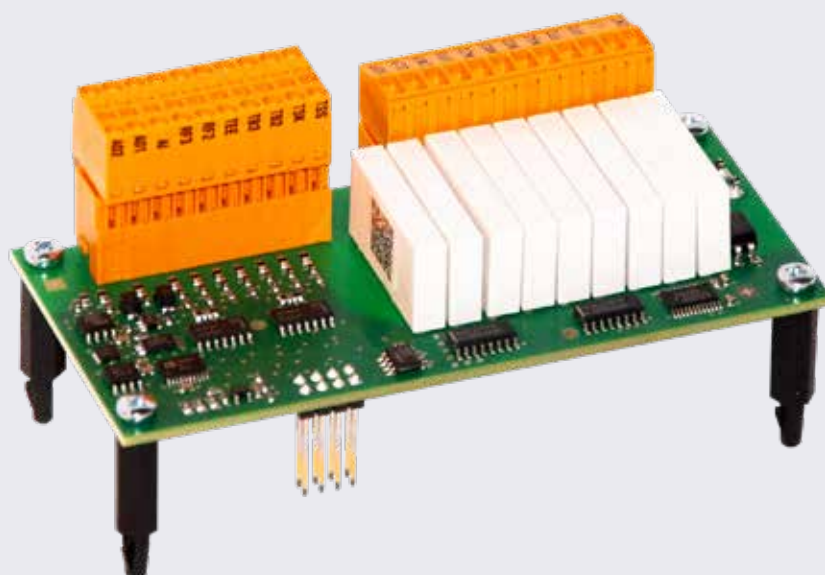


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HEAT PUMPS



Operating Manual

Comfort Board 2.0

Accessory for heating and heat pump regulator

UK

www.aitgroup.com

83052500gUK



Please read first

This operating manual provides important information on the handling of the unit. It is an integral part of the product and must be stored so that it is accessible in the immediate vicinity of the unit. It must remain available throughout the entire service life of the unit. It must be handed over to subsequent owners or operators of the unit.

In addition to this operating manual, the operating manual for the heating and heat pump regulator and the operating manual for your heat pump must also be available.

Read the operating manual before working on or operating the unit. This applies in particular to the chapter on safety. Always follow all instructions completely and without restrictions.

It is possible that this operating manual may contain instructions that seem incomprehensible or unclear. In case of questions or uncertainty, contact the factory customer service department or the manufacturer's local service partner.

Since this operating manual was written for several different models of the unit, always comply with the parameters for the respective model.

This operating manual is intended only for persons assigned to work on or operate the unit. Treat all constituent parts confidentially. The information contained herein is protected by copyright. No part of this information may be reproduced, transmitted, copied, stored in electronic data systems or translated into another language, either wholly or in part, without the express written permission of the manufacturer.



NOTE

These operating manual assume that you are familiar with how the control unit of the heating and heat pump control works and how to navigate through the menu structure.

→ Part 1 of the controller manual, program area "Service", section "Basic Information on the operation".

Symbols

The following symbols are used in the operating manual. They have the following meaning:



Information for operators.



Information or instructions for qualified technicians.



DANGER

Indicates a direct impending danger resulting in severe injuries or death.



WARNING

Indicates a possibly dangerous situation that could result in severe injuries or death.



CAUTION

Indicates a possibly dangerous situation that could result in medium or light injuries.



IMPORTANT

Indicates a possibly dangerous situation, which could result in property damage.



NOTE

Emphasized information.



Users and qualified technicians can set data.
Access: User.



Authorized fitter can set data; password required.
Access: Installer.



Authorized service personnel can set data.
Access via USB stick only.
Access: After sales service.



Factory pre-setting, no data change possible

1., 2., 3., ... Numbered step within a multi-step instruction for action. Adhere to the given sequence.



List.



Prerequisite for an action.



Reference to further information elsewhere in the operating manual or in another document.



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Intended use

The Comfort board 2.0 is an accessory for the heating and heat pump regulator. The Comfort board 2.0 can be used in combination with the heating and heat pump regulator and suitable heat pumps in newly installed or existing heating systems.

The Comfort board 2.0 expands the range of functions of the heating and heat pump regulator and may be used only as intended in suitable heat pump systems. This means:

- for controlling either a photovoltaic system or a swimming pool heater.
- for controlling an second heat generator (=ZWE3).
- for controlling a second and third mixing circuit or the cooling.
- for temperature difference regulation (for example for a solar installation).
- for supplying external power sources.

The unit may be operated only within its technical parameters.



IMPORTANT

The Comfort board 2.0 may be operated only in combination with the heating and heat pump regulator and with the heat pumps approved by the manufacturer and accessories approved by the manufacturer.

Exclusion of liability

The manufacturer will not be liable for damage resulting from unauthorized use of the unit.

The manufacturer's liability will also be voided in the following cases:

- if work is performed on the unit and its components in a manner that does not comply with the terms of this operating manual;
- if work is performed on the unit and its components in an improper manner;
- if work is performed on the unit that is not described in this operating manual, and this work was not expressly approved in writing by the manufacturer;
- if the unit or components in the unit are modified, redesigned or removed without the express written permission of the manufacturer.

Safety

The unit is operationally safe when used for the intended purpose. The construction and design of the unit conform to the state of the art, all relevant DIN/VDE regulations and all relevant safety regulations.

Every person who performs work on the unit must have read and understood the operating manual prior to starting any work. This also applies if the respective person has already worked with such a unit or a similar unit or has been trained by the manufacturer.

Every person who performs work on the unit must comply with the applicable accident prevention and safety regulations. This applies in particular to the wearing of personal safety gear.



DANGER

Observe the relevant EN, VDE and/or applicable local safety regulations during the installation and during all electrical work. Comply with technical connection requirements of the responsible power supply company, if required by the latter!



DANGER

Unit operates under high electric voltage!



DANGER

Danger of fatal injury due to electric current!

Electrical connections may be installed only by qualified electricians.

Before opening the unit, disconnect the system from the power supply and secure it from being switched back on!



DANGER

Only qualified technicians (trained heating, cooling, refrigerant and electrical technicians) may perform work on the unit and its components.



IMPORTANT

Adjustments to the heating and heat pump regulator may be performed only by the authorized customer service personnel and by specialized firms authorized by the manufacturer.



! IMPORTANT
Before making software settings, it is necessary to check the hydraulic connection.

! WARNING
Observe safety labels in the unit.

! IMPORTANT
For safety reasons: Do not disconnect the unit from the power supply, unless the unit is being opened.

! IMPORTANT
Plug X5 and screw terminals X4 of the heating and heat pump regulator are under low voltage. Use only original sensors from the manufacturer (protection class II).

! IMPORTANT
Circulating pumps may be controlled only by the heating and heat pump regulator. Never shut off circulating pumps externally.

! IMPORTANT
Never shut off heating circuit to the heat pump (frost protection).

! IMPORTANT
Use only accessories provided by or approved by the manufacturer.

Maintenance

The Comfort board 2.0 requires no regular maintenance.

Malfunctions

In the event of a malfunction, you can detect the cause of the malfunction via the diagnostic program of the heating and heat pump regulator.

→ Operating manual for the heating and heat pump regulator.

! IMPORTANT
Service and repair work on the components of the unit may be performed only by customer service personnel authorized by the manufacturer.

Customer service

For technical assistance, please contact your qualified technician or the manufacturer's local service partner.

→ Operating manual for your heat pump, "Customer Service" section.

Warranty / Guarantee

For warranty and guarantee conditions, please refer to the purchase documents.

i NOTE
Please contact your dealer concerning warranties and guarantees.

Disposal

When decommissioning the unit, always comply with applicable laws, directives and standards for the recovery, recycling and disposal of materials and components.

→ Operating manual for the heating and heat pump regulator, "Dismantling" chapter.



Scope of delivery



Extra box Comfort board 2.0:

- 1 x Comfort board 2.0
- 2 x Plugs
- 4 x Spacer bolts + mounting screws
- 1 x Operating manual

1. Inspect delivery for outwardly visible signs of damage.
2. Check to make sure that delivery is complete. Any defects or incorrect deliveries must be claimed immediately.

Installation

Observe the following when performing all work:



NOTE

Always comply with applicable accident prevention regulations, statutory regulations, ordinances and directives.



WARNING

Only qualified technicians may assemble and install the Comfort board 2.0 of the heating and heat pump regulator.



IMPORTANT

Inserting and removing the Comfort board 2.0 while it is energized will destroy the electronic system!



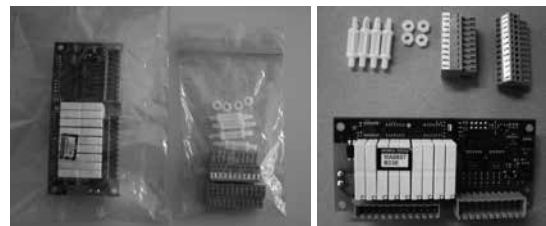
DANGER

Danger of fatal injury due to electric current!

Electrical connections may be installed only by qualified electricians.

Before opening the unit, disconnect the system from the power supply and secure it from being switched back on!

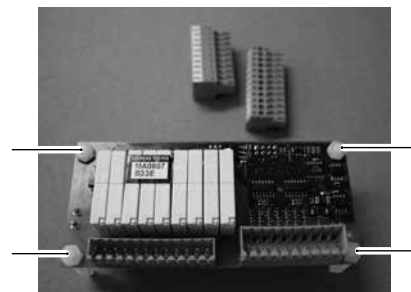
1. For the “built-in regulator”, disconnect unit from power supply; for “wall regulator”, switch off control fuse.
2. Open housing of the heating and heat pump regulator.
→ Operating manual for your heat pump (for heating and heat pump regulator integrated in unit) or operating manual for the heating and heat pump regulator (for external “wall regulator”).
3. Carefully remove the Comfort board 2.0 and the included components from the package.



IMPORTANT

Touch the Comfort board 2.0 only on the electrically insulated base material. Do not touch any electronic components.

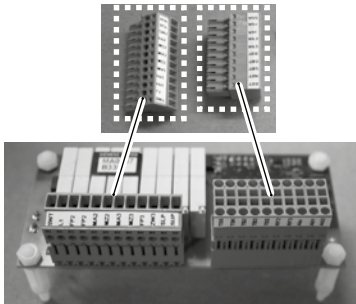
4. Unless already pre-mounted, screw the four spacer bolts into the four designated holes on the Comfort board 2.0.



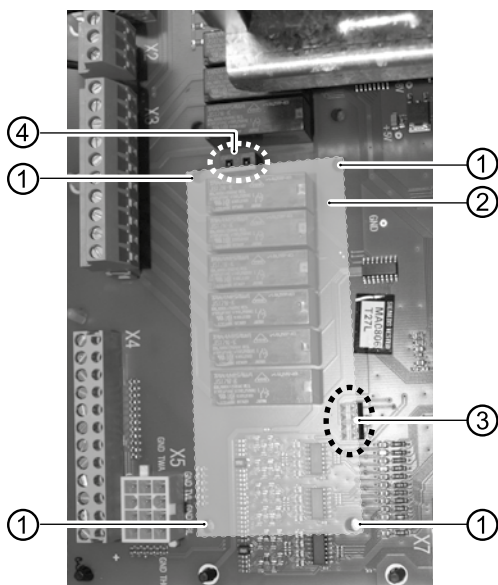
Spacer bolts of the Comfort board 2.0



5. Insert the two mating plugs on the Comfort board 2.0.

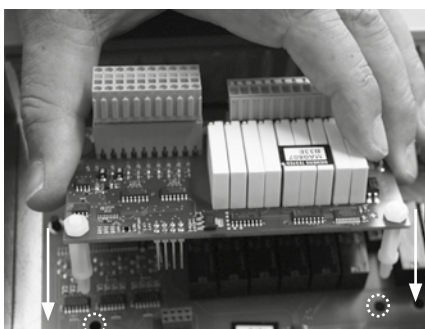


6. Position the completely assembled Comfort board 2.0 over the designated holes (1) on the circuit board.



- 1 Mounting holes for Comfort board 2.0
- 2 Bright area = slot for Comfort board 2.0
- 3 Lower socket for the two x four contact pins
- 4 Upper socket for the two contact pins

7. Carefully plug the Comfort board 2.0 onto the circuit board.



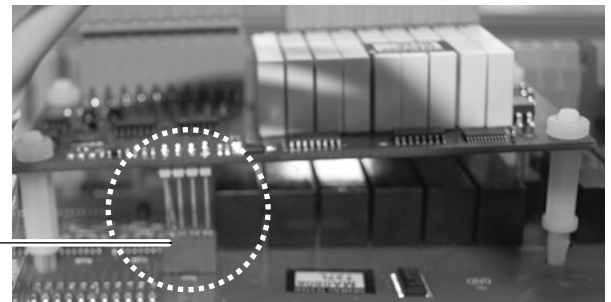
IMPORTANT

Watch out for the correct connection of the Comfort board 2.0.

The upper (two) and lower (eight) contact pins of the Comfort board 2.0 must engage in the corresponding sockets on the circuit board.



Socket (2x) for upper contact pins of the Comfort board 2.0



Socket for 3 lower contact pins of the Comfort board 2.0



mounted Comfort board 2.0



Electrical connections



DANGER

Danger of fatal injury due to electric current!

Electrical connections may be installed only by qualified electricians.

Before opening the unit, disconnect the system from the power supply and secure it from being switched back on!



DANGER

Observe the relevant EN, VDE and/or applicable local safety regulations during the installation and during all electrical work.

Comply with technical connection requirements of the responsible power supply company (if required by the latter)!

1. Install Comfort board 2.0 according to the terminal diagram and integrate in the system according to the hydraulic diagram.

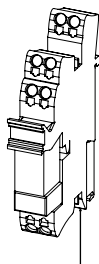
→ page 32, "Terminal diagram"

→ page 33, "Connections on the Comfort-Platine 2.0"



IMPORTANT

A maximum of 5A only may be applied to the output relay of the Comfort board 2.0. Due to the high start-up currents of energy-efficient circulating pumps, these may only be installed via one or more auxiliary relays (not supplied).



Install the auxiliary relay(s) according to good engineering practice.

- In case of heat pump indoor units with built-in controller:

if space is available, plug the auxiliary relay on to the top hat rail in the control box of the heat pump. Otherwise install the relay in an external housing (to be provided on site).

- In the case of heat pump outdoor units with wall-mounted controller or for connection of a dual system via the hydraulic module:

Install the relay in an external housing (to be provided on site).



IMPORTANT

For information on unit-specific connections, please refer to the operating manual for your heat pump.

2. After the Comfort board 2.0 is installed on the circuit board and connected, close the housing of the heating and heat pump regulator.
3. Switch on the control fuse of the "wall regulator" or connect unit to power supply for "built-in regulator".

Required software version

The Comfort board 2.0 is automatically activated and the corresponding functions are enabled. For this to function, however, the software version of the heating and heat pump regulator must be V1: ≥ 1.30 / F1: ≥ 1.86 / V2: ≥ 1.30 .

- To determine the software version, see the operating manual for the heating and heat pump regulator, "Query system status" section.

If the displayed software version is older than the required value, check for updates and if necessary have an update performed by an authorised member of the technical or customer service personnel.



Functions of the Comfort board 2.0

The Comfort board 2.0 expands the range of functions of the heating and heat pump regulator and can be used for the following purposes:

- Passive or active cooling with additional outputs for extended requirements
- Addressing **either** a swimming pool heating or a photovoltaic system
- Use of solar heating
- Addressing a second and third mixer circuit
- Temperature differential control (for example, for a solar thermal system or for storage tank overturn)
- Control by preset fixed value
- Feed-in of external energy sources
- Supplying external power sources
- Heat quantity measurement (accessory)
- Addressing of a further second heat generator (ZWE 3)



NOTE

Restriction for heat pumps that are connected in parallel mode:
ZWE3 can only be used on the master and only for heating mode.

Program section “Cooling”

Cooling with additional mixing circuits

The Comfort board 2.0 provides the function “cooling” for a mixing circuit 2 and / or mixing circuit 3.

The settings for cooling are made as described under mixing circuit 1.

→ part 2 of the operating manual of the heating and heat pump regulator, program area “Cooling”

The menu items described there are supplemented by the installation of the expansion board for mixing circuit 2 and / or mixing circuit 3.

→ page 27, “Additional parameters in the menu “System settings”



NOTE

If there is only one mixing circuit for cooling, mixing circuit 2 must always be used for the cooling function.

Setting the mode of operation “Cooling”

→ part 2 of the operating manual of the heating and heat pump regulator, program area “Cooling”



CAUTION

With single-room regulation, it must be possible to switch from heating to cooling in automatic mode. A floating contact for such switching of the single-room regulator can be tapped from the terminals FP2.

Only possible if mixing circuit 2 is set to “cool” or “HW+cool”. The circulating pump for mixing circuit 2 must then be connected to terminal HUP or FP1.



Set temperatures

→ part 2 of the operating manual of the heating and heat pump regulator, program area “Cooling”

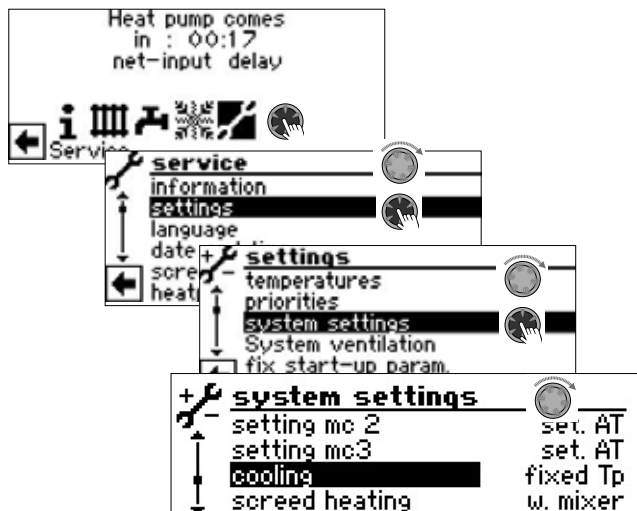
Set parameters

→ part 2 of the operating manual of the heating and heat pump regulator, program area “Cooling”

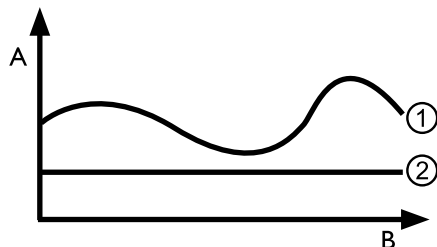
Cooling based on set temperature or depending on outdoor temperature

The cooling can be released based on the outdoor temperature or in accordance with a fixed temperature (= set temperature).

Cooling based on set temperature

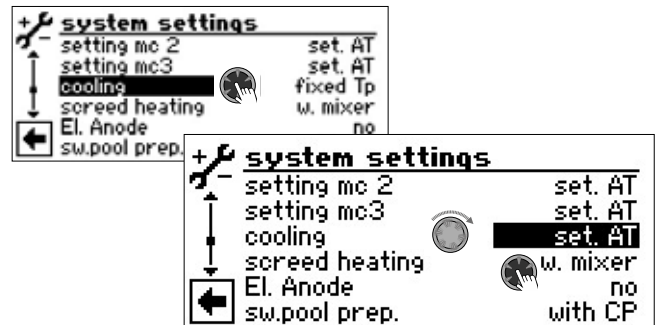


With the “fixed Tp” setting, the supply temperature of the cooling represents the target value set for the mixing circuits:



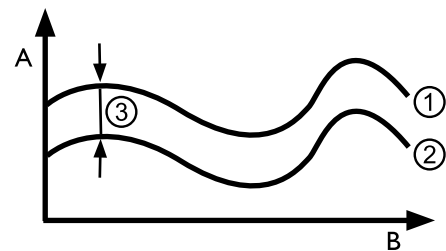
- A Temperature
- B Time
- 1 Outdoor temperature
- 2 fixed Tp (= set temperature mixing circuit)

Cooling depending on outdoor temperature



With setting “set. AT” set temperatures are ignored. Instead, set temperatures are automatically calculated based on the outdoor temperature.

The calculation is based on the value entered in Kelvin under “Outd. T-Dif...” but is restricted to a spread of 1 K – 10 K (adjustable in 0.5 steps).



- A Temperature
- B Time
- 1 Outdoor temperature
- 2 Set temperature mixing circuit
- 3 set. AT (= outdoor temperature difference)



Active cooling with brine/water heat pumps

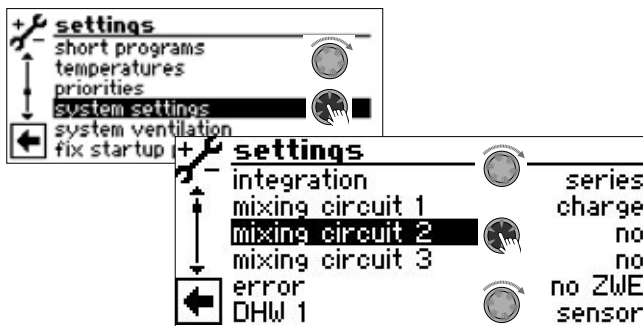
! IMPORTANT

The use of active cooling is generally excluded for brine/water heat pumps that have an integrated passive cooling option.

i NOTE

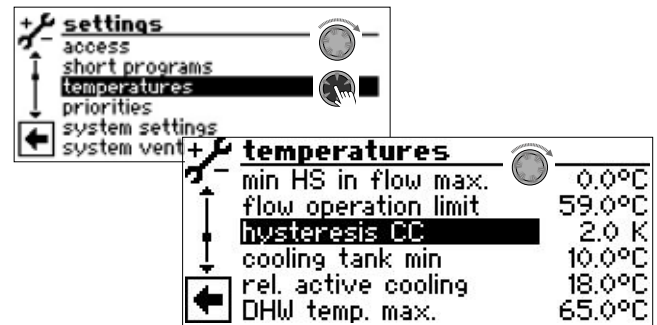
The active cooling function can only be used if the system is utilised in accordance with the corresponding hydraulic diagram. There is otherwise no guarantee that the active cooling with function properly.

Make following settings in the "System settings" area with installer (or customer service) access:

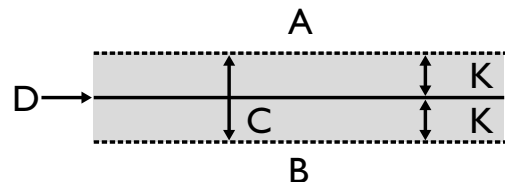


- ✓ mixing circ 2 = cool
- ✓ Service water 3 = with CP
- ✓ Service water 5 = with HSP
- ✓ if swimming pool preparation is used, then "sw. pool prep." = with CP
- ✓ active cooling = Yes

Additional settings are now possible in the "Temperatures" menu:



Hysteresis cool. contr Hysteresis cooling regulator



- A There will be a request for active cooling in this temperature range
- B There will be no request for active cooling in this temperature range
- C Neutral zone
- D Set temperature of mixing circuit
- K Hysteresis in K

min temp revers dev minimum temperature cold storage tank

With active cooling, it is possible, that at the same time the request for active cooling is being made, for example, domestic hot water or swimming pool heating may be taking place.

In this case, the cold storage tank can be cooled to the set temperature before active cooling is interrupted and only domestic hot water or swimming pool heating then prepared by the heat pump.

The active cooling is only started if the temperature TFB2 is above the cold storage tank minimum temperature (min temp revers dev).

The active cooling is only stopped if the active cooling is running and the temperature TFB2 is below the cold storage tank minimum temperature (min temp revers dev).

The cooling release is withdrawn for the time SSP + 60 seconds, causing FP2 and FP3 to switch off and the system can then run for heating, domestic hot water or swimming pool in normal operation.



If the temperature TFB2 is again higher than cold storage tank (min temp revers dev) the active cooling is enabled again.

The set cooling supply runs (1 -10 minutes) if the temperature of the sensor at the heat source inlet > enable temperature of the active cooling (releasing temp ac).

releasing temp ac

Releasing temperature
active cooling

Beginning at the heat source temperature set in this menu, passive cooling switches to active cooling.

The active cooling is enabled as soon as

- enabled by outdoor temperature
- Temperature heat source inlet > Temperature under “releasing temp ac”
- Temperature mixing circuit 2 > Temperature under “min temp revers dev”
- the set cooling flow has expired
- Return flow temperature or external return flow $\leq 45\text{ °C}$

Cooling signal

If the existing hydraulics require a signal in cooling mode (example: If the individual room control is switched from heating mode to cooling mode), outputs FP2 and FP3 of the Comfort board 2.0 can be used:

FP2 (dry contact):

Brine/water heat pump: active cooling

FP3 (230V output):

Brine/water heat pump: passive cooling

Air/water heat pump: passive and active cooling





≡ Program section “Swimming pool heating”



NOTE

With the Comfort board 2.0 you can either control a swimming pool heating system **or** a photovoltaic system, but not both.



NOTE

Swimming pool heating can be started or stopped by means of a thermostat.



NOTE

With parallel mode, the program section “Swimming pool heating” can only be used on slave heat pumps.

In a swimming pool preparation, the heat pump is always active. No second heat generator (ZWE) is released.

Heat pumps with 2 compressors

The second compressor is switched on when the switching cycle inhibit time has elapsed. Unless the flow temperature has already exceeded the temperature set in “Flow 2. CP SP” (→ Service > Settings > Temperatures).

+ temperatures	
TEE heating	2.0 K
TEE DHW	5.0 K
limit. 2. VD pool	50.0°C
hysteresis CC	3.0 K
reduct. 2 VD hyster.	4.0°C
DHW temp. max.	65.0°C

Flow 2. CP SP

Flow 2nd compressor
swimming pool heating

Temperature in the flow of the heat pump at which the 2nd compressor in the swimming pool heating is switched off.

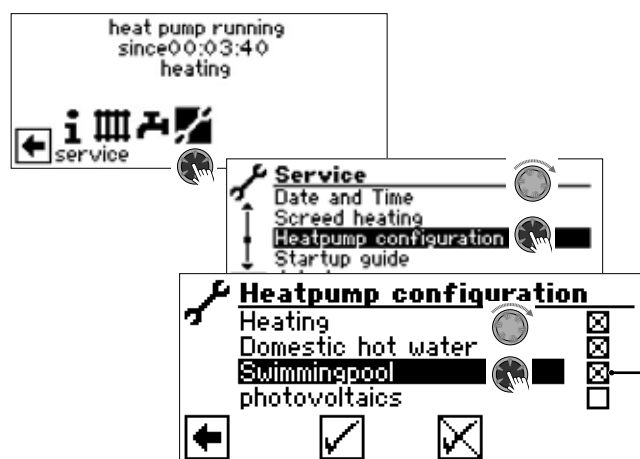
If the second compressor is already running and is switched off via “Flow 2. CP SP”, the current return temperature is stored. If this temperature in the return flow is fallen below by more than 5K during the current swimming pool preparation, the second compressor can be switched on again.

The activation of the second compressor can be shortened via “time 2.CP short” (→ Service > Settings > System settings). The second compressor will then

switch on after the set time if the flow temperature and current spread are lower than the setting “Flow 2. CP SP”. Nevertheless, a heat pump compressor is switched on a maximum of 3 times per hour.

Switch on program section

1. Select “Heatpump configuration” in the “Service” program area. Enabling the “Swimming pool” menu item.



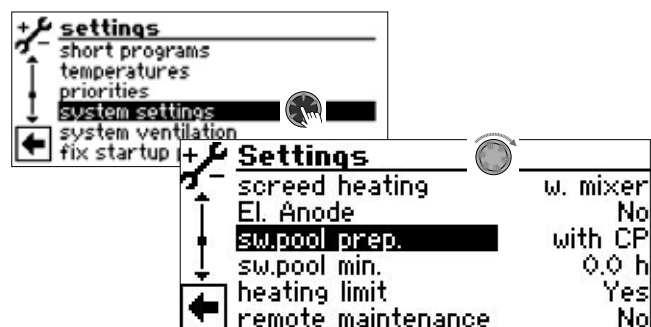
An “X” appears in the box following the menu item “Swimming pool”.

2. Save input by selecting ☒.
3. Then return to the navigation screen. The symbol for the program section “Swimming pool” now appears there:



System settings of Swimming pool heating

1. Set the swimming pool heating options in the "System settings" menu.



sw.pool prep.  Swimming pool heating with CP additional circulating pump in operation during swimming pool heating

wo. ZUP additional circulating pump is switched off during swimming pool heating

sw.pool min  Minimum operating duration of swimming pool heating

Required in the case of a return flow integration so that there is no constant switching between the swimming pool and a higher-priority preparation mode. This means that requests with higher priority (heating, domestic hot water, ...) are ignored during the set time.

2. Scroll down the menu to the "Swimming pool" parameter.



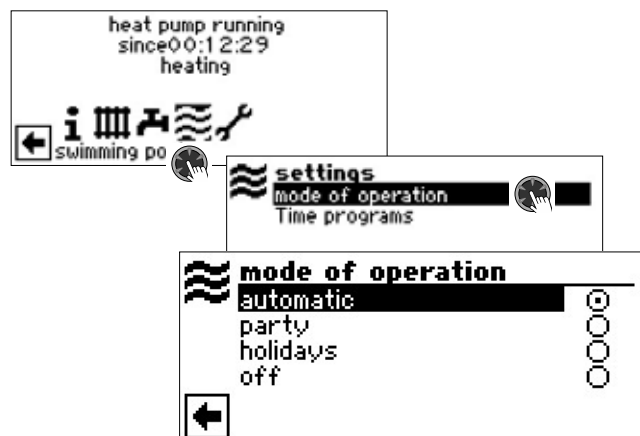
Swimmingpool  Swimming pool heating wo HSP Heating circulation pump is switched off during swimming pool heating

with HSP Swimming pool heating is prepared via heating circulation pump

par. HUP HUP and SUP run simultaneously during swimming pool heating

3. Save input by selecting ☒.

Setting the operating mode for the swimming pool heating



Automatic

Swimming pool heating operates based on programmed times: during the activated period up to the value set at the thermostat; outside of the activated period the swimming pool heating is off.

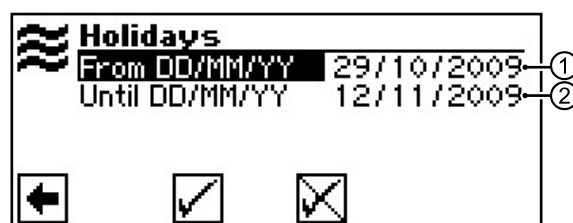
Party

Continuous activation of the swimming pool heating

Holidays

The swimming pool heating is shut off *starting immediately up until the set date or until another operating mode is manually selected.*

If operating mode "Holidays" is selected, the screen switches to the menu "Swimming pool heating Holidays":



- 1 Menu field "Start of holidays"
- 2 Menu field "End of holidays"

Off

The swimming pool heating is shut off.

1. Select desired operating mode.
2. Return to the previous menu.



Setting the time programs for the swimming pool heating



week (mo – su)

Same times for all days of the week

5 + 2 (mo – Fr, sa – su)

Different times during the week and on weekends

days (mo, tu, ...)

Different times for each day

Input of the switching times analogous to “Setting the time programs of the heating circuit”.

→ part 1 of the operating manual of the heating and heat pump regulator, program area “Information and Quick Setting”, section “Setting the time programs of the heating circuit”

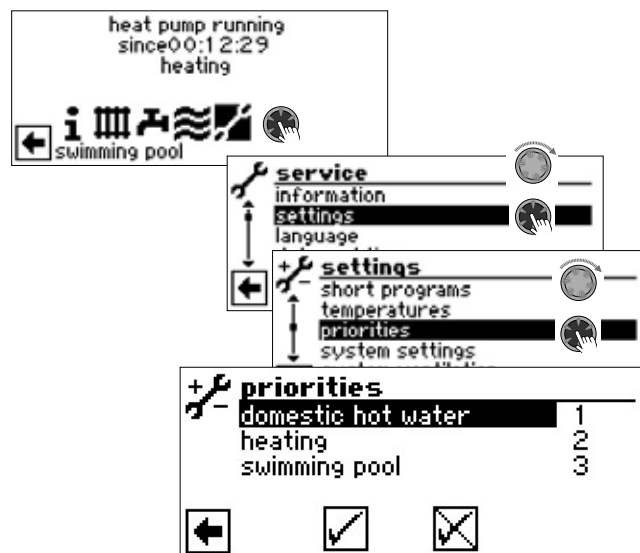


NOTE

When programming, note that the time periods that you set in the section “Swimming pool heating times” are **shut-off times**. The swimming pool heating is switched off during these periods.

The minimum running time of the swimming pool heating is effective both during DHW heating and in heating mode.

Define priority of the swimming pool heating



NOTE

Hot water – as in the example – has top priority in the factory setting. The swimming pool heating is at the bottom (= Priority 3).

1. If you wish to change the priorities of the individual program sections, first select the menu field “domestic hot water”. The corresponding priorities input field is highlighted with a dark background.
2. Change priority for “domestic hot water” by turning the “rotary push button”. As soon as you change the priority for “domestic hot water”, the priorities for “heating” and “swimming pool” also change automatically.
3. After setting the desired priority for “domestic hot water”, exit the input field by pressing the “rotary push button”.
4. To specify the priority of “heating” as opposed to “swimming pool”, select menu field “heating”. The corresponding priorities input field is highlighted with a dark background.
5. Change priority for “heating” by turning the “rotary push button”. The previously specified priority for “domestic hot water” remains; only the priorities for “heating” and “swimming pool” are changed..
6. After setting the desired priority for “heating”, exit the input field by pressing the “rotary push button”.

7. Save input by selecting ☒.

**NOTE**

Menu field “swimming pool” only provides information. No settings can be made here.



Program section “Photovoltaics”



NOTE

As an alternative to swimming pool heating the SWT input of the heating and heat pump controller can also be used for targeted own electricity use via photovoltaics.

However, this presupposes that the heating of the domestic hot water is controlled by a sensor and not by a thermostat (→ Service > Settings > System settings > Service water 1 = Sensor).



NOTE

With parallel mode, the program section “Photovoltaics” can only be used on the master heat pump.

Electrical integration of the photovoltaic function

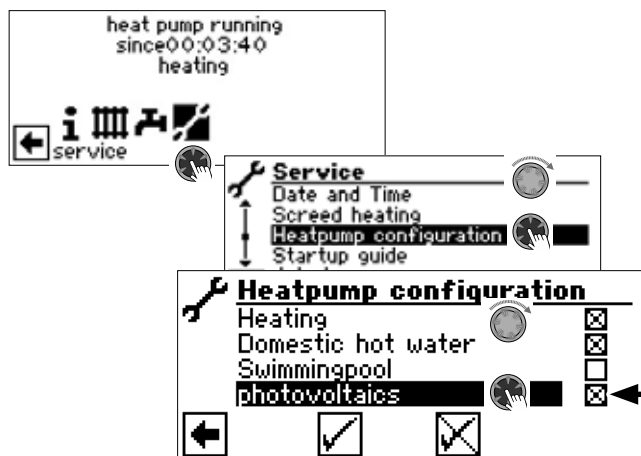
The inverter of the photovoltaic system, depending on the available photovoltaic yield, must be able to output a switching signal for external use via a multifunctional relay.

The Comfort board 2.0 must be connected via the SWT contact to the output signal of the inverter (important: potential-free contact!). If this contact is closed, the photovoltaic function is active.

The signal of the inverter must be set in such a way that the current output power guarantees the operation of the heat pump.

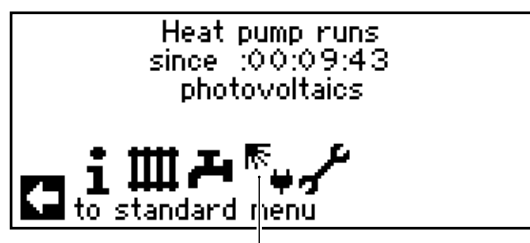
Switch on program section

1. Select “Heatpump configuration” in the “Service” program area. Enabling the “Photovoltaics” menu item.



An “X” appears in the box following the menu item “Photovoltaics”.

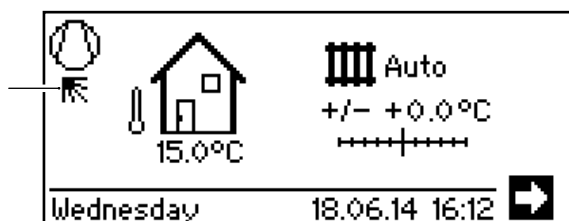
2. Save input by selecting ☒.
3. Then return to the navigation screen. The symbol for the program section “Photovoltaics” now appears there:



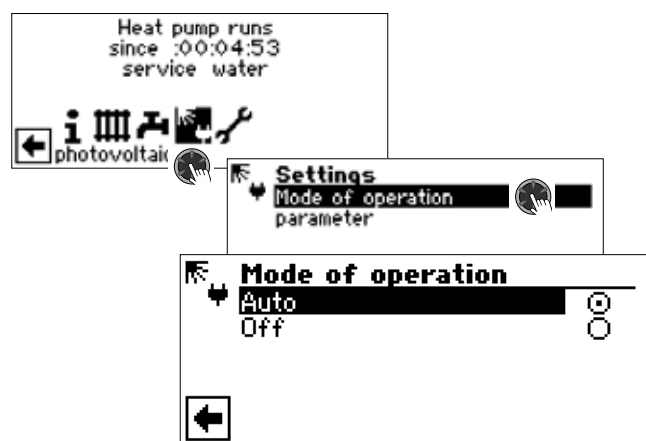
As soon as the system’s own electricity is used either for hot water or heating water, this is displayed in the navigation screen:



In the standard screen the own electricity use is indicated by the symbol  :



Setting the operating mode for photovoltaics



Auto

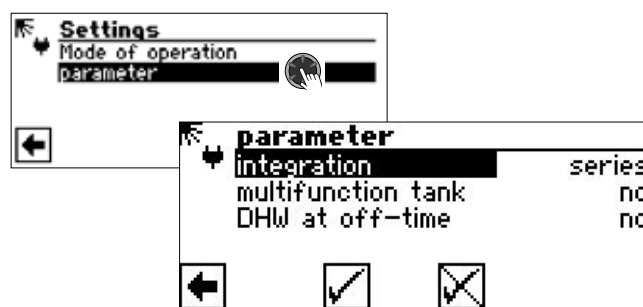
If the switch contact on the SWT/PV input is closed, the photovoltaic function is switched on.

Off

The photovoltaic function is switched off.

1. Select desired operating mode.
2. Return to the previous menu.

Defining the parameters of photovoltaics mode



Integration

Corresponds to the "Integration" parameter under Service > Settings > System settings.

multifunction tank

Multi-functional domestic hot water tank

- No** As soon as the heat pump controller receives a signal from the inverter via SWT, the water is heated up to the maximum flow temperature (heat pump use limit). The hot water temperature reached by then is held with the set hysteresis, as long as the signal from the inverter via SWT lasts (= SWT "On").
- Yes** As soon as the heat pump controller receives a signal from the inverter via SWT, the system runs in heating mode until the set return limit temperature is reached. If the system is switched off via the maximum flow temperature (heat pump use limit) before the return limit is reached, the value reached is set as the new setpoint. If the heating limit has been reached and the heat pump controller receives a signal from the inverter via SWT, the water is heated up to the maximum flow temperature. The hot water temperature reached by then is held with the set hysteresis, as long as the signal from the inverter via SWT lasts (= SWT "On").

dhw during off-time

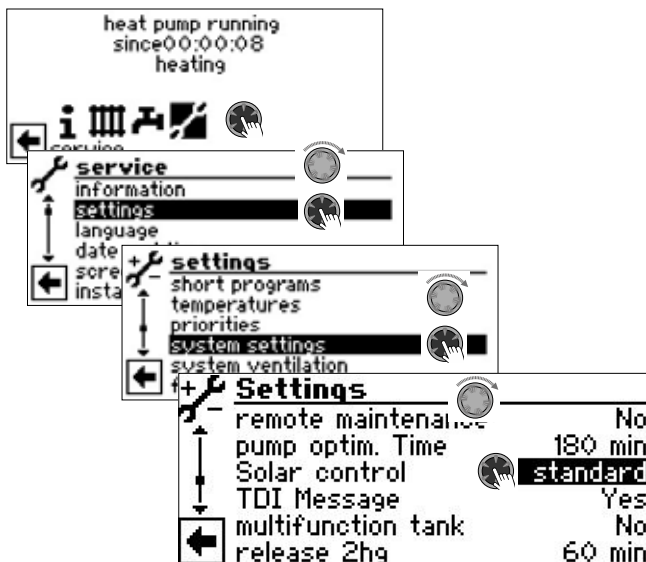
Domestic hot water preparation during off-time

- No** Domestic hot water preparation is subject to the domestic hot water off-time of the time program.
- Yes** If requested during a domestic hot water off-time, the domestic hot water is prepared from photovoltaic electricity (own electricity).

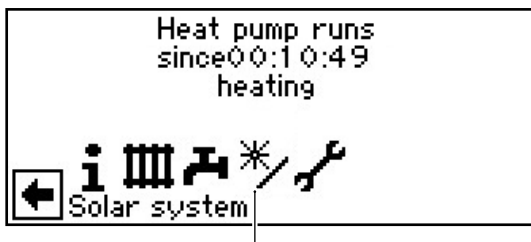


* Program section “Solar heating”

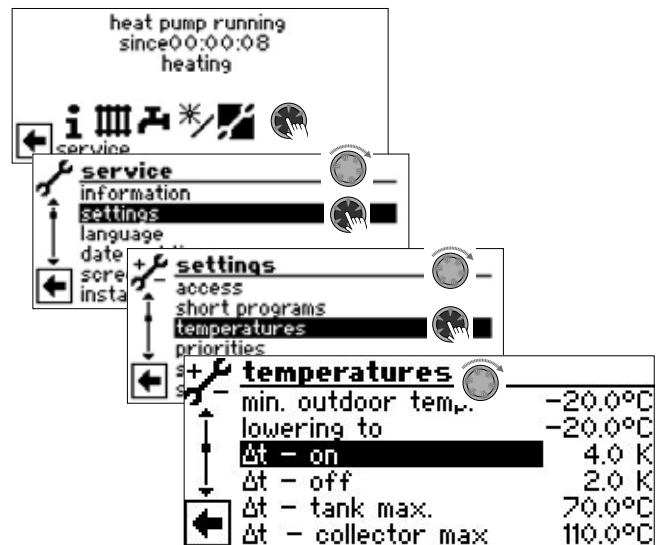
1. Set “solar control” to “standard” (or “Solar-HP”) in the system settings.



2. Scroll to bottom of menu. Save input by selecting ☒.
3. Then return to the navigation screen. The symbol for the program section “Solar heating” now appears there:



Setting temperatures



T-Diff. On Temperature difference On
Solar charge pump is switched on as soon as the temperature in the solar collector exceeds the tank temperature by the set value

T-Diff. Off Temperatur-Differenz Aus
Solar charge pump is switched off as soon as the temperature in the solar collector drops below the tank temperature plus the set value under “T-Diff. Off”

T-Diff. max Temperature difference tank maximum
If this storage tank temperature is reached, the circulation pump stops. In the case of the collector protection function, this temperature is increased by 5 K. If the actual temperature in the storage tank exceeds 95 °C, the circulation pump is generally deactivated and – if possible – it is discharged via the collector (for example, while shaded during the evening hours or at night)

T-diff. coll. max Temperature difference collector maximum
If this collector temperature is exceeded, the collector protection function starts. Here targeted cycles are used to try to lower the temperature at the collector, provided the storage tank temperatures allow this. In this case the heating and heat pump controller may overheat the storage tank by 5 K to the set “T-Diff. Max”



1. Make desired settings.
→ Value ranges: page 30, "System settings of the Comfort board 2.0"

NOTE

If "T-Diff. Max" is set $> 60^{\circ}\text{C}$, increased calcium in the hot water tank can be expected.

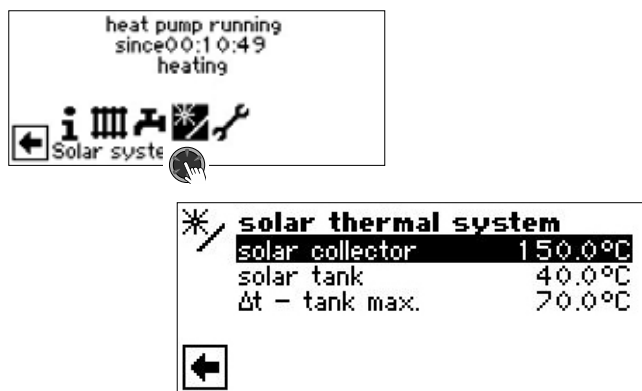
2. Scroll to bottom of menu. Save input by selecting ☒.

Information “Solar heating”

The menu provides information about the current temperatures.

NOTE

In this window, no settings are possible.



Solar coll Solar collector
Solar collector actual temperature

Solar tank
Solar tank actual temperature

T-Diff. max Temperature difference tank
maximum
Maximum temperature difference in the tank



Additional functions in the program area “Service”

The functions provided by the Comfort board 2.0 supplement individual menus in the “Service” program area with corresponding entries.

The software automatically detects the connected heat pump type. Parameters that are not relevant for the conditions of the system and/or the heat pump type are hidden. Some of the parameters documented in this program area may therefore not appear on the screen of your heating and heat pump controller.

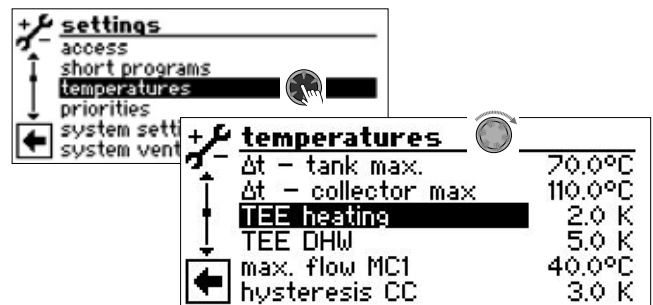
Navigation to and in the individual menus:

→ part 2 of the operating manual of the heating and heat pump regulator, program area “Service”

Supplying external energy sources

Energy can be fed into the heating circuit and the DHW charging circuit from an external storage tank if there is sufficient temperature in the external storage tank. However, this feed only occurs once the system has dropped below the heating hysteresis.

1. In the “Temperatures” menu, select the parameters “TEE ...”.



TEE Heating  Temperature of external energy source Heating

If the temperature in the external energy source (tank) is higher by the set value than the current heating set temperature, the heat pump is switched off. The energy from the tank is mixed with mixing circuit 2 (Setting: “Charge”) and ZWE 3 (Setting: “Boiler”) into the heating system based on the set value.

TEE DHW  Temperature of external energy source Domestic Hot Water

If the temperature in the external energy source (tank) is higher by the set value than the current hot water set temperature, the heat pump is switched off. The energy from the tank is mixed with mixing circuit 2 (Setting: “Charge”) and ZWE 3 (Setting: “Boiler”) into the hot water system based on the set value.

2. Make desired settings.
- value ranges: page 30, “System settings of the Comfort board 2.0”



NOTE

The value set under “TEE DHW” should not be below 5 K, in order to prevent delays in heating of the hot water.

3. Scroll to bottom of menu. Save input by selecting .



Control by preset fixed value

Due to the Comfort board 2.0 the heating and heat pump controller is extended to include the control function according to preset fixed value.

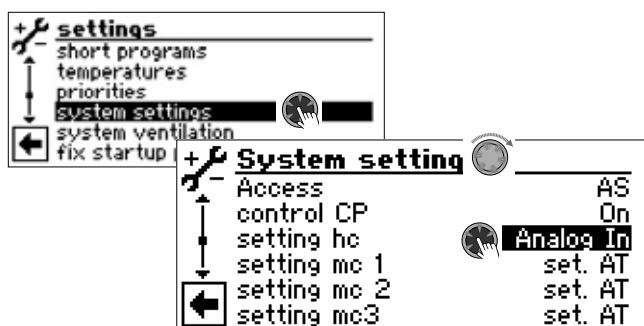
With this control function, which can be set with installer or customer service access, individual return setpoint temperatures (fixed value) can be set. This is done using an external third party controller by means of 0-10 V signal at the "Analog In"-input.



NOTE

The "Control according to preset fixed value" only affects the heating circuit (unmixed).

1. In the menu "Settings", select and activate the menu item "setting hc". Select "Analog In".



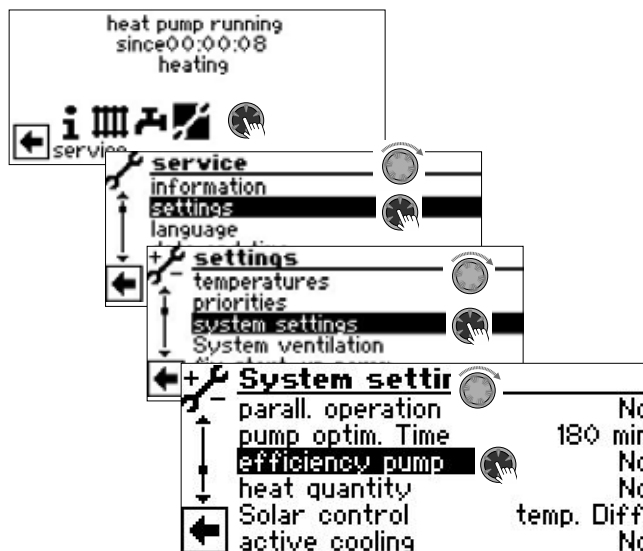
2. Scroll to bottom of menu. Save settings.

An external 0-10 V signal can now be used to preset the following return setpoint temperature as fixed values:

10 Volt	50°C Fixed value
9 Volt	45°C Fixed value
8 Volt	40°C Fixed value
7 Volt	35°C Fixed value
6 Volt	30°C Fixed value
5 Volt	25°C Fixed value
4 Volt	20°C Fixed value
3 Volt	15°C Fixed value
2 Volt	10°C Fixed value
1 Volt	5°C Fixed value
0 Volt	0°C Fixed value

Efficiency pump

1. Activate the "Efficiency pump" function in the system settings.



Efficiency pump

- No Function is switched off.
No energy efficiency pump connected.
- Yes Function is switched on.
Control of an efficient heating circulation pump via 0 – 10V (Analog Out 2)

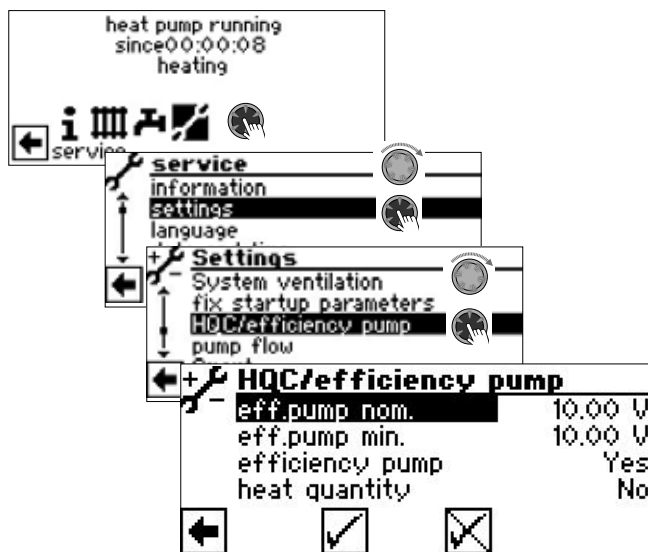


NOTE

The "Energy efficiency pump" function cannot be used with RFV-K or RFV-DK (→ "Roomstation" in the "System settings" menu).



2. Adjust the free compression of the circulation pump (control via PWM signal).



eff.pump nom. Efficiency pump nominal operation
This value is reached when the compressor is running

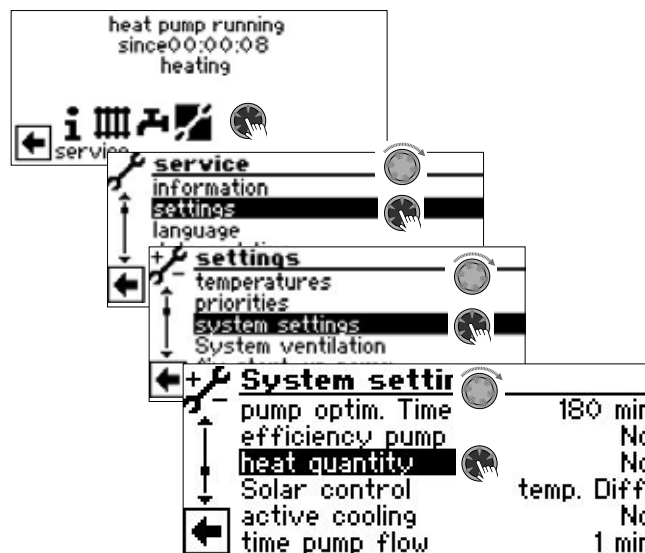
eff.pump min. Efficiency pump minimal operation
This value is reached when the compressor is not running

efficiency pump Menu item corresponds to the setting in the "System settings" menu

heat quantity Menu item corresponds to the setting in the "System settings" menu

Heat quantity and volume flow measurements

Setting up the measurement equipment



Heat quantity

No	Function is switched off (Setting not possible with dual L/W or S/W Professional heat pumps)
V 2-40	Vortex sensor 2-40 l/min
V 5-100	Vortex sensor 5-100 l/min
V 10-200	Vortex sensor 10-200 l/min
V 20-400	Vortex sensor 20-400 l/min
refrigerant circuit	Refrigeration circuit (Setting only possible with dual L/W or S/W Professional heat pumps)

You can find the necessary setting on the sensor head. It must be made in conjunction with the heat quantity measurement in accordance with the information in the corresponding operating manual.



NOTE

The "Heat quantity" function cannot be used with RFV-K or RFV-DK (→ "Roomstation" in the "System settings" menu).



NOTE

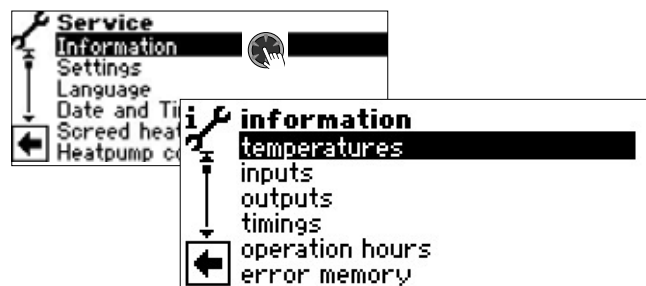
Improper settings will lead to the flow not being correctly recorded; in such a case, the results of the heat quantity recording are unusable.



Query heat quantity

→ part 2 of the operating manual of the heating and heat pump regulator, program area "Service"

Query information



Query temperatures

In addition to the menu items already described in the program areas of the Comfort board 2.0, the following parameters may also be displayed:

MC 2 flow Flow temperature of mixing circuit 2
MC 2 target flow Desired flow temperature of mixing circuit 2

MC 3 flow Flow temperature of mixing circuit 3
MC 3 target flow Desired flow temperature of mixing circuit 3

Solar collector Temperature of solar collector

Solar tank Temperature of solar tank

Ext. Energy source Temperature of external energy source

If „Room stat.“ (→ „System settings“) =

RFV, RFV-K, RFV-DK or RBE:

Room stat. Temperature room remote adjuster mixing circuit 1

Room stat. MC2 Temperature room remote adjuster mixing circuit 2

Room stat. MC3 Temperature room remote adjuster mixing circuit 3

Query inputs

The following additional menu entries are possible:

pool therm. Swimming pool thermostat
 ON Swimming pool heating is being requested
 OFF Swimming pool heating is switched off

if photovoltaic is connected to SWT

ON Photovoltaic function is active
 OFF Photovoltaic function is not active

AI n 21 Analogue input 21
 0.00 voltage input (0 – 10 V)

AI n 22 Analogue input 22
 0.00V voltage input (0 – 10 V)

Query outputs

The following additional menu entries are possible:

2nd heat gen. 3 Second heat generator 3

solar pump Solar charge pump

pool pump Swimming pool circulating pump

Mixer 2 open Mixer 2 opens

ON Mixer 2 opens
 OFF no control

Mixer 2 close Mixer 2 closes

ON Mixer 2 closes
 OFF no control

floor heat.pump 2 Mixing circuit pump 2 / cooling signal 2

Mixer 3 open Mixer 3 opens

ON Mixer 3 opens
 OFF no control

Mixer 3 close Mixer 3 closes

ON Mixer 3 closes
 OFF no control

floor heat.pump 3 Mixing circuit pump 3 / cooling signal 3

AO1 Analogue output 1
 0.00V = voltage output 1 (0 – 10 V)

AO2 Analogue output 2
 0.00V = voltage output 2 (0 – 10 V)

AO21 Analogue output 21
 0.00V = voltage output (0 – 10 V)

AO22 Analogue output 22
 0.00V = voltage output (0 – 10 V)



Query elapsed times

The following additional menu entries are possible:

2 hg 3 since Second heat generator 3 running since

Query operating hours

The following additional menu entries are possible:

operation hours ZWE3 Operating hours
second heat generator 3

operation hours pool Operating hours
Swimming pool heating

Amount PV Operating hours photovoltaics
(= amount share of
operating hours heating and
operating hours domestic hot water)

operation hours solar Operating hours
solar heating

Query heat quantity

The following additional menu entries are possible:

Swimmingpool Recorded heat quantity for
swimming pool heating

Query energy input

The following additional menu entries are possible:

Swimmingpool Consumed energy for
swimming pool heating

Query Smart



NOTE

Menu entry only appears when customer service access is activated and if

- “Roomstat.” is set to “Smart”
- “Smart” controls are set.

The following additional menu entries are possible:

set temperature MC2 settemperature
mixing circuit 2

set temperature MC3 settemperature
mixing circuit 3

UFH total MC2 Underfloor heating Total
mixing circuit 2

UFH open MC2 Underfloor heating open
mixing circuit 2

numb.actual. MC2 Number of radiators
mixing circuit 2

Cur. room temp. MC2 current room temperature
mixing circuit 2

Targ. room temp. MC2 target room temperature
mixing circuit 2

UFH total MC3 Underfloor heating Total
mixing circuit 3

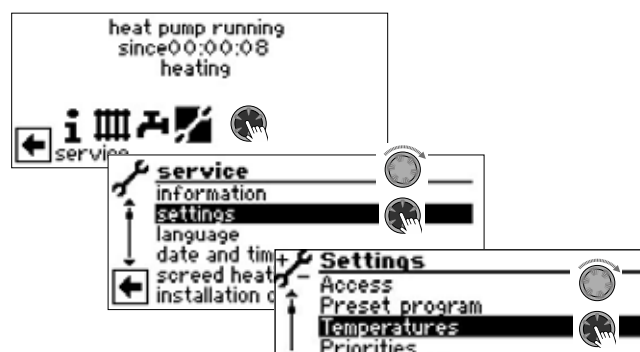
UFH open MC3 Underfloor heating open
mixing circuit 3

numb.actual. MC3 Number of radiators
mixing circuit 3

Cur. room temp. MC3 current room temperature
mixing circuit 3

Targ. room temp. MC3 target room temperature
mixing circuit 3

Additional parameters in the menu “Temperatures”



minimal flow mc2

Minimum flow temperature mixing circuit 2

Will not be exceeded in operation

maximum flow mc 2

Maximum flow temperature after the mixer mc 2

Will only be displayed if mixing circuit 2 is set to “Discharge”. Then the supply sensor on TB2 serves to restrict the supply temperature in accordance with the mixer. This means that If TB2 exceeds the value set here, the mixer is driven in the “closed” direction

minimal flow mc3

Minimum flow temperature mixing circuit 3

Will not be exceeded in operation

maximum flow mc 3

Maximum flow temperature after the mixer mc3

Will only be displayed if mixing circuit 3 is set to “Discharge”. Then the supply sensor on TB3 serves to restrict the supply temperature in accordance with the mixer. This means that If TB3 exceeds the value set here, the mixer is driven in the “closed” direction



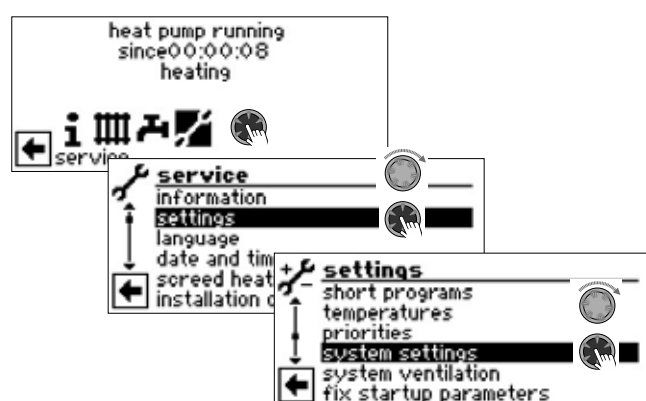
night lowering MC2

Temperature by which the mixing circuit 2 is lowered in night mode compared to day mode

night lowering MC3

Temperature by which the mixing circuit 3 is lowered in night mode compared to day mode

Additional parameters in the menu “System settings”



Room stat.

Room station

- RFV-K** room remote adjuster for heat pumps with cooling
- RFV-DK** room remote adjuster with display for heat pumps with cooling

mixing circ 2

Mixing circuit 2

- Charge** Mixer serves as charger mixer, possibly for a boiler
- Discharge** Mixer serves as a control mixer, possibly for floor heating
- Cool** Activates cooling function
If a mixer is available, it then serves as a control mixer for cooling function
- HW+Cool** Activates cooling function
If a mixer is available, it then serves as a control mixer for heating and cooling function
- No** Mixer without function

mixing circuit 3

Mixing circuit 3

- Discharge** Mixer serves as a control mixer, possibly for floor heating
- HW+Cool** Activates cooling function
If a mixer is available, it then serves as a control mixer for heating and cooling function
- No** Mixer without function

ZWE3 type

Type of second heat generator 3

- No** No second heat generator 3 connected, system operates monovalently (collective fault possible)
- El. Rod.** Electric heating element with bivalent level control for heating element (*not released during the El. sup. blockade*). System operates monovalently
- Boiler** Heating boiler with bivalency level control for boiler connected as second heat generator 3 (*in bivalent level 3 is on continuously, until switched back to bivalent level 2*)



NOTE

If “ZWE 3 Type = Boiler”, mixing circuit 2 must be connected and set as a charging mixer.

ZWE3 function

Function of second heat generator 3

- HW a SW** ZWE3 is hydraulically installed in the heat pump flow. ZWE3 is flown through when the heating or DHW circulation pump is running
- SW** ZWE3 installed in the DHW tank
- No** no ZWE3 connected, system starts monovalent

ZWE3 capacity

Only if ZWE3 = El.Rod

Set value is the basis on which the heat quantity supplied by ZWE3 and the energy consumed by ZWE3 are calculated

Setting mc 2

Control mixing circuit 2

- set. AT** Flow set point temperature is calculated via outdoor temperature
- Fixed Tp.** Flow set point temperature independent of outdoor temperature setting

Setting mc 3

Control mixing circuit 3

- set. AT** Flow set point temperature is calculated via outdoor temperature
- Fixed Tp.** Flow set point temperature independent of outdoor temperature setting

active Cooling

- No** Active cooling remains switched off
- Yes** Active cooling is switched on when cooling is enabled

multifunction tank

Multi-functional domestic hot water tank

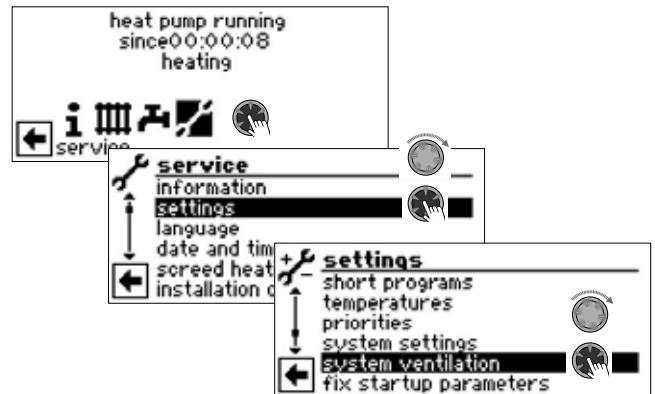
- No** no multi-functional tank present
- Yes** multi-functional tank present



Setting mc 2  speed control mixing circuit 2
fast fast control speed
medium average control speed
slow slow control speed

Setting mc 3  speed control mixing circuit 3
fast fast control speed
medium average control speed
slow slow control speed

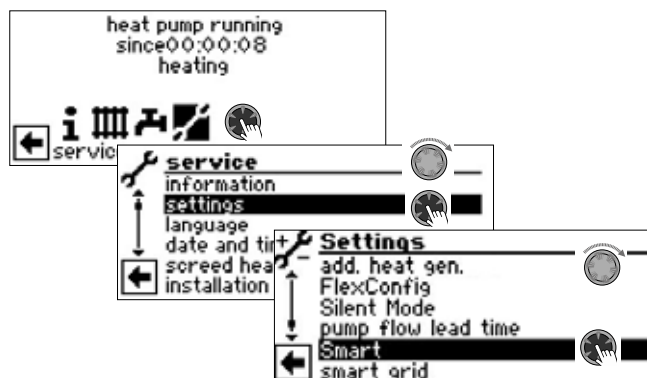
Additional parameters in the menu “System ventilation”



MC open 2 	Mixer 2 opens
MC close 2 	Mixer 2 closes
pool pump 	Swimming pool circulating pump
solar pump 	Solar-Ladepumpe
floor heat. pump 2 	Mixing circuit pump 2
floor heating pump 3 	Mixing circuit pump 3
mc3 open 	Mixer 3 opens
mc3 close 	Mixer 3 closes



Additional parameters in the menu „Smart“



mixing circ 2

- No Smart control switched off
- Yes additional menu entries visible:
 - range + K
 - range - K

mixing circuit 3

- No Smart control switched off
- Yes additional menu entries visible:
 - range + K
 - range - K



System settings of the Comfort board 2.0



NOTE

The software automatically detects the connected heat pump type. Parameters that are not relevant for the conditions of the system and/or the heat pump type are hidden. Some of the parameters contained in this overview may therefore not appear on the screen of your heating and heat pump controller.

Parameter	Factory setting	Adjustment during commissioning *)	Value range (adjustable steps)	Access
Program section "Cooling"				
Outd. TP release	20 °C	°C	15 °C – 35 °C (‡1)	🔑 User
Outd. T-Dif2	5.0 K	K	1.0 K – 10 K (‡0.5)	🔑 User
set temperature MC2	20 °C	°C	18 °C – 25 °C (‡1) integration with "Sep.tank": 5 °C – 25 °C (‡1)	🔑 User
Outd. T-Dif3	5.0 K	K	1.0 K – 10 K (‡0.5)	🔑 User
set temperature MC3	20 °C	°C	18 °C – 25 °C (‡1) integration with "Sep.tank": 5 °C – 25 °C (‡1)	🔑 User
hysteresis cool.contr	L/W: 3.0 K S/W: 2.0 K		1 K – 5.0 K (‡0.5)	🔑 Fitter
Target return cooling	20 °C	K	13 °C – 25 °C (‡0.5)	🔑 User
max. outs. temp.	12 h	h	0 h – 12 h (‡0.5)	🔑 User
min. outs. temp.	12 h	h	0 h – 12 h (‡0.5)	🔑 User
Active Cooling				
Hysteresis cool. contr	L/W: 3.0 K S/W: 2.0 K		0.5 K – 5 K (‡0.5)	🔑 Fitter
min temp revers dev	10 °C		5 °C – 25 °C (‡1)	🔑 Fitter
releasing temp ac	18 °C		5 °C – 25 °C (‡1)	🔑 Fitter
Program section "Swimming pool heating"				
Flow 2. CP SP	50 °C		10 °C – 70 °C (‡1)	🔑 User
sw.pool prep.	with CP		with CP • wo. ZUP	🔑 Fitter
sw.pool min	0.0 h		0.0 h – 5.0 h (‡0.5)	🔑 User
Swimmingpool	wo HSP		wo HSP • with HSP • par. HUP	🔑 Fitter
Program section "Photovoltaics"				
Integration	Return		Return • Sep. tank	🔑 Fitter
multifunction tank	No		No • Yes	🔑 User
dhw during off-time	No		No • Yes	🔑 User
Program section "Solar heating"				
solar control	temp. Diff.		temp. Diff. • standard • Solar-HP	🔑 User
T-Diff. On	4 K		2 K – 15 K (‡0.5)	🔑 User
T-Diff. Off	2 K		0.5 K – 10 K (‡0.5)	🔑 User
T-Diff. max	70 °C		20 °C – 95 °C (‡1)	🔑 User
T-diff. coll. max	110 °C		90 °C – 120 °C (‡1)	🔑 User
Supplying external energy sources				
TEE Heating	2 K		1 K – 15 K (‡0.5)	🔑 User
TEE DHW	5 K		1 K – 15 K (‡0.5)	🔑 User

*) Please enter the adjusted values. Mark not applicable with — .



Parameter	Factory setting	Adjustment during commissioning *)	Value range (adjustable steps)	Access
Control by preset fixed value				
External signal	—		0 V – 10 V (‡1)	🔧 Fitter
Efficiency pump				
Effizienzpumpe	No		No • Yes	🔧 User
eff.pump nom.	10.00 V		3 V – 10 V (‡0.25)	🔧 Fitter
eff.pump min.	10.00 V		3 V – 10 V (‡0.25)	🔧 Fitter
Heat quantity and volume flow measurements				
Heat quantity	device-dependent		No • V 2-40 • V 5-100 • V 10-200 • V 20-400 • refrigerant circuit	🔧 User
Additional parameters in the menu “Temperatures”				
minimal flow MC2	20 °C	°C	20 °C – 40 °C (‡1)	🔧 Fitter
maximum flow MC2	45 °C	°C	25 °C – 75 °C (‡1)	🔧 Fitter
night lowering MC2	0 °C	°C	-15 °C – 10 °C (‡0,5)	🔧 User
minimal flow MC3	20 °C	°C	20 °C – 40 °C (‡1)	🔧 Fitter
maximum flow MC3	45 °C	°C	25 °C – 75 °C (‡1)	🔧 Fitter
night lowering MC2	0 °C	°C	-15 °C – 10 °C (‡0,5)	🔧 User
Additional parameter in the menu “System settings”				
Room stat.	No		No • RFV • RFV-K • RFV-DK • RBE • Smart	🔧 User
mixing circ 2	No		Charge • Discharge • Cool • HW+Cool • No	🔧 Fitter
mixing circ 3	No		Discharge • HW+Cool • No	🔧 Fitter
ZWE3 type	No		No • El.Rod • Boiler	🔧 Fitter
ZWE3 function	No		No • HW a SW • SW	🔧 Fitter
ZWE 3 capacity	device-dependent		0.5 – 27 kW (‡0.1)	🔧 Fitter
setting hc	Set AT		Set AT • Fixed Tp • analog-in	🔧 Fitter
Setting MK2	set. AT		set. AT • Fixed Tp.	🔧 Fitter
Setting MK3	set. AT		set. AT • Fixed Tp.	🔧 Fitter
active cooling	No		No • Yes	🔧 Fitter
multifunction tank	No		No • Yes	🔧 User
Setting MK2	fast		fast • medium • slow	🔧 User
Setting MK3	fast		fast • medium • slow	🔧 User
Additional parameters in the menu „Smart“				
mixing circ 2	No		No • Yes	🔧 User
Range +	0 K		0 K – 5 K (‡1)	🔧 User
Range –	0 K		0 K – 5 K (‡1)	🔧 User
mixing circuit 3	No		No • Yes	🔧 User
Range +	0 K		0 K – 5 K (‡1)	🔧 User
Range –	0 K		0 K – 5 K (‡1)	🔧 User

*) Please enter the adjusted values. Mark not applicable with — .

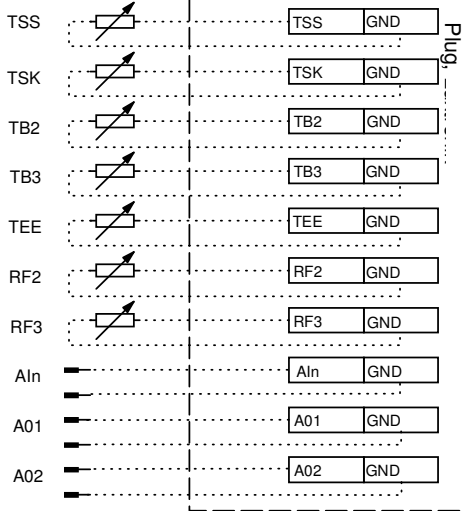
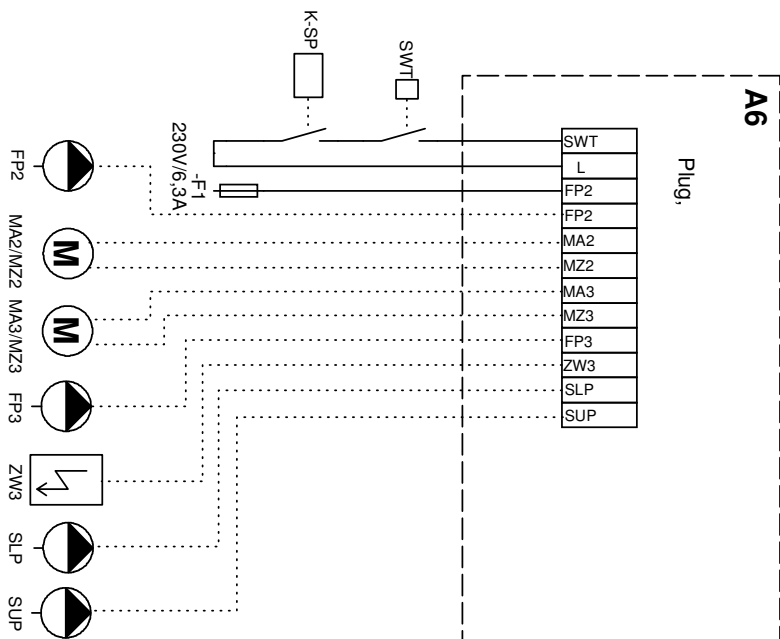


Terminal diagram

! IMPORTANT

For all unit-specific connections, refer to the terminal diagram for the respective unit.

→ Operating manual for the respective unit



Comfort board

Legend:

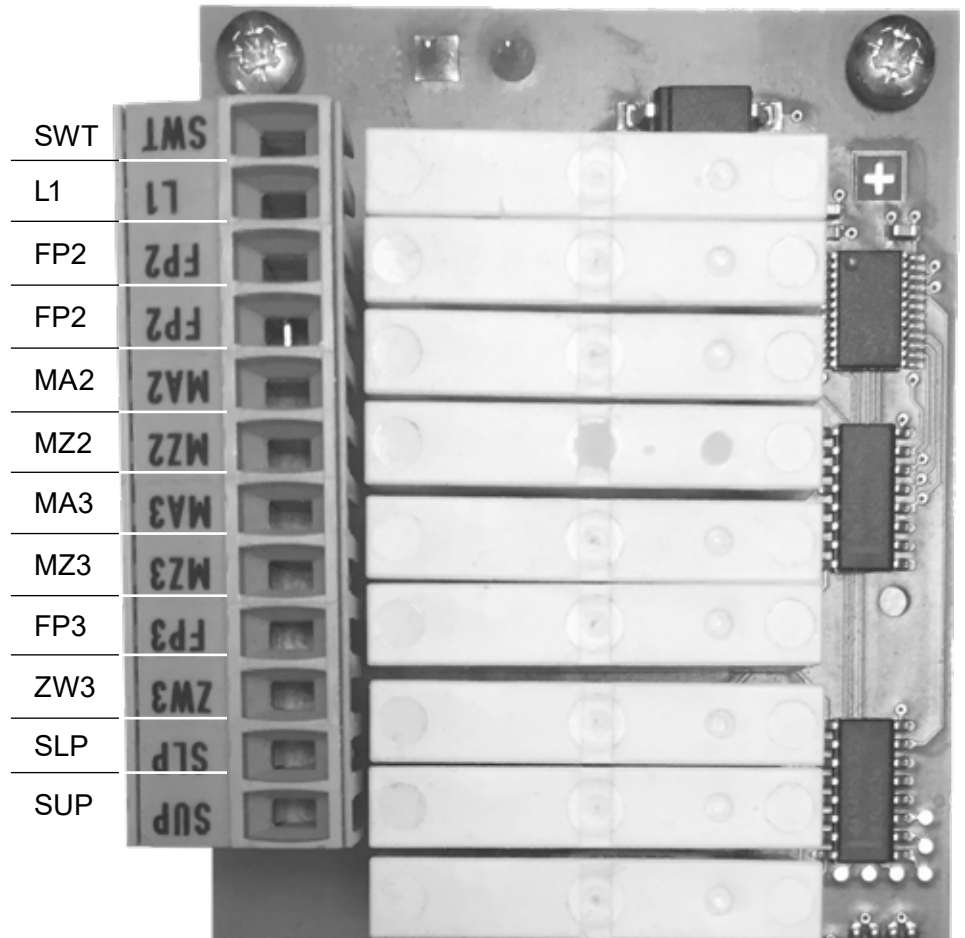
UK831144

Name	Function
A6	Comfort board
F1	Pre-fuse, pump, mixing circuit, 2 max. 230V 6.3AA, dry contact
FP2	Pump, mixing circuit 2, dry contact
FP3	Pump for mixing circuit 3
K-SP	Contactor, secondary pump
L	230V
MA2/MZ2	Charge/discharge/cooling mixer
MA3/MZ3	Charge/discharge/cooling mixer
SLP	Solar charge pump
SUP	Swimming pool, circulating pump
SWT	Swimming pool, thermostat
ZW3	Control signal, additional heat generator 3
AIN	Analogue input 0-10V / 0-20 mA
A01	Analogue output 1 0-10V
A02	Analogue output 2 0-10V
RF2	Room station, mixing circuit 2
RF3	Room station, mixing circuit 3
TB2	Sensor mixing circuit 2
TB3	Sensor mixing circuit 3
TEE	Sensor, external energy source
TSK	Error solar collector
TSS	Error solar tank

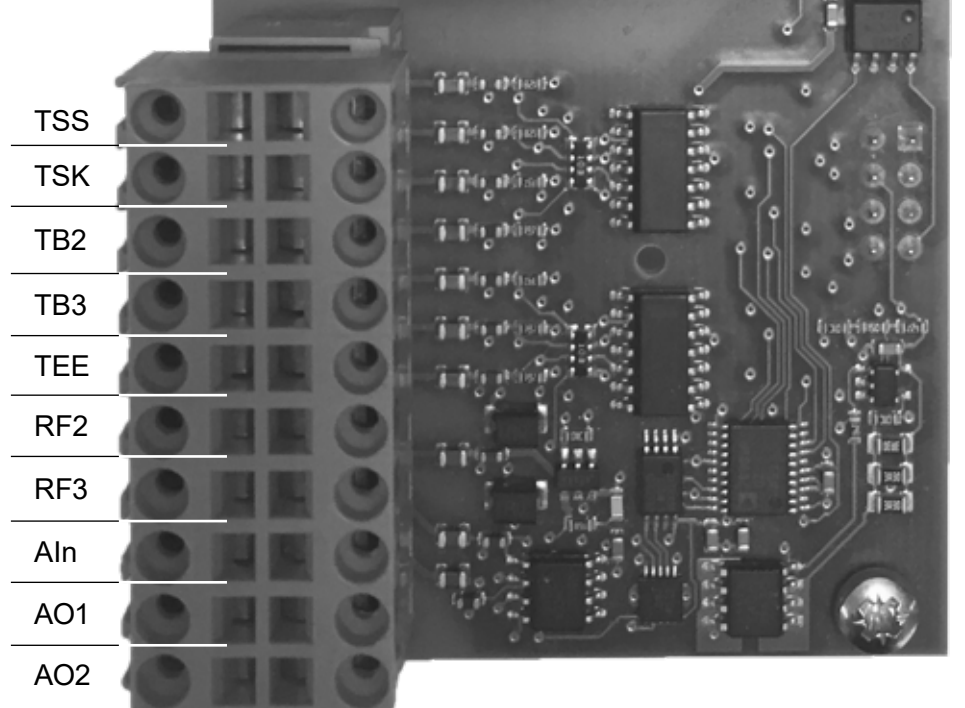


Connections on the Comfort-Platine 2.0

230 V Inputs and outputs



Inputs temperature sensors
as well as
analog inputs and outputs



Keys:

→ page 32, "Terminal diagram"



Measuring range of Comfort board 2.0 sensors

- Part 2 of the operating manual of the heating and heat pump regulator, Appendix, section „Technical Data“, „Sensor measuring range“.



Abbreviations (selection)

Abbreviation	Meaning
2nd heat gen.	Second (additional) heat generator
ac	active cooling
Aln	Analogue input
AO	Analogue output
BUP	Circulation pump domestic hot water
circ.	Circuit
coll.	Collector
CP	Compressor
Cur. room temp.	Current room temperature
DHW	Domestic hot water
eff.pump	Efficiency pump
El. Rod.	Electric heating element
Ext.	External
fixed Tp	set (fixed) temperature
FP	Circulation pump mixing circuit
heat.	heating
HP	Heat pump
HSP	Circulation pump heating
HUP	Circulation pump heating
HW	Hot water (heating)
MC	Mixing circuit
numb.actual.	actual number
Outd.TP	Outdoor temperature
outs. Temp.	Outdoor temperature
RFV	Room remote adjuster
Room stat.	Room station
set. AT	Outdoor temperature difference
SP	swimming pool heating
SUP	Circulation pump swimming pool
SW	Domestic hot water
sw.	swimming pool
sw.pool prep	minimum operating duration of swimming pool heating
Targ. room temp.	Target room temperature
T-Diff.	Temperature difference
TEE	Temperature of external energy source
temp	temperature
therm.	Thermostat
UFH	Underfloor heating

Abbreviation	Meaning
VBO	Ventilator, well or brine circulating pump
WP	Heat pump
ZIP	Circulation pump
ZUP	Additional circulation pump
ZWE	Second (additional) heat generator

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