-diagram.

For example, when changing the setting to +25°C, the following heating curve arises from the parallel translation:

| | | |
|----------------------|------|-------|
| Heat curve Hc | | |
| | 000 | ⌚ |
| ↖ | 30°C | -20°C |
| ↗ | 25°C | 25°C |
| ☾ | -5°C | |

> see ② in the heating curve-diagram.





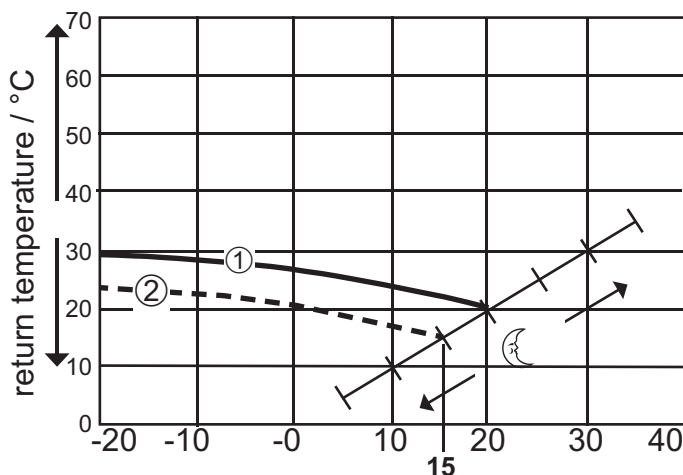
SETTINGS > HEATING CURVES > HEATING CIRCLE

Night (lowering)

The third cursor position represents the difference temperature for the lowering at night (setting behind the “moon”-symbol). It serves for setting the variation of the lowering temperature to the day heating curve (parallel translation).

| Heat curve Hc | | |
|---------------|------|-------|
| | 000 | |
| | 30°C | -20°C |
| | 20°C | 20°C |
| | -5°C | |

By turning to the left or to the right in 0.5-steps, this setting may be modified from 0°C up to -15°C.



Example: setting of the heat pump controller to -5°C. The preset heating curve ① (rising) will be shifted in parallel to +15°C. Thus, the heating curve ② for the lowering mode has been set. As you can see, within the entire range, the heating curve in lowering mode is about 8 K lower than in rising mode ①.

Automatic mode

Subject to the settings of the heating programmer, there is an automatic switch-over between:

① rising

and ② lowering

SETTINGS > HEATING CURVES > HEATING CIRCLE

Standard interpretation temperature

| Heat curve Hc | | |
|---------------|--|------|
| | 20°C | 20°C |
| | -5°C | |
| | interpretation: -12.0°C calculated: +35.0°C | |

This menu serves to set your outside temperature according to which the heating curve end point has been calculated, for example -12°C, in accordance with the temperate zone of the location of the heat pump

| Heat curve Hc | | |
|---------------|--|------|
| | 20°C | 20°C |
| | -5°C | |
| | interpretation: -12.0°C calculated: +42.3°C | |

At this point, you cannot make any settings. The heating curve end point calculated by the heat pump controller will be calculated and displayed.



Please note for the setting day or night-mode:

Confirmation by pushing the button: the values will be transferred and the cursors jumps back to the “return”-arrow.



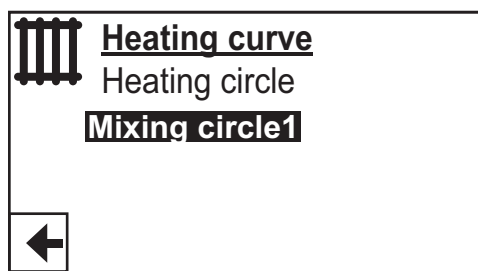
By pressing stop: The values will be reset and the cursor jumps to the “return”-arrow.



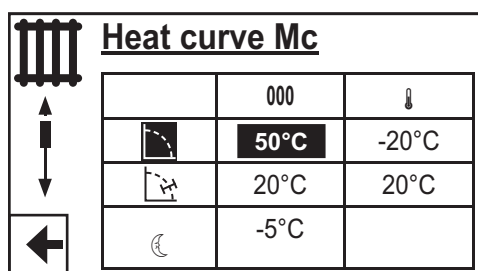


FITTER

SETTINGS > HEATING CURVES > MIXING CIRCLE



When entering the menu, the cursor is standing on the heating curve end point (here: 50°C).



By turning to the left or to the right by 0.5-steps, the value of the flow temperature may be modified from +20°C up to +70°C. For the rest, see settings "heating curve HC".



Attention:

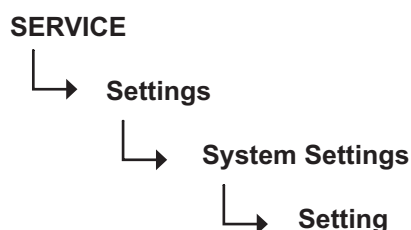
- Setting mixing circle always flow temperature
- Setting heating circle always return temperature (see page 17).

Fixed temperature

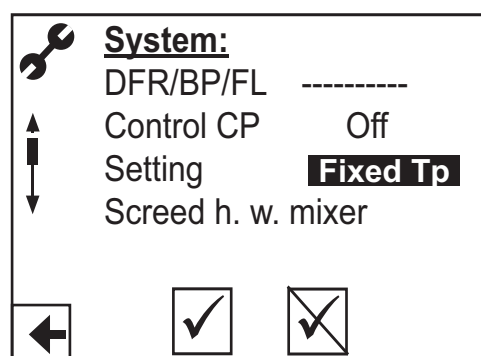
To set a fixed temperature, go to the service-section



under ...:

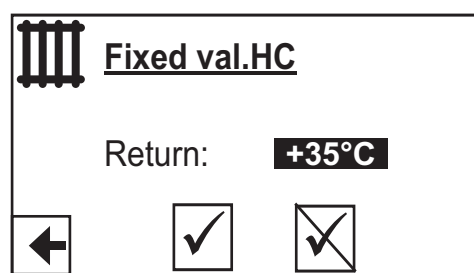


... you will find the menu:



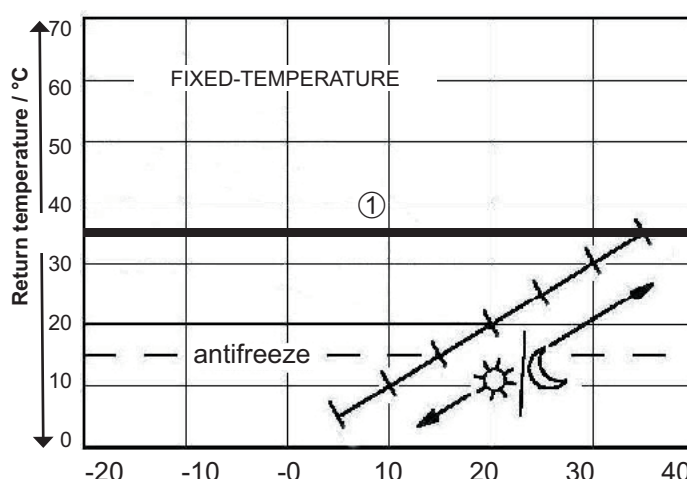
Here, the heat pump controller is going to be set to a FIXED TEMPERATURE (see page 22: setting system).

Then, the menu screen HEATING-HEATING CURVES-HEATING CIRCLE looks as follows:



By turning the left or to the right, you can regulate the return temperature and define a fixed value - for example: +35°C.

The diagrams shows the horizontal heating curve ① resulting from this:





SETTINGS > TIME PROGRAM

Settings
 Mode of operation
 Temperature +/-
 Heating curve
Time programs

←

The following menu shows the programmers and equivalent settings:

Time progs

| Program | Type |
|--------------|-------|
| All | ----- |
| Heating circ | 5+2 |
| Mixing circ | Week |

←

When setting the programmers, you can choose between the heating circles or a superior programmer "all" for all circles.

! If no mixing circle has been defined, this display will be omitted and you will be branched directly to the programmer setting for the heating circle.

The settings for "all" will overwrite the settings of the individual circles.

In the next screen, three programmer settings can be selected: week / 5+2 / days. The respective programmer will be marked in the selection field.

Heating circ
 Week (Mo-Su) ☒
 5+2(Mo-Fr,Sa-Su) ☐
 Days (Mo,Tue,...) ☐

←

☒

☒

The programmer „5+2“ will overwrite the programmer „days“. The programmer "week" will overwrite the programmer "days".

SETTINGS > TIME PROGRAM

We recommend to start the setting of the programmers with "week" or "5+2". Different settings for individual days might be overwritten in the menu.

! Attention: If you change the settings in the menu "week", the other programmers will be over-written!

Week:

Hc : Week
 Monday-Sunday
 1: 06:00 - 09:00
 2: 12:00 - 16:00

←

☒

☒

5 + 2:

Hc : 5+2
 Monday-Friday
 1: 06:00 - 09:00
 2: 12:00 - 16:00

←

☒

☒

Saturday-Sunday
 1: 06:00 - 09:00
 2: 12:00 - 16:00

←

☒

☒

Days:

Hc : Days
 Wednesday
 1: 06:00 - 09:00
 2: 12:00 - 16:00

←

☒

☒

Signification of the switching times --> see page 15.

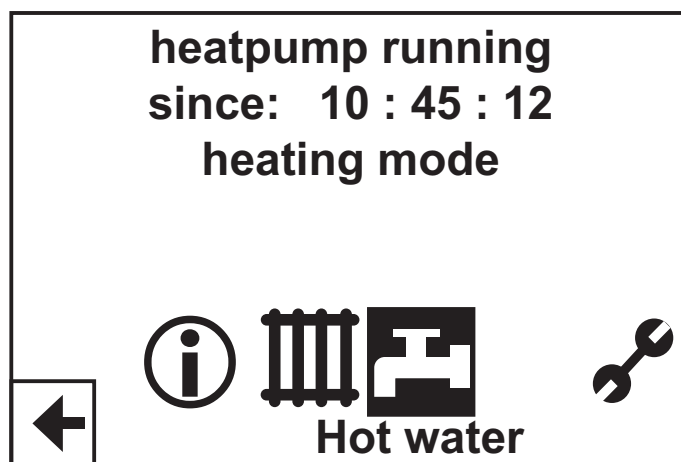
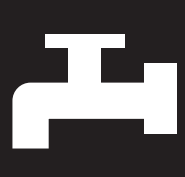
! Switching time 1 must not exceed midnight!
 The switching times must not overlap! Time 1 must be before switching time 2!
 When entering a day-overlapping switching time, always use switching channel 2!

When confirming of a setting by OK, the following screen will be displayed to exclude faulty operations. This screen must be confirmed by YES to have the settings transferred:

ATTENTION!
 Do you want to take over the changes of the timing program?

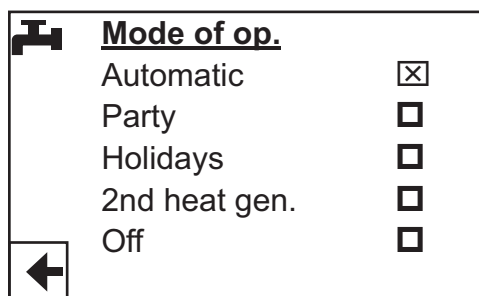
Yes

No



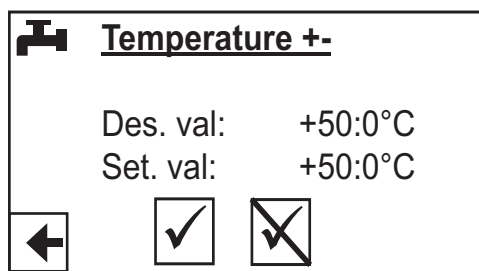
At a push of the button, you confirm your selection: > domestic hot water

SETTINGS > OPERATING MODE



For how to define the settings “operating mode”, please refer to “info-settings” - settings operating modes (page 10) and “heating” (page 14).

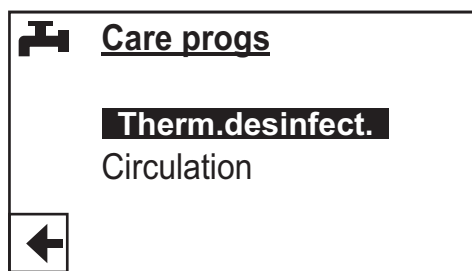
SETTINGS > TEMPERATURE +/-



i If the domestic hot water heating is controlled by a thermostat, **the display “temperature +/-” will be omitted.**

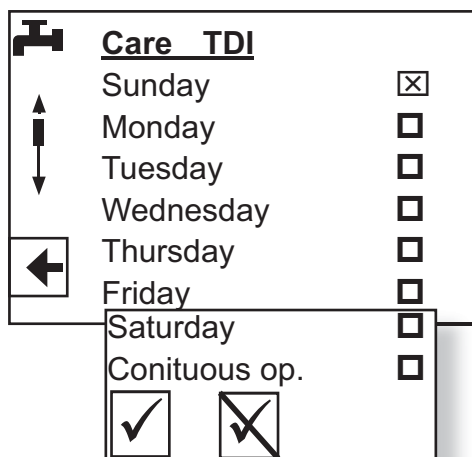
As “desired value” please enter the desired domestic hot water temperature. The display “set value” is not adjustable and changes only if the heat pump has a high-pressure fault. In this case, the “set value” will be reset as long as domestic hot water heating is possible without high-pressure fault.

SETTINGS > CARE PROGRAMS



This menu will be displayed only provided that in the menu “service/settings/system settings” the following settings have been made: for SHG1 type “heating rod” and for SHG fct. “HW a. SW” or provided that a heating rod is set as SHG2 in the service water storage.

If not so, you will be led directly to the next menu:



Continuous operation means after every service-water production. If you want to set the temperature for TDI (thermal disinfection):

i > Service > settings > temperatures

> TDI-set value adjustable from 50°C up to 70°C)




SETTINGS > CARE PROGRAMS

Circulation

If there is any circulation pump, you can set 3 switching points per day.

This menu screen will be displayed only provided that in the menu "service/settings/system settings" "CP" has been set as "Addit. pump".

 **Care : Circ.**

↑
 ↓

Monday-Friday
 1: 06:00 - 09:00
 2: 12:00 - 14:00
 3: 17:00 - 19:00

←

Saturday-Sunday
 1: 06:00 - 09:00
 2: 12:00 - 14:00
 3: 17:00 - 19:00

☒ ☒




Attention: This function must not be activated if any additional circulation pump (add CP) is connected!



For devices type Compact it is not possible to drive a circulation pump, settings are not possible!

SETTINGS > TIME PROGRAM

The display of the time programs for the service water heating is analogous to the heating (week, 5+2, days). But, here, off-times are going to be set.

 **Switch. times**

Week(Mo-Su)
☒

5+2(Mo-Fr,Sa-Su)
☐

Days(Mo,Tue,...)
☐

←

☒ ☒



Switching time 1 must not exceed midnight!
The switching times must not overlap! Time 1 must be before switching time 2!
When entering a day-overlapping switching time, always use switching channel 2!


During the domestic hot water off-time, in the info-screen

ⓘ, the symbol water cock will be substituted by the crossed out water cock:



SETTINGS > HIGH-SPEED CHARGE

If there is an urgent need of domestic hot water in spite of the domestic hot water off-time, with the option "high-speed charge", you can request fastest possible service water heating.

 **High-speed ch**

Activate HSC SW


Terminate HSC SW
HSC starting

←

☒

☒

To switch off this request, go to "terminate" and confirm the following screen:

 **High-speed ch**

Activate HSC SW

Terminate HSC SW

HSC is terminated

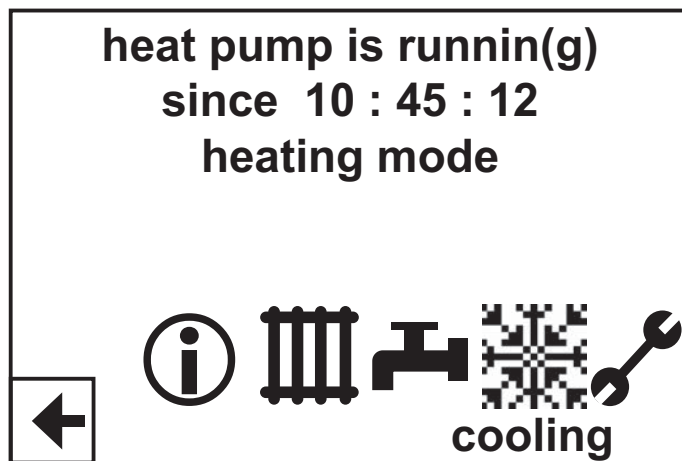
←

☒

☒



FITTER



By pushing the button, you confirm your selection: > cooling

Please note:

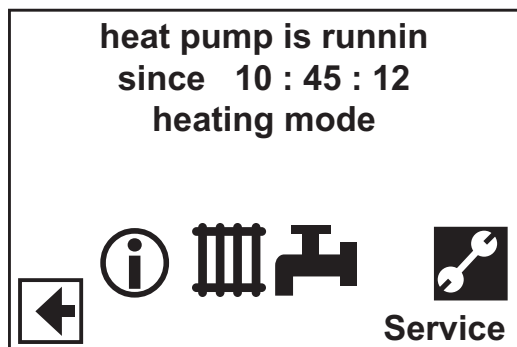
Passive cooling only in connection with brine/water heat pump Compact and special cooling package.

- ⚠ Set the feature ,cooling' only if provided a refrigeration system mixer is connected!
- ⚠ As soon as arefrigeration system mixer is connected, the feature ,cooling' imperative!

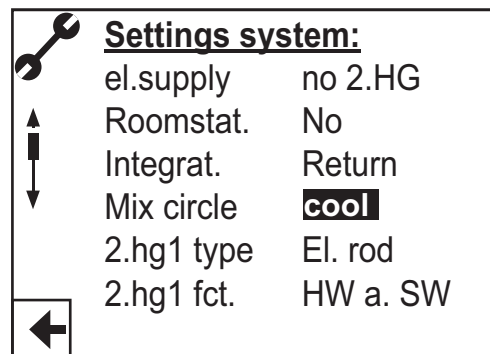
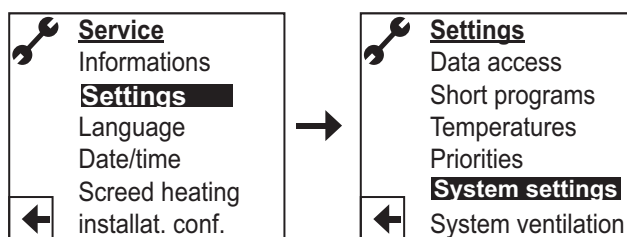
activate ,cooling'(system)

The symbol for ,cooling' is not displayed on the navigation screen before you have set the feature Mixing circle1 to cooling in the menu:

>Service>settings>system settings.



menu-navigation





settings > operating mode

Settings
Operating Mode
 temperature +/-

Operating mode:

When setting the feature „automatic“ for cooling, the cooling mode will be activated.

Attention: at the same time, the operating mode “heating” will be set to “off”!

Operating mode
Automatic ☒
 Off ☐

Just as well, the operating mode cooling is set to “off” when reactivating the heating.

Operating mode
 Automatic ☐
Off ☒

settings > temperature +/-

Settings
 Operating mode
temperature +/-

Fixing the set value for the cooling and setting of an outdoor temperature release.

The set value determines the control variable for the accessed cooling mixer.

Temperature +/-
 Set value: +20.0°C
 T-amb.release +20.0°C

☒
☒

You can set the set value-temperature by turning the button by 0,5°C steps to the left or to the right - from +18 °C to +25°C.

Temperature +/-
 Set value: **+18.0**
 T-amb.release +20.0°C

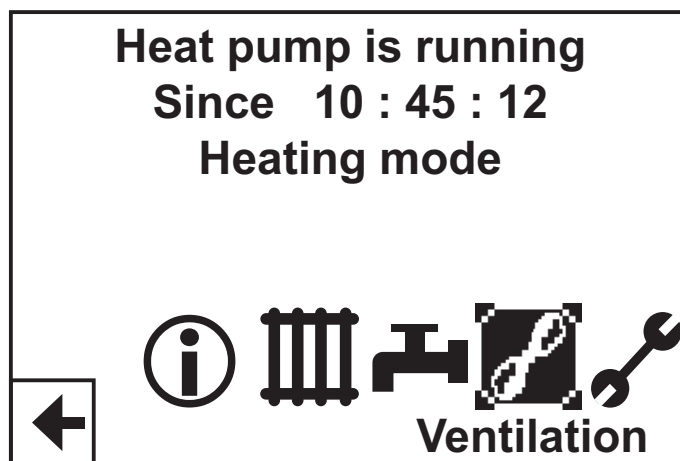
If the ambient temperature exceeds the preset release temperature, the cooling will be activated and the accessed mixer is controlling the cooling temperature.

Temperature +/-
 Set value: +25.0°C
T-amb.release +20.0°C

The cooling will not be deactivated before switching off or before the ambient temperature has fallen below the release temperature for more than 12 hours.



FITTER



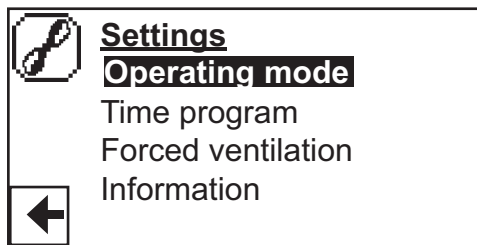
At a push of the button, you confirm your selection: > ventilation

Attention:



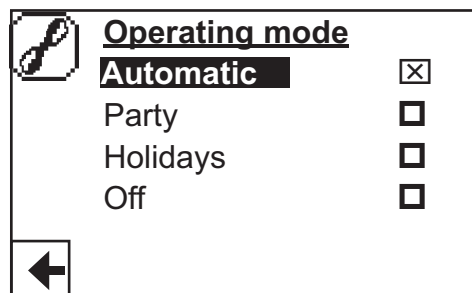
The symbol for ventilation will be displayed only if the controller is built-in a Komfort building services centre!

MENÜ VENTILATION



You can have the settings you choose in the “operating mode”, “time program” and “intermittent ventilation” advised by selecting “show information”.

SETTINGS > OPERATING MODE



Survey operating modes:

| Operating mode | Ventilation |
|----------------|---------------------------------|
| Automatic | Setting according to programmer |
| Party | Constant rise |
| Holidays | Constant lowering |
| Off | Ventilation off |



SETTINGS > TIME PROGRAM

Switching times

Week (Mon-Sun) ☐

5+2 (Mon-Fri,Sat-Sun) ☐

Days (Mon,Tue...) ☐

☒
☒

We recommend to start the setting of the programmers by "week" or "5+2". Different settings for individual days might be overwritten in the menu.

Attention: If you change the settings in the menu "week" the other programmers will be overwritten!

Week:

Switching times:

Monday-Sunday *

1: 06:00 - 09:00

2: 12:00 - 16:00

☒
☒

5 + 2:

Switching times:

Monday-Friday *

1: 06:00 - 09:00

2: 12:00 - 16:00

Saturday-Sunday *

1: 06:00 - 09:00

2: 12:00 - 16:00

☒
☒

Days:

Switching times:

Wednesday *

1: 06:00 - 09:00

2: 12:00 - 16:00

☒
☒

SETTINGS > TIME PROGRAM

Contrary to the heating program, the switching times for the ventilation can be set for DAY as well as for NIGHT. This is valid for Week, 5+2 and Day.

Example:

Switching times:

Monday *

in the daytime:

1: 08:00 - 11:00

2: 14:00 - 16:00

Switching times:

Monday ☾

at night:

1: 21:00 - 23:00

2: 00:00 - 00:00

☒
☒

⚠ During the time intervals, the ventilation will be switched off!

Signification of the switching times (see page 15)

When confirming a setting by OK, the following screen will be displayed to exclude faulty operations. This screen must be confirmed by YES to have the settings transferred:

Attention!


Do you want to take over the changes of the timing program?




Yes No




FITTER


SETTINGS > FORCED VENTILATION




**Forced Ventilation**
Activate
Terminate
Interm. vent. is active



When confirming this selection by  you have activated the intermittent ventilation.

 **Switches off automatically after 1 hour!**


**Forced Ventilation**
Activate
Terminate
Interm. vent. will be term.





When confirming "terminate", the intermittent ventilation will be switched off manually.


SETTINGS > INFORMATIONS

If you select 'Informations' you can check the settings of your ventilation:


**Information**
Temperatures
Inputs
Outputs
up-to-date:
Automatic --





**Information**
Temperatures
Inputs
Outputs
up-to-date:
Automatic --




temperature of the
supply air of the
ventilation


**Temperatures**
Supply air
16.5°C




**Information**
Temperatures
Inputs
Outputs
Actual:
Automatic --



intermittent ventilation
feeler of the room re-
mote control

**Inputs**
Ext. interm.vent.
OFF





SETTINGS > INFORMATIONS



Informations

Temperatures

Inputs

Outputs

Actual:

Automatic --



Outputs

Supply air vent. ON

VD OFF

VP OFF

V OFF ON



Survey outputs:

| Outputs | Description |
|------------------|-----------------------------|
| Supply air vent. | Supply air fan (defrosting) |
| VD | Ventilation day time |
| VP | Ventilation party |
| V OFF | Ventilation off |

NOTE: FILTER EXCHANGE

Filter exchange

Please exchange filter
and confirm



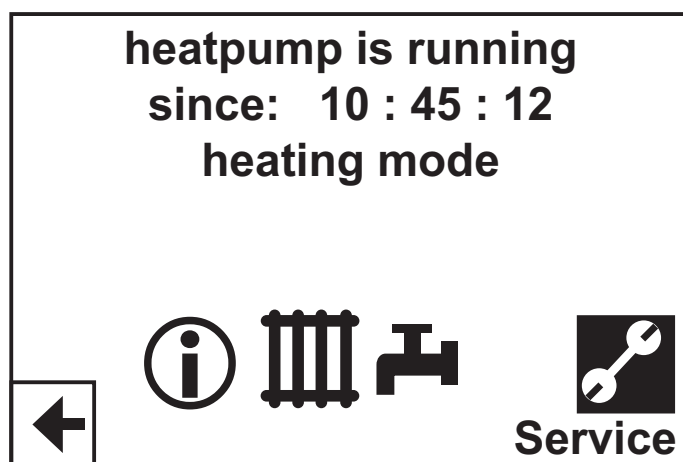
After 4 month of operation time of the venting module, the filter exchange sign will be displayed.

The filters of the venting module should be exchanged accordingly and the filter exchange must be confirmed in the controller.

When confirming the display sign by “break”, the sign will be displayed again within one week!



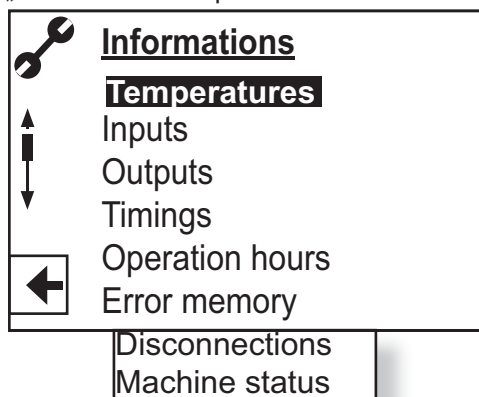
SERVICE



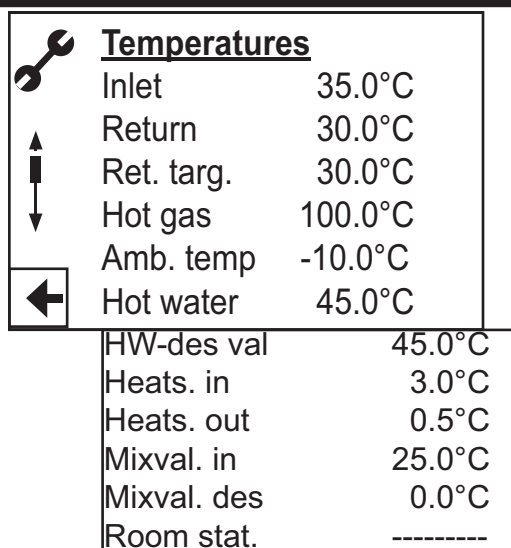
At a push of the button, you confirm your selection: > service

SERVICE > INFORMATION

Turn to „information“ and push:



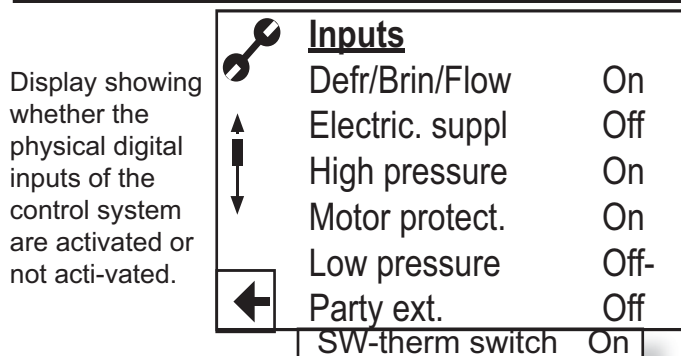
SERVICE > INFORMATIONS > TEMPERATURES



Ret. target: return target temperature (set value)
Hot gas: hot gas monitoring sensor
Hot water: actual value domestic hot water
HW des. val.: hot water desired value
Heats. in: input temperature heat source

Heats. out output temperature heat source
Mixval. 1 in flow temperature mixing circle 1
Mixval. 1 des. set value flow temperature mixing circle 1
Room stat. remote control station

SERVICE > INFORMATIONS > INPUTS



Defr/Brin/Flow: defrosting, brine pressure, flow

Depending on the machine type, the input fulfils several functions:

LW-devices: end-defrosting pressostat.

→ On means: defrosting will be terminated

Some of the SW- and WW-devices are equipped with a flow switch at this input (by manufacturer).

→ On means: flow is OK

At the SW-devices without flow switch, possibility to include a brine pressure pressostat (see settings system settings).

→ On means: brine pressure is sufficient

Party ext.: party ext.-connection of a sensing device from room remote control possible

Electric. suppl. off-time by your energy supply company

→ Off means: off-time

High pressure: high pressure pressostat

→ Off means: pressure is OK



MOT: Motorprotection

→ On means: motorprotection is OK

Low pressure: low pressure pressostat

→ On means: pressure is OK

SW-therm switch: domestic hot water thermostat

→ On means: domestic hot water request

SERVICE > INFORMATIONS > OUTPUTS

This screen shows the digital outputs of the control system:

| <u>Outputs</u> | |
|-----------------|-----|
| Defrost valve | On |
| Hot water pump | Off |
| Floor heat.pump | On |
| Heat. sys. pump | On |
| Mixer1 open | On |
| Mixer1 close | Off |

Defrosting valve
Hotwater pump:

circulation pump domestic hot water

Floor heat. pump1: circulation pump floor heating

Heat. sys. pump: circulation pump heating

Mixer 1 open: mixer 1 open

Mixer 2 close: mixer 2 closed

Ventilation: ventilation of heat pump casing for existing devices type LW. 2nd degree of the fan for big devices type LW

Fan - heats. pump: fan, well- or brine-circulation pump

Compressor1: compressor 1 in heat pump

Compressor2: compressor 2 in heat pump

Suppl. pump (add. CP/CP): additional circulation pump / circulation pump

2nd heat gen. 1: second heat generator 1

2nd heat gen. 2: second heat generator 2 possible / error signal

SERVICE > INFORMATIONS > TIMINGS

| <u>Timings</u> | |
|----------------|----------|
| Hp since | 11:12:33 |
| 2hs1 since | 00:12:24 |
| 2hs2 since | 00:00:00 |
| Switch on | 01:30 |
| Swi c time | 04:35 |
| Read-Cpd | 10:22:00 |
| HCAAdd-time | 00:05:23 |
| HCLesstime | 00:00:00 |
| ThDsin. sin | 00:30:05 |
| Stop SW | 01:12:30 |

| <u>Service Information</u> | |
|----------------------------|--|
| Settings | |
| Language | |
| Date and Time | |
| Screed heating | |
| Install.conf. | |

| <u>Informations</u> | |
|---------------------|--|
| Temperatures | |
| Inputs | |
| Outputs | |
| Timings | |
| Operating hours | |
| Error memory | |
| Disconnections | |
| Machine status | |

HP since: heat pump is running since
2hs1 since: second heat generator 1 is running since
2hs2 since: second heat generator 2 is running since
switch on: delay of "power on"
Swi c time: lock-out switching cycle
Read CPd: service life compressor
HCAAdd-time: additional time heat controller
HCLesstime: less time heat controller
ThDsin. sin: thermal disinfection since
Stop SW: stop service water/domestic hot water

SERVICE > INFORMATIONS > OPERATION HOURS

| <u>Op. hours</u> | |
|------------------|---------|
| Op h. Comp1 | 999999h |
| Imp.Comp1 | 999999 |
| av.so Comp1 | Ø99h |
| Op h. Comp2 | 999999h |
| Imp.Comp2 | 999999 |
| av.so Comp2 | Ø99h |
| Op h. shs 1 | 999999h |
| Op h. shs 2 | 999999h |
| Op h. Heatp | 999999h |

Op h. Comp1: operating hours compressor 1

Imp. Comp1: impulses compressor 1

Av. so Comp1: average running time compressor 1

Op. h. CP2: operating hours compressor 2

Imp. Comp2: impulses compressor 2

Av. so Comp1: average running time compressor 2

Op. h shs1: operating hours second heat generator 1

Op. h shs2: operating hours second heat generator 2

Op. h Heatp.: operating hours heat pump

SERVICE > INFORMATIONS > ERROR MEMORY

| <u>stored errors</u> | |
|----------------------|-------|
| ContCP010704 | 10:34 |
| ----- | |
| ----- | |

The last five errors with date and daytime may be recalled.



Please find the explanation and meaning of the abbreviations in the table "error diagnosis" (column "Abr." on page 34).



SERVICE

Informations
 Temperatures
 Inputs
 Outputs
 Timings
 Operating hours
 Error memory

Disconnections
 Machine status

SERVICE > INFORMATIONS > DISCONNECTIONS

Disconnection
ERR-IN010704 10:34

The last five disconnections are going to be displayed:

ERR-HP: error heat pump
 ERR-IN: error installation
 Less w: less warmth
 electric. suppl.: off-time by energy supply company

SERVICE > INFORMATIONEN > MACHINE STATUS

StatusInstall
 Hp-Typ LWC
 SW-Version V1.12
 Biv.-Level 3
 Op.Condition SW

Settings
 Access
 Short programs
 Temperatures
 Priorities
 System Settings
 System Ventilation

SERVICE > SETTINGS > TEMPERATURES

Temperatures:
 Limit return 50.0°C
 Hystereses HC 3.0K
 RTincr.e max 7.0K
 Release 2.CP +5.0°C
 Release 2.HG -2.0°C
 Tp-defr. 10.0°C
 TVth.disinf2 65.0°C
 Hysteres. SW 2.0K
 Flow 2.CP SW 55.0°C
 T-outd. max 35.0°C
 T-outd. min -20.0°C
 T-HS min -9.0°C
 T-HG max 130.0°C
 T-def.airend -----

☒ ☒

SET VALUES

| Display | Factory Settings | Range of values | Access |
|-------------------|------------------|-----------------|------------------|
| Limit return | 50°C | 35-70 | AS (🔒) |
| Hysteresis HC | 2,0K | 0,5 to 3 | AS (🔒) |
| Return incr. max. | 7K | 1 to 10 | AS (🔒) |
| Release 2.CP | 5°C | -20 to 20 | AS (🔒) |
| Release 2.HG | -2°C | -20 to 20 | AS (🔒) |
| Tp-defr.air | 10°C | 0 to 20 | AS (🔒) |
| TVth. disinf2 | 65°C | 60 to 70 | customer (🔑) |
| Hysteresis SW | 2K | 1 to 30 | AS (🔒) |
| Flow 2.CP SW | 50°C | 10 to 70 | AS (🔒) |
| T-outd. max. | 35°C | 10 to 45 | AS (🔒) |
| T-outd. min | -20°C | -20 to 10 | AS (🔒) |
| T-HS min. | 3°C WW (-9°C SW) | -20 to 10 | manufacturer 🔒 🔒 |
| T-HG max. | 130°C | 90 to 140 | manufacturer 🔒 🔒 |
| T-def.airend | 2°C | 2 to 10 | manufacturer 🔒 🔒 |
| Lowering up to | -20°C | -20 to 10 | customer (🔑) |



HP-Type = heat pump type

(air, brine, water, Kompakt heating system, central heat station - see table page 45)

SW-Status = active software-status of the controller

Biv.-Bivalent stage

- 1 = one compressor
- 2 = second compressor
- 3 = supplementary compressor

Operat.-Stat. = operating status

(heating, domestic hot water, defrosting)

Limit return = limit return

Setting of the maximum return temperature in heating mode.

Hysteresis HC = hysteresis heat pump controller

Setting of the hysteresis of the heat pump controller. Set bigger hysteresis for very reactive heating systems and smaller hysteresis for inactive systems.

RTincr. e. max = maximum increase return

Setting of the maximum admissible exceeding of the return temperature. When exceeding the max. temperature, all internal minimum running times will be disregarded and all heat generators will be switched off. Setting always bigger than hysteresis heat pump controller.

Release 2. CP = release 2. compressor

Display only for devices with 2 compressors. Setting of the minimum outdoor temperature from which on the 2nd compressor may be released in heating mode - if needed. Above this temperature (outdoor temperature), the 2nd compressor remains off in the heating mode.

Release 2. HG = release second heat generator

Setting of the outdoor temperature from which on the 2nd heat generators may be released if needed. Above this temperature, the 2nd heat generators remain off.

➔ Exception: In case of fault and setting fault with SHG, the second heat generators are going to be released notwithstanding the outdoor temperature.

Tp-defr. air = temperature defrosting air, only for devices type LW, if the air defrosting is activated

Setting of the release temperature for the air defrosting. The air defrosting is blocked under this temperature value.

TVth. disinf2 = specified temperature for thermal disinfection (TDI)

Setting of the specified value of the temperature for thermal disinfection for domestic hot water preparation.

Hysteresis SW = hysteresis service water

Setting of the hysteresis for domestic hot water preparation.

Flow 2. CP SW = flow 2nd compressor SW (service water); display only for devices type LW with 2 compressors

Optimization of charge-time and the obtainable domestic hot water temperatures by intelligent switching-on/off of the 2nd compressor. Setting of the flow temperature from which on domestic hot water will be prepared with a compressor.

T-outd. max. = maximum outdoor-temperature

Display only for devices type LW. Above this temperature, the heat pump will be blocked, the 2nd heat generator will be released according to your needs.

T-outd. min. = minimum outdoor-temperature

Display only for devices type LW. Under this temperature, the heat pump will be blocked, the 2nd heat generator will be released according to your needs.

T-HS min = minimum heat source temperature

Display only for devices type SW and WW. Setting of the minimum admissible temperature of the heat source at the output of the HP.

T-HG max = maximum hot gas temperature

Setting of the maximum admissible temperature in the refrigeration cycle of the heat pump.

T-def.airend = T-defrosting air end; only for devices type LW if air defrosting is activated.

Setting of the end temperature for air defrosting at the output of the evaporator.

Lowering up to = maximum lowering

The night lowering will be carried out up to this pre-set temperature (outdoor temperature). Below this temperature, it will be disregarded.



SERVICE

| | | | |
|--|------------------|--|--------------------|
| | Service | | Settings |
| | Information | | Access |
| | Settings | | Short programs |
| | Language | | Temperatures |
| | Date and Time | | Priorities |
| | Screed heating | | System Settings |
| | Installat. conf. | | System Ventilation |

SERVICE > SETTINGS > PRIORITIES

Priorities

Service water 1
Heating 2

☒
☒

Hot water is highest priority above heating.

SERVICE > SETTINGS > SYSTEM SETTINGS

System

El.supply no 2.HG
Roomstat. No
Integrat. Return
Mix circle No
2.hg1 type El.rod
2.hg1 fct. Heating

2.hg2 type No
2.hg2 fct. No
Error with 2.HG
Serv.-w 1 Therm.
Serv.-w 2 -----
Serv.-w 3 -----
Serv.-w +4 -----
SW+HP max 8.0h
Dfrcyclmax 45 min
Defr. air No
Defr. max. -----
Defrost 1 DEFR 1
Defrost 2 with 1CP
Pump opt. No
Addit.pump CP
ACCESS AS
DFR/BP/FL -----
Control CP On
Setting Set. AT
Screed h. w. mixer

☒
☒

SET VALUES

| Display | Factory settings | Range of values | Access |
|------------------|---------------------|---|---------------------|
| Electric. suppl. | no 2.HG | no 2.HG / with 2.HG | AS (🔒) |
| Roomstat. | No | No / Yes | customer 🛠️ |
| Integrat. | return | return /separ. | AS (🔒) |
| Mix circle1 | No | No /charge/ discharge/cool | customer 🛠️ |
| 2.HG1 type | heating rod | el.rod/thermal/ boiler/No | AS (🔒) |
| 2.HG1 fct. | HW | HW /HW/ HW+SW/No | AS (🔒) |
| 2.HG2 type | No | No /heating rod | AS (🔒) |
| 2.HG2 fct. | No | No /HW/SW | AS (🔒) |
| Error | with 2.HG | with 2.HG / without 2.HG | AS (🔒) |
| Serv.-w 1 | sensor | sensor / thermostat | customer 🛠️ |
| Serv.-w 2 | with 1CP | with 1CP / with 2CP | AS (🔒) |
| Serv.-w 3 | with suppl. pump | without suppl.pump / with suppl.pump | AS (🔒) |
| Serv.-w 4 | set value | set value/ max value | manu-🔒🔒 facturer |
| SW+HP max | 0 h | 8h /0-8 | customer 🛠️ |
| Dfrcycl max | 45 | 45/45/60/90/120/180/240/300 | AS (🔒) |
| Defrost. air | No | No /Yes | manu. 🔒🔒 |
| Defrost max | 15min | 5-30 | manu. 🔒🔒 |
| Defrost 1 | Dfr1 | Dfr1/Dfr2 | manu. 🔒🔒 |
| Defrost 2 | with 1CP | with 1CP / with 2CP | AS (🔒) |
| Pump opt. | No | No /Yes | customer 🛠️ |
| Addit. pump | suppl.pump (add.CP) | suppl.pump (add.CP/CP) | AS (🔒) |
| ACCESS | AS | fitter /AS | AS (🔒) |
| DFR/BP/FL | flow (WW)/ No(SW) | flow /brine pressure/No | AS (🔒) |
| Control CP | On | On/Off | AS (🔒) |
| Setting | outside temperature | outside temperature / fixed temperature | customer 🛠️ |
| Screed heating | with mixer | with/without mixer | customer 🛠️ |



Electric. suppl.

without 2nd heat gen.:

also blocked during off-time by local energy supply companies

with 2nd heat gen. means:

released during off-time by local energy supply companies

Room stat. (room remote control)

Setting whether room station (room remote control) is connected

YES or NO (YES must be set if room station (remote adjustment control) is connected)

Hydraulic Integration


Setting of the hydraulic schematic of the buffer tank.

Return means:

Hydraulic systems with series tank (flow-/return)

Separation tank means:

Hydraulic systems with separation buffers (for example multifunction storage tanks)

 external return sensor necessary for foreign manufactured storage tanks

Mix. circle1

Setting of the function of the mixer modulation

No: mixer has no function

Charge: mixer serves as charge mixer, for example for a boiler

Discharge: mixer serves as variable mixer, f. ex. for floor heating

Cool: mixer serves as variable mixer for passive cooling

Second heat generator

Type and function of every 2nd heat gen. must be set.

2nd heat gen. 1 type

no means:

no 2nd heat gen. is connected. Monovalent operation of the installation.

heating rod means:

a heating rod is connected as second heat generator.

Single source operation of the installation

2nd heat gen. 1 fct.:

heating means:

2nd heat gen. is situated as heating rod in the buffer tank or is integrated

hydraulically in the heating.

HW a. SW(heating and domestic hot water)

The hydraulic position of the 2nd heat gen. is situated in the flow of the heat pump. 2nd heat gen. will be flowed through whenever the heating heat pump is running or when the domestic hot water circulation pump is running.

For devices type LWC with domestic hot water preparation setting Hw + Sw is necessary!

 **No** means: no 2nd heat gen. connected.

2nd heat gen. 2 type:

no means:

no 2nd heat gen. is connected, the output has the function error signal

heating rod means:

a heating rod is connected as 2nd heat gen., bivalent operation of the installation

2nd heat gen. 2 fct.:

no means

see 2nd heat gen. 2 type

heating means

heating rod is situated in the buffer storage tank

SW (service water = domestic hot water) means:

heating rod is situated in the service water tank

The following combinations are admissible:

| | 2nd heat gen.1fct | 2nd heat gen.2fct | Release |
|---|-------------------|-------------------|---------|
| 1 | heating | heating | ✓ |
| 2 | HW + SW | heating | ✓ |
| 3 | heating | SW | ✓ |
| 4 | No | SW | ✓ |
| 5 | No | HW | x |
| 6 | HW + SW | SW | ✓ |



Attention: if the setting of the 2nd heat gen.2 is no, this output has the function error signal. In this case, the connection of a 2nd heat gen. at the output is not admitted.

Error with/without 2nd heat gen.

With 2nd heat gen. means: in case of breakdown / error of the heat pump, the connected 2nd heat generators will be switched on as needed.

Without 2nd heat gen. means: in case of breakdown / error, the connected 2nd heat generators will be activated only if the return temperature drops under 15°C.

Serv.-w 1 sensor/thermostat

Sensor means: the domestic hot water preparation is initiated and stopped by a sensor in the domestic hot water tank.

Thermostat means: the domestic hot water preparation is initiated and stopped by a thermostat at the domestic hot water storage tank.



Please note: the domestic hot water thermostat will be connected at the same clamps than the domestic hot water sensor (low voltage). Therefore, the thermostat must be suitable for low voltage (potential-free contact).

Thermostat closed (signal on) -> domestic hot water request.



SERVICE

Serv.-w 2 1CP/2CP - display only for devices type SW and WW with two compressors

1CP means: domestic hot water production with one compressor

2CP means: domestic hot water production with two compressors

Serv.-w 3 with/without suppl. pump

With add.CP means: the add. CP pump (additional circulation pump) is running during house-hold hot water preparation.

Without add. CP pump means: the add. CP (additional circulation pump) is not running during house-hold hot water production.

Serv.-w 4 set value/max. value

Display only for setting Serv.-w 1 sensor.

- With setting set value, the heat pumps tries to reach the target value for the domestic hot water temperature.
- With setting max value, the heat pump is always trying to reach the maximum possible value for the domestic hot water temperature.

SW+HP max 0-8h

After expiry of the time set in this option, the second heat generator will be joined to the domestic hot water production, if needed.

Dfrcyclmax - display only for air-water devices.

Please find the respective cycle to be set for defrosting in the instruction manual of the respective device. If you don't find any details there, the following values apply:

| Nominal capacity for A2/W35 | | Time defrosting cycle | Defrost. cycle2 |
|-----------------------------|----------------------|-----------------------|-----------------|
| 4,5 | outdoor installation | 60 min. | 1 compressor |
| 6 | indoor installation | 45 min. | 1 cp |
| 6 | outdoor installation | 90 min. | 1 cp |
| 7 | indoor installation | 90 min. | 1 cp |
| 7 | outdoor installation | 90 min. | 1 cp |
| 8M | outdoor installation | 45 min. | 1 cp |
| 8C | indoor installation | 45 min. | 1 cp |
| 10 | indoor installation | 60 min. | 1 cp |
| 10 | outdoor installation | 60 min. | 1 cp |
| 12 | indoor installation | 60 min. | 1 cp |
| 12 | outdoor installation | 60 min. | 1 cp |
| 15 | indoor installation | 60 min. | 1 cp |
| 15 | outdoor installation | 60 min. | 1 cp |
| 15H | in- and outdoor | 45 min. | 1 cp |
| 19 | indoor installation | 45 min. | 1 cp |
| 19 | outdoor installation | 45 min. | 1 cp |
| 26 | indoor installation | 45 min. | 2 cp |
| 32 | indoor installation | 60 min. | 2 cp |

Defr. yes/no

- display only for air-water devices.

Defr. yes generally releases air defrosting above the set temperature.

Defr. max 5-30 min.

- display only for air-water devices, if the air defrosting is released.

Setting of the maximum time the air defrosting is supposed to take.

Defrost 1 defr1/defr2 - display only for air-water devices

Defr1 means: starting of defrosting with self-setting cycletime

Defr2 means: starting of defrosting with temperature values

Defr2 with 1CP/2CP

Display only for air-water devices with 2 compressors

with 1CP means: defrosting generally with only one compressor

with 2CP means: two compressors are running when defrosting, provided that the two compressors had been running already before.

Pump opt. yes/no

Yes means: heating circulation pumps are switched off if necessary

No means: heating circulation pumps keep on running unless another function will be activated (for example domestic hot water) or unless the device is switched off.

Suppl. pumps (add. CP/CP)

Add. CP means: the output suppl. pumps (add. CP/CP) of the controller serves as additional circulation pump

CP: the output suppl. pumps (add. CP/CP) of the controller serves as circulation pump (domestic hot water). See setting domestic hot water care programs.



Defr/Brin/Flow no/brinepres/flow

Display only for devices type SW and WW.

No means: neither brine pressure pressostat nor flow switch are connected

Brinepres means: at the brine-water devices, a brine pressure pressostat is connected at the input Defr/Brin/Flow

Flow means: a flow switch is connected at the input Defr/Brin/Flow



Attention: certain devices have a flow switch installed by the manufacturer. If so, the setting under item Defr/Brin/Flow must be "flow". Incorrect settings endanger the security of the device.

Control CP

On means: If the rotating field of the feed line is wrong, an error message will be displayed at "POWER ON".

Off means: the compressor control is switched off.



Attention: the compressor control should be switched off exclusively during trouble shooting (maintenance work).

Setting set. AT/fixed tp.

Set. AT means: the required return temperature of the heating will be calculated by means of the set heating curve (see settings for heating).

Fixed tp. means: the required return temperature can be defined notwithstanding the out-side temperature (see settings for heating)

Screed heating with/without mixer

With mixer means: the mixer acts according to the set temperature in the screed heating program, if it is defined as discharge-mixer (to be set only in case of external energy source, for example wooden boiler, solar installation with parallel storage)

Without mixer means: when screed heating, the mixer always opens, if it is defined as discharge-mixer (to be set when screed heating with heat pump).



SERVICE

| | |
|---|--|
| Service Information Settings Language Date and Time Screed heating Installat. conf. | Settings Access Short programs Temperatures Priorities System Settings System Ventilation |
|---|--|

SERVICE > SETTINGS > SYSTEM VENTILATION

Ventilation:
HCP ☐
SCP ☐
Vent.CPBrine ☐
Add CP/CP ☐
Running Time 1h

☒ ☐

Range for running time from 1-24 hours; factory setting is 1 h. The function is described in flow charts.

While the ventilation program is running, the symbol "ventilation" is blinking in the entrance screen (see page 9).

The ventilation is running constantly for 1 hour, after this 5 minutes break, as long as the set number of hours has been completed.

| |
|--|
| Service Information Settings Language Date and Time Screed heating Installat. conf. |
|--|

SERVICE > LANGUAGE

Language
German ☐
English ☒
French ☐
Norwegian ☐
Czech ☐
Italian ☐

☒ ☐

The description of all menu screens will be available in the above six languages. After confirmation of your language selection, you will be led through the controller program in the chosen language.

SERVICE > DATE AND TIME

Date + hour
01.07.2004
Monday
12:45:53

☒ ☐

Please set the current date.

SERVICE > SCREED HEATING

See next page! >

SERVICE > INSTALLATION CONFIGURATION

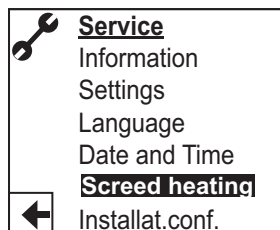
Plant conf.
Heating ☒
Hot water ☒

☒ ☐

Your heating as well as your domestic hot water production are running.



Automatic screed heating



In the screed heating program, all connected heat generators will be activated if necessary.

You will reach the relevant menu through Service > Screed Heating.

Here, up to 10 temperature levels with suitable time slices can be set. The pre-set values correspond to the specifications of some screed manufacturers, but can be modified individually.

Observe the specifications of the screed manufacturer.

The set temperatures correspond to the forerun temperature, but the regulation of the heat pump is effected by the return sensor!

If less than 10 levels for the screed heating phase are needed, the time slice for the remaining temperature levels is to be set to 0h.

After starting the screed heating program, the several temperature levels will be initiated automatically.

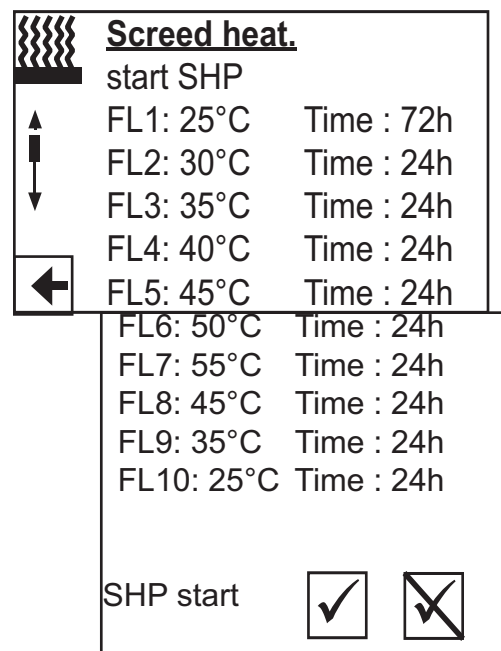
The program assures that the temperature level will be kept during the set time, i.e. the set time is not the time which is necessary to reach the next temperature level. It depends on the heating installation and the capacity of the heat generators how long it lasts to reach the next temperature level.

After expiry of a temperature level, the relevant time slice will be set to 0h. This function assures that even after a power breakdown the screed heating program will continue at the very point where it had been interrupted.

When starting the screed heating program, the sufficient heating capacity for the screed heating must be confirmed. Please note that a heating installation is designed for heating and not for heating floor pavement. Therefore, maybe supplementary heat generators for the screed heating phase will be needed.

If the screed heating program cannot reach the next temperature level because of a too small heating capacity, the program will be stopped and an error message will be displayed. Among others, the display will show at which temperature level the program has been interrupted. Anyway the program is still running and try to reach the next level.

The temperature data and the relevant time slices of the screed heating program will be filesaved by the controller; thus, the authorized after-sales service partner can read them after the screed heating phase.

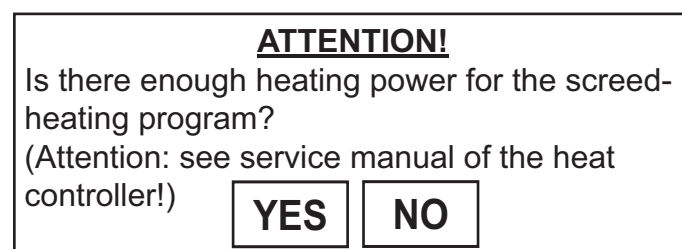


If the temperatures of the heating system already exceed the setpoint temperature of the first level, we recommend to start the program with the next level. Otherwise, the program may display an error signal in the first level!

The error signal: "S-SHP" Stop Screed heat. (error number 730) just means that the program could not be executed in the prescribed time interval. But the program will keep on running as pre-set. The error signal cannot be acknowledged before the program is finished or switched off manually.

After expiry of a temperature level during the screed heating, the relevant time slice will be reset to 0h.

When starting the screed heating program, the following screen will be displayed:



The screed heating program starts only after confirmation by "YES".

When starting the screed heating program, the following symbol is blinking in the navigation screen:



DIAGNOSIS

Errorr diagnosis

| N° | Display | Abr. | Description | Remedy |
|-----|---|------|--|--|
| 701 | Error low pressure > Please call AS | | Low pressure pressostat in the refrigeration cycle has responded once (SW/WW) or several times (LW) | Check HP for leakages, switching point pressostat, defrosting and minimum temperature |
| 702 | Low pressure stop > Reset Autom. | | Low pressure in the refrigeration cycle has responded; the heat pump will be blocked for a certain time (only LW) | see N° 701 |
| 703 | Antifreeze > Please call AS | | The heat pump is running and the flow temperature is under 5°C, antifreeze will be indicated | Checking of HP-output, defrosting valve and heating installation |
| 704 | Error hot gas > Reset in XXX:XX | | Maximum temperature in the hot gas refrigeration cycle. New start of heat pump after off-time. | Checking of cooling agent quantity, evaporation, overheating flow, return and heat source min. |
| 705 | Motor protection VEN > Please call AS | | The motor protection of the fan has responded (LW) | Checking of settings and fan. |
| 706 | Motor protection BCP > Please call AS | | The motor protection of the brine or well water circulation pump has responded (SW/WW) | Checking of settings, compressor, heats. pump |
| 707 | Coding heat pump > Please call AS | | Rupture or short-circuit of the coding bridge in HP after first starting | Checking of coding resistance in HP, plug and connecting line |
| 708 | Sensor return > Please call AS | | Rupture or short-circuit of the return sensor | Checking of sensor, plug and connection line |
| 709 | Sensor flow > Please call AS | | Rupture or short-circuit of flow sensor. No fault switch-off for SW/WW-HP | Checking of sensor, plug and connection line |
| 710 | Sensor hot gas > Please call AS | | Rupture or short-circuit of hot gas sensor in the refrigeration cycle | Checking of sensor, plug and connection line |
| 711 | Sensor outside temp. > Please call fitter | | Rupture or short-circuit of outdoor sensor. No fault switch-off, fixed value -5°C | Checking of sensor, plug and connection line |
| 712 | Sensor service water > Please call fitter | | Rupture or short-circuit of domestic hot water sensor. No fault switch-off | Checking of sensor, plug and connection line |
| 713 | Sensor HS-on > Please call AS | | Rupture or short-circuit of heat source sensor (SW/WW) | Checking of sensor, plug and connection line |
| 714 | Hot gas service wat. > Reset in XXX:XX | | Exceeding of thermal limit of the HP. Temporary off-time of the domestic hot water preparation. | Checking flow-rate service water, heat exchanger and service water temperature, circulation-pump service water |
| 715 | High press. switch-off > Reset Autom. | | The high pressure thermostat in the refrigeration cycle has responded; installation is trying to re-start | Checking flow-rate, overflow valve, temperature and condensation |
| 716 | Error high pressure > Please call fitter | | The high pressure pressostat in the refrigeration cycle has responded several times | Checking flow-rate, overflow valve, temperature and condensation |
| 717 | Flow HS > Please call fitter | | Flow-rate switch for devices type WW has responded during rinsing time or during operation | Checking flow-rate, switching point flow-rate switch, filter, absence of air |
| 718 | Max.outside temp > Reset Autom.<T | | The outside temperature has exceeded the admissible maximum value, automatic reset (only device type LW..) | Checking of outside temperature and setting |
| 719 | Min.outside temp > Reset Autom.>T | | The outside temperature has fallen below the admissible minimum value, automatic reset (only device type LW..) | Checking of outside temperature and setting |
| 720 | Temp. heat source > Reset Autom.>T | | The temperature at the evaporator exit on the heat source side has several times dropped under the safety value. Installation tries re-starting after off-time (only devices type SW/WW..) | Checking flow-rate, filter, absence of air, temperature |
| 722 | Tempdiff heat. water > Please call AS | | The temperature spread in heating mode is negative and consequently faulty. | Checking of function and positioning of flow and return sensor |
| 723 | Tempdiff serv. wat. > Please call AS | | The temperature spread in domestic hot water mode is negative and consequently faulty. | Checking of function and positioning of flow and return sensor |
| 724 | Tempdiff defrosting > Please call AS | | The temperature spread in the heating circle when defrosting is > 15 K (danger of frost damages) | Checking of function and positioning of flow and return sensor, delivery rate of heating circulation pump, overflow valve, heating circles |
| 725 | Instal. fault. sv. wat. > Please call fitter | | Domestic hot water mode is defective, the desired storage temperature has fallen below by far | Checking of circulation pump SW, storage filling, slide valve, ventilation heating water and service water, breakdown 3-way-valve |
| 726 | Sensor mix. circuit 1 > Please call fitter | | Rupture or short-circuit of mixing circuit sensor | Checking of sensor, plug and connection line |
| 727 | Brine pressure > Please call fitter | | Brine pressure pressostat has responded during rinsing time or during operation | Checking of brine pressure, brine pressure pressostat |
| 728 | Sensor HS-Off > Please call fitter | | Rupture or short-circuit of the heat source sensor (outlet) | Checking of sensor, plug or connection line |
| 729 | Error compressor > Please call fitter | | Compressor has no power after switching-on | Checking or rotating field, checking of compressor |

Errorr diagnosis

DIAGNOSIS

| N° | Display | Abr. | Description | Remedy |
|-----|--|-------|--|---|
| 730 | Power screed heat. > Please call fitter | S-AHP | The screed heating program has been stopped because of too small heating capacity | Checking of capacity needs during SHP |
| 732 | Error cooling > Please call fitter | S-KKP | The Hotwater-temperature falls several times under 16°C | Checking of mixer and heating circulation pump |
| 733 | Error anode > Please call fitter | S-PEX | The error message of the outside current anode as responded. | Sanitary water storage is not filled. Check connection line anode + Potenziostat. |
| 734 | Error anode > Please call fitter | S-PEX | Error 733 occurs since more than two weeks and the sanitary water production is cut off. See 733 | Preliminary acknowledgement of the error to free the sanitary water production. |
| 735 | Sensor Ext.En. > Please call fitter | S-SEE | Rupture or short-circuit of sensor external energy source (Comfort-circuit board) | Check sensor, plug and connection line |
| 736 | Sensor solar collector > Please call fitter | S-SSC | Rupture or short-circuit of solar collector (Comfort-circuit board)) | Check sensor, plug and connection line |
| 737 | Sensor solar storage > Please call fitter | S-SST | Error or short-circuit of sensor solar storage (Comfort-circuit board) | Check sensor, plug and connection line |
| 738 | Sensor mixing circuit2 > Please call fitter | S-MC2 | Rupture or short-circuit of sensor mixing circuit 2 (Comfort-circuit board) | Check sensor, plug and connection line |

ANNEXE

Technical Details

Assembly:

Only in frost-proof and dry rooms, protected against weather

Ambient temperature 1°C - 40°C.

230V AC, 18 VA, 0,1 A

Outputs:

- Relay contacts 8A/230V, fitted with noise suppression
- Fuse 6,3 A (for all relay outputs), i.e. consumer loads up to total 1450 W may be connected to the outputs

Inputs:

- Optocoupler 230V
- Sensor inputs, NTC-sensor 2,2 Ω / + 25°C

Connections:

- Control line 12-pole outputs 230 V
- Sensor line 12 pole low voltage
- Plug clamps 1 pole screw terminals

Interfaces:

- RS 232 9 poles SubD for PC-connection (for after-sales service only)

Coding HP:

| Type: | Abbr. | R in Ohm |
|------------------------------------|-------------|----------|
| Not occupied | ERC | Bridge |
| Brine-water 1 compressor | SW1 | 118 |
| Brine-water 2 compressor | SW2 | 162 |
| Water-water 1 compressor | WW1 | 205 |
| Water-water 2 compressor | WW2 | 255 |
| Air-water 1 compressor indoor | L1I | 316 |
| Air-water 2 compressor indoor | L2I | 374 |
| Air-water 1 compressor outdoor | L1A | 442 |
| Air-water 2 compressor outdoor | L2A | 523 |
| Kompakt heating centre brine-water | KSW | 619 |
| Kompakt heating centre air-water | KLW | 715 |
| Brine-water-Compact | SWC | 845 |
| Air-water-Compact | LWC | 976 |
| Air-water-big device 2 compressors | L2G | 1.150 |
| Heat central station brine-water | HCS BR-W | 1.370 |

Characteristic curve temperature sensor

| <u>T/°C</u> | <u>R/kΩ</u> |
|-------------|-------------|
| -20 | 16,538 |
| -15 | 12,838 |
| -10 | 10,051 |
| -5 | 7,931 |
| +/-0 | 6,306 |
| +5 | 5,040 |
| +10 | 4,056 |
| +15 | 3,283 |
| +20 | 2,674 |
| +25 | 2,200 |
| +30 | 1,825 |
| +35 | 1,510 |
| +40 | 1,256 |

| Display | Factory Settings | Range of values | Access |
|------------------|--------------------|-----------------|-------------------|
| Limit return | 50°C | 35-70 | AS (🔒) |
| Hysteresis Hc | 2,0K | 0,5 to 3 | AS (🔒) |
| Return incr. max | 7K | 1 to 10 | AS (🔒) |
| Release 2.CP | 5°C | -20 to 20 | AS (🔒) |
| Release 2. HG | -2°C | -20 to 20 | AS (🔒) |
| Tp-defr.air | 10°C | 0 to 20 | AS (🔒) |
| TVth.disinf2 | 65°C | 60 to 70 | customer (🔑) |
| Hysteresis SW | 2K | 1 to 30 | AS (🔒) |
| Flow 2.CP SW | 50°C | 10 to 70 | AS (🔒) |
| T-outdoor max | 35°C | 10 to 45 | AS (🔒) |
| T-outdoor min | -20°C | -20 to 10 | AS (🔒) |
| T-HS min | 3,5°C WW (-9°C SW) | -20 to 10 | manufacterer (🔒🔒) |
| T-HG max | 130°C | 90 to 140 | manu. (🔒🔒) |
| T-def.airend | 2°C | 2 to 10 | manu. (🔒🔒) |
| Lowering up to | -20°C | -20 to 10 | customer (🔑) |

| Display | Factory Settings | Range of values | Access |
|------------------|------------------------------------|--|-------------|
| Electric. suppl. | no 2. HG | no 2. HG / with 2. HG | AS (🔒) |
| Roomstat. | No | No /Yes | customer(🔑) |
| Integration | return | return / separ. | AS (🔒) |
| Mix circle1 | No | No /charge/discharge/cool | customer(🔑) |
| 2. HG1 type | heating rod | el.rod./thermal/boiler/No | AS (🔒) |
| 2. HG1 fct | HW | HW /HW/HW+SW/No | AS (🔒) |
| 2. HG2 type | No | No /heating rod | AS (🔒) |
| 2. HG2 fct | No | No /HW/SW | AS (🔒) |
| Error | with 2. HG | no 2. HG / with 2. HG | AS (🔒) |
| Serv.-w.1 | sensor | sensor / thermostat | customer |
| Serv.-w.2 | with 1CP | with 1CP /with 2CP | AS (🔒) |
| Serv.-w.3 | with suppl. pump (add.CP/CP) | with / without suppl. pump | AS (🔒) |
| Serv.-w.4 | set value | set value / max. value | manu. (🔒🔒) |
| SW+HP max | 0 h | 8h /0-8 | customer(🔑) |
| Dfrcycl max | 45 | 45/60/90/120/180/240/300 | AS (🔒) |
| Defr. air | No | No / Yes | manu. (🔒🔒) |
| Defr. max | 15min | 5-30 | manu. (🔒🔒) |
| Defrost 1 | Dfr1 | Dfr1/Dfr2 | manu. (🔒🔒) |
| Defrost 2 | with 1CP | with 1CP / with 2CP | AS (🔒) |
| Pump opt. | No | No / Yes | customer(🔑) |
| Addit. pump | add. CP | add. CP / CP | AS (🔒) |
| Access | fitter | Inst / KD | AS (🔒) |
| DFR/BP/FL | flow (WW) / No (SW) | flow / brine pressure /No | AS (🔒) |
| Control CP | on | on / off | AS (🔒) |
| Setting | conditioned by outdoor temperature | conditioned by outdoor tem-perature/ fixed temperature | customer(🔑) |
| Screed heating | with mixer | with / without mixer | customer(🔑) |

ANNEXE

Survey / Explanation of Abbreviations

| Abbr. | Explanation |
|-------------------|---|
| 2. HG1 | Second heat generator 1 |
| 2. hg1 fct. | Function of second heat generator (heating or heating + domestic hot water) |
| 2. HG1 type | Type of second heat generator (heating element/therme/boiler/no) |
| 2. HG2 | Second heat generator 2 |
| Av. so Comp1 | Average running time compressor 1 |
| Av. so Comp2 | Average running time compressor 2 |
| Compressor 1 | Compressor 1 in heat pump |
| Compressor 2 | Compressor 2 in heat pump |
| Defr. air | Release of defrosting air above set temperature |
| Defr. max. | Maximum time of defrosting air |
| Defr/Brin/Flow | Defrosting, brine pressure, flow |
| Electric. suppl. | Off-time by local energy supply company |
| Err Inst. | Error installation |
| Fan - heats.pump | Fan, well or brine circulation pump |
| Floor heat. pump1 | Floor heating circulation pump |
| HCAAdd-time | Additional time heat controller |
| HCLesstime | Less time heat controller |
| Heat. sys. pump | Heating system circulation pump |
| Heats. in | Heat source input temperature |
| Heats. out | Heat source output temperature |
| High pressure | High pressure pressostat |
| Hot gas | Hot gas monitoring sensor |
| Hot water | Actual value domestic hot water |
| Hot water pump | Domestic hot water circulation pump |
| HPE | Heat pump error |
| HP since | Heat pump is running since |
| HW des. val. | Desired value domestic hot water |
| Hysteresis HC | Hysteresis heat controller |
| Hysteresis SW | Hysteresis service water |
| Imp. Comp1 | Impulses compressor 1 |
| Imp. Comp2 | Impulses compressor 2 |
| Limit return | Limit of return |
| Low pressure | Low pressure pressostat |
| Mixval. 1 des. | Mixing circle-flow-set value temperature |
| Mixval. 1 in | Mixing circle flow temperature |
| Motor protect. | Motor protection |
| Op h. Comp1 | Operating hours compressor 1 |
| Op h. Comp2 | Operating hours compressor 2 |
| Op. h Heatp | Operating hours heat pump |
| Op. h shs1 | Operating hours second heat generator 1 |
| Op. h shs2 | Operating hours second heat generator 2 |
| PEX | Party ext. - possibility to connect a sensor from room station |
| Read CPd | Operating life of compressor |
| Release 2. CP | Release second compressor |

| Abbr. | Explanation |
|-------------------------------------|---|
| Release 2. HG | Release second heat generator |
| Ret. target | Return target temperature |
| Room stat. | Room station (remote adjustment control) |
| RTincr. e. max | Maximum return increase |
| Stop SW | Stop service water |
| Suppl. pump | Supplementary circulation pump |
| Suppl. pump (CP = circulation pump) | Circulation pump |
| Supply air vent. | Supply air ventilation |
| Switch time | Switching cycle time |
| Switch on | Delay of switch on |
| SW-therm switch | Service water thermal switch |
| T-def.airend | Temperature defrosting air end - only for LW-devices if defrosting air is activated |
| TDI | Thermal disinfection |
| T-hot gas max | Maximum hot gas temperature |
| T-HS min | Minimum heat source temperature |
| T-outd. max. | Maximum outdoor temperature |
| T-outd. min. | Minimum outdoor temperature |
| Tp-defr. air | Temperature defrosting air - only for LW-devices if defrosting air is activated |
| TVth. disinf2 | Target value thermal disinfection 2 |
| V OFF | |
| VD | Ventilation day time |
| Ventilation | Ventilation of heat pump casing |
| VP | Ventilation party |

General Terms and Conditions of Sale and Deliveries

Valid for Germany, Status January 2003

(1) General

All our offers, deliveries and further services are subject to the present General Terms and Conditions of Sales and Deliveries. Any contradictory conditions of sale and purchase conditions by the customer are clearly objected. Any deviations from these conditions apply only after our prior confirmation in writing. Any oral agreements which have not been confirmed in writing, are not valid.

(2) Delivery

Delivery dates are to be understood as approximate. They start the day the order confirmation is sent and are considered as complied with as soon as the goods have left works/stock or as soon as readiness for dispatch has been notified to the customer.

The delivery time will be extended appropriately in case of unpredictable extraordinary events we could not prevent in spite of the care we exercised in the individual cases, even if these events are within the responsibility of our sub-suppliers, provided that such events influence considerably the completion or delivery of the delivery item. This means especially the delivery of raw materials and auxiliary materials. If, for reason of the pre-cited events, the respective delivery or service become impossible, we will be released from the delivery commitment, without the customer being entitled to claim for damages. If the delivery delay lasts for longer than 3 months, the customer is entitled to withdraw from the contract.

In case of delay in delivery, the customer must grant us an appropriate extension of time of 4 week minimum.

Deliveries on call must be received within 6 months after order confirmation.

Any claims for delay by the supplier are excluded, except there is any imperative responsibility in case of intent or gross negligence.

(3) Prices and Payment Conditions

As far as there is no further agreement, the prices are understood ex works or ex stock, including original packing, plus legal value added tax.

As far as the prices are not indicated respectively marked "actual list price", the price-lists valid the day of delivery will take effect.

Pricing and invoicing is in Euro.

Payments are to be made according to the individually agreed payment conditions. As far as no written payment conditions have been agreed, the invoices are due 30 days after invoice date, without discounts. For payment within 10 days from after invoice date or for advance payment, we grant 2 % discount. The payment condition is considered as complied with if the amount will be available for the supplier within the agreed delay. The supplier is entitled to balance the payments with other unpaid invoices.

Cheques and bills will be accepted only upon prior agreement. The proven amount of discount- and collection-fees must be reimbursed immediately to the supplier.

In case of failure to comply with the agreed payment delay, from this date onwards the customer will be charged with interests exceeding by 5% the respective bank rate of the German Central Bank. We clearly reserve the right to assert further demands.

If a customer is in arrears with a partial payments, we are entitled to make the whole amount due immediately. If the customers fails to fulfil his obligations due to a considerable deterioration of his financial situation, we are entitled to withdraw from the contract respectively to claim for damages for non-completion. The customer may charge up only against counterclaims accepted by us or legal counterclaims.

If, after conclusion of the contract, we get aware of facts proving a considerable deterioration of the financial situation of the customer which in our sole discretion might endanger our pecuniary claim, we are entitled to ask the customer to provide until the date of payment a security within appropriate delay or an advance payment. If the customer does not fulfil this demand, we are entitled to withdraw from the contract respectively to claim for damages.

(4) Transfer of Perils

The risk of the goods shall pass to the customer - even carriage prepaid - as soon as the goods have been transferred to the forwarder or loaded.

(5) Modifications of the Article of Sale

We reserve the right to make construction- and form-modifications of the delivery, provided that the modifications are not extensive and reasonable for the customer.

(6) Retention of Title

We reserve property rights of the delivered goods until complete fulfilment of all claims arising from the business relationship including future claims even from contracts concluded with the customer at the same time or later on.

The customer has the right to sell or to use these goods in the normal business routine as long as he fulfils in time his obligations arising from the business relationship with us. He is obliged to treat these goods carefully. But, he is not entitled neither to bond these goods to transfer them as security. He is obliged to secure our rights with a credit when he resells these goods. Already now, for security, the customer transfers to us all claims and rights arising from reselling the goods or using them for other purposes (for example connection, processing. Hereby, we accept this assignment.

The customer is obliged to inform us immediately about compulsory enforcement measures by third parties referring to these goods or any claims or securities assigned to us and he is obliged to transmit us the necessary documentation to enable us to make an intervention.

The customer will always keep in stock respectively process the goods for us. If the goods will be processed or mixed inseparably with other articles not belonging to us, we acquire the co-ownership at the new article at the ratio of the invoice value of our goods to the other processed or mixed articles at the moment of processing

or mixing. If our goods will be joined or mixed inseparably with other mobile goods in a way to form a consistent unit and if the other article is to be considered as the main part, it is considered as agreed that the customer will transfer a proportional co-ownership, as far as the main part is owned by him.

As far as the security by the retention of title exceeds to claims to be assured more than 20%, we are obliged to release on request of the customer securities of our choice.

(7) Warranty

The supplier is liable as far as the object of delivery shows demonstrable deficiencies at the moment of transfer of perils; these deficiencies include also the absence of warranted features.

In this case, the supplier will, of his own choice, free of charge, repair or deliver a new all the parts which will be unusable or within the legal warranty period, counting from the day of transfer of perils, or whose usability has been damaged considerably.

To enable the supplier to remedy the defects, the customer must grant the supplier the necessary time and opportunity. If he refuses to do so, the supplier is released from the repair of deficiencies.

If the supplier lets culpably go by an extension of time granted to him in writing without repairing the deficiencies, if the repair of the defects fails or is refused for reasons the supplier is responsible for, the customer is entitled to claim for abatement of the purchase price. If an agreement between the customer and supplier is not possible, the customer is also entitled to claim for redhibitory action.

For foreign products, our liability is limited to the transfer of liabilities we are entitled to claim from the suppliers of the foreign products. The ascertainment of such deficiencies must be told us immediately in writing, referring to noticeable deficiencies within 8 days after receipt of the goods, referring to hidden deficiencies after perceptibility.

We are not liable for damages caused for the following reasons:

- non appropriate installation respectively start-up by the customer or third parties,
- inapt or inappropriate use, natural wear and tear, faulty or negligent treatment, insufficient construction works as well as extraordinary external influences with are not due to our fault.

Further claims by the customer against the supplier and his auxiliary persons are excluded, especially claims for damages arising not at the delivery objects themselves; this does not apply in case of intent, gross negligence or absence of promised features with compulsory liability.

For heat pumps (including controller), independent of the pre-cited regulations, the following warranty applies:

If the start-up (IBN) of the heat pump installation is carried out by our authorized service technician and if the heat pumps shows less than 500 operating hours the moment of start-up, the warranty time for the heat pump with controller is 36 months.

The warranty starts the day of shipment ex works respectively with the start-up (IBN), provided that the start-up is carried out within 3 months after shipment ex works.

The start-up has to be carried out by the local after-sales service and will be invoiced by the after-sales service. The start-up lump-sum includes the start-up and the travel expenses.

The repair of installation deficiencies and waiting periods are special services which will be invoiced separately. If the start-up is not carried out by our after-sales service, only the legal warranty applies.

Start-ups (IBN) must generally be applied for (fill in the completion form (FAZ) at the regional after-sales unit or at manufacturer's after-sales service.

Manufacturer's after-sales service Tel. +49(0)171 266 33 26,

Fax. +49 (0)9228 9906 29

(8) Liability

Any claims for damages by the customer, especially arising from positive non-compliance with claims, non-compliance with duties during contract negotiations and unauthorized action, are excluded, as far as the present conditions do not clearly define a liability of the supplier or as far as there is no compulsory liability arising from the product liability law in case of intent or gross negligence.

(9) Jurisdiction

For all disagreements arising from the contract, Bayreuth is the exclusive court of jurisdiction. But, the supplier is entitled to establish a procedure or further action at the general jurisdiction court of the purchaser.

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Certified Quality

In view of offering the heat pump installation operators highest possible security and quality, the promotion initiatives of Germany, Switzerland and Austria have joined forces under the designation D-A-CH.



Jointly, they have developed the International Heat Pump Cachet. The cachet refers to technical features as well as to the services the manufacturers offer. Our products are subject to supervision by independent inspection authorities like for example Töss, the heat pump inspection centre Winterthur / Switzerland or the Technical Supervisory Association (TÜV) in Munich.

Any questions? We will be pleased to help you!

Ask for our extensive and detailed informations:



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