Operating manual
Aeroplus 2.1 part 2
Heat pump controller

AC ● Cooling ● Heating

Please read first

This operating manual is part 2 of the 2-part operating manual for the heating and heat pump controller. Ensure that you have part 1 of this operating manual. If part 1 is missing, request it from your supplier

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.

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.

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

Symbols

Information for operators.

Information or instructions for qualified technicians and authorised service personnel.

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

DANGER!
Indicates danger to life due to electric current!

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.

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

NOTICE
Emphasized information.

ENERGY SAVINGTIP
Indicates suggestions that help to save energy, raw materials and costs.

Users and qualified technicians can set data.

Authorized fitter can set data; password required.

Authorised service personnel can set data. Access via USB stick only.

Factory pre-setting, no data change possible

Reference to other sections in the operating instructions.

Reference to other documents of the manufacturer.

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Scope of delivery

ⓘ **NOTICE**
Function-critical temperature sensors (return, inlet, hot gas) are installed in the heat pump and are not part of the scope of supply of the heating and heat pump regulator.

The heating and heat pump regulator is supplied in two variants. The variant supplied is dependent on the device type of the heat pump to the controlled.

INSTALLED CONTROL SCOPE OF SUPPLY

In the case of devices for internal mounting, the control card of the heating and heat pump regulator is integrated in the relevant device as an "installed control". The "installed control" scope of supply is included in the scope of supply of the device for internal mounting.

- Heating and heat pump regulator,
- consisting of control card (with terminals) and operating element (with status display, screen and "rotary pushbutton").
- External sensor for the surface mounting.
- operating manual.
- "Brief description of the heat pump control".

WALL CONTROL SCOPE OF SUPPLY **CP 45a, CI 16a**

In the case of devices for external mounting, the control card of the heating and heat pump control is not integrated in the rele-vant device. The "wall control" scope of supply is not included in the scope of supply of the device for external mounting.

- Heating and heat pump control for surface mounting,
- consisting of control card (with terminals), housing and operating element (with status display, screen and "rotary push-button").
- Wall mounting materials (drill template, screws, dowels for solid masonry).
- External sensor for the surface mounting.
- Operating instructions.
- "Brief description of the heat pump control".

What to do first:

① Check the supplied product for signs of external damage during delivery…

② Check that nothing is missing from the scope of supply. Immediately submit a complaint in the event of delivery defects.

Montage

INSTALLING THE INSTALLATION CONTROL

In the case of devices for internal mounting, the control card of the heating and heat pump is integrated in the electrical switch cabinet of the device.

📖 Operating instructions of your heat pump, assembly of the operating element

ASSEMBLY OF THE WALL CONTROL **CP 45a, CI 16a**

For all work to be carried out:

ⓘ **NOTICE**
Observe the locally-applicable accident prevention regulations, statutory provisions, ordinances and directives.

⚠ **WARNING!**
Only qualified technicians may mount the heating and heat pump control.

① Position the drill template at the point where the heating and heat pump control is to be located…

❗ **ATTENTION**
Check the potential mounting location for concealed wiring. Position the drill template in such way that no concealed wiring can be drilled into or damaged during the subsequent assembly work.

ⓘ **NOTICE**
You need to ensure ≥ 2 cm free space to the right and left of the drill template, so that there is enough space for the side fastening screws of the housing cover.

② Fix drill template onto the wall with adhesive tape, drill holes (Ø 6 mm, depth ≥ 55 mm)…
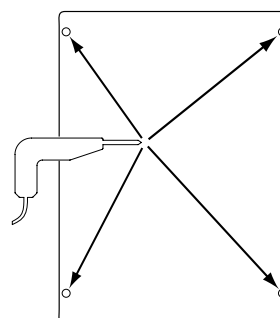
③ Take drill template off the wall, insert dowels in the holes, screw in screws (spacing from the substrate to the screw head approximately 10mm)…

ⓘ **NOTICE**
The wall mounting material included in the scope of supply requires solid masonry.

④ Loosen right and left fastening screw of the housing cover for the heating and heat pump control…
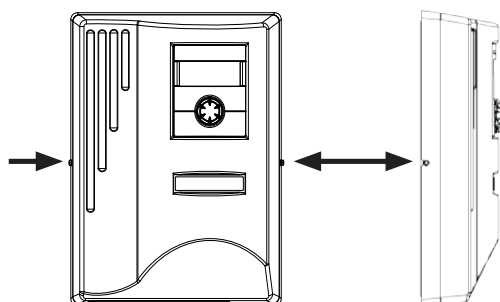
⑤ Remove housing cover and set aside in a safe place…

⑥ Hang the heating and heat pump control into the screws on the wall. Tighten the screws….

| 1 | 2 |
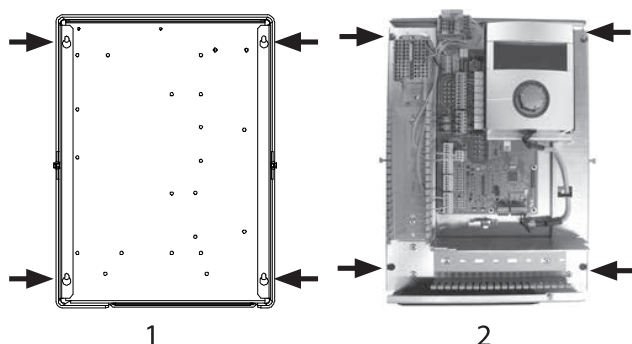
1   Rear view   2   Front view

⑦ If the electrical installation is not to be carried out immediately afterwards: Put the housing cover back on and tighten the side fastening screws.

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!

⚠ **WARNING!**
During installation and while carrying out electrical work, comply with the relevant EN-, VDE and/or local safety regulations.
Comply with technical connection requirements of the responsible power supply company (if required by the latter)!

Follow the information in the operating instructions of your heat pump for establishing the electrical connections.

📖 Operating instructions of your device, "Electrical Connections", "Terminal Diagram" and "Circuit Diagrams" for your device type

ⓘ **NOTICE**
Internal fuse 6,3AT.

INSTALLATION OF THE WALL CONTROL

① If not yet carried out: Remove housing cover of the heating and heat pump control…

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1. Terminal block for 1~/N/PE/230 V voltage supply
2. EVU bridges (must be removed when connecting a floating contact)
3. TRL return sensor terminal (on NTC8)
4. Cable ducts with covers (covers now shown here in the figure)
5. Cable entry with folding bracket
6. Fastening screw of the folding bracket
7. Terminal (X10 Modbus) for BUS cable to the outdoor unit
8. Slot for optional "2.1-EP" circuit board
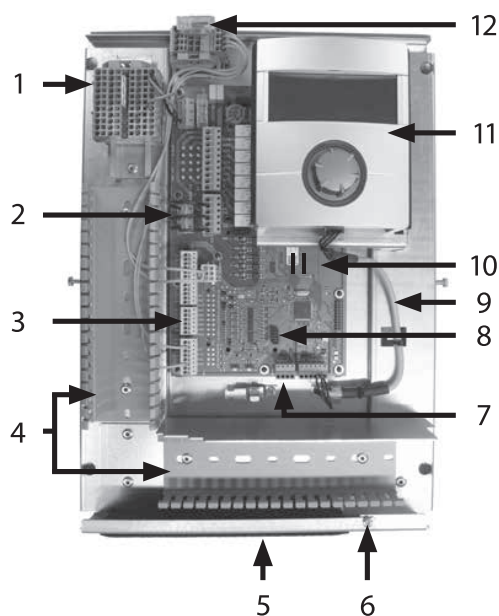9. LIN-BUS communication cable between control board and control unit (wired in the factory)
10. Control card of the heating and heat pump control
11. Operating element
12. Connection for circulation pump PWM control signal

② Loosen fastening screw of the folding bracket for the cable entry and pull the folding bracket downwards until it is possible to fold away upwards. Fold folding bracket upwards and away to the side …

③ Remove covers from the cable ducts…

④ Connect the BUS communication cable, which leads to the heat pump, to terminal X10 of the controller board…
Then route the BUS communication cable downwards and through the cable ducts and through the cable entry to the outside…

! ATTENTION
The BUS communication cable and power cables must be laid with a spacing > 10 cm between them.

⑤ Connect the 230 V voltage supply line to the voltage supply terminal block…

ⅈ NOTICE
Internal fuse 6.3AT.
The terminal block has spring-type terminals to maximum 2.5 mm2.
Insulate the cable jacket so that the jacket end is located between the sealing lip and cable duct..

⑥ Connect the 230 V power supply for the outdoor unit to the terminal block and route it downwards through the cable ducts and through the cable entry to the outdoor unit outside…

⑦ Connect the PWM control signal for the circulation pump to the terminal block --X10…

⑧ A separately packed return sensor (TRL) with appropriate installation materials is enclosed with the air/water heat pump for outdoor installation. Use cable ties and heat transfer compound to fix the return sensor to the return (heat-conducting pipe) to the heat pump as shown in the figure and connect (to NTC8) as shown in the circuit diagram…
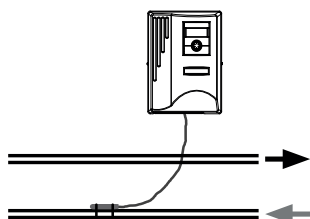
Basic wirng:
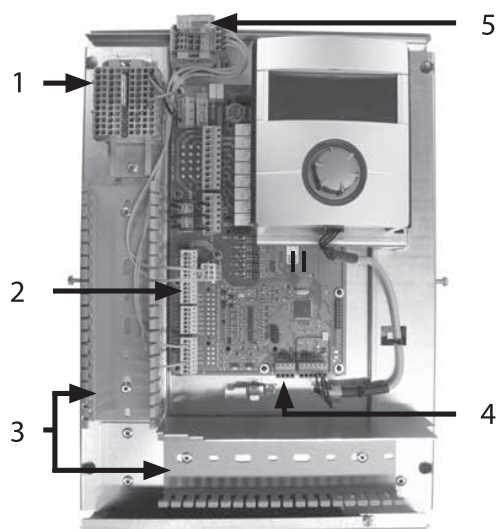
1. Connected 1~/N/PE/230 V power supply for wall-mounted controller and outdoor unit
2. Connected TRL return sensor (on NTC8)
3. Laying cables in the cable ducts
4. Connected BUS communication cable
5. Connected PWM control signal for circulation pump

⑨ If necessary, install additional external cables…

📖 Instruction manual for your appliance, "Connection layout" and "Circuit diagrams" for your appliance type

ⅈ NOTICE
The inputs and outputs on the control board are assigned as shown on the device's terminal connection diagram. In addition, the assignment is shown on the inside of the housing of the wall-mounted controller.
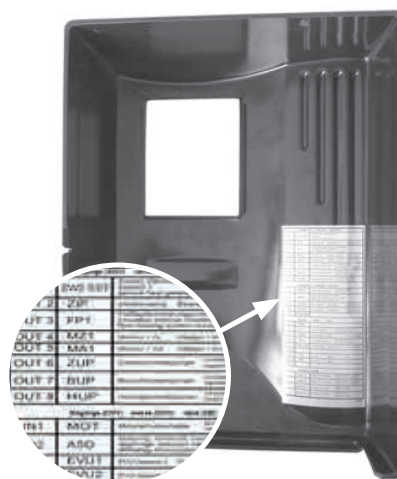
⑩ Place covers on the cable ducts. Swivel folding bracket of the cable entry back into the initial position and allow to latch into place below the fastening screw. Tighten fastening screw…

⑪ Put the housing cover back on and tighten the side fastening screws..

❗ ATTENTION

Route all lines that you connect to the heating and heat pump control outside the heating and heat pump in a cable duct (necessary for strain relief; to be realised at the customer).

❗ ATTENTION

The BUS communication cable must be laid at a spacing > 10 cm from other cables. Therefore, lay with the appropriate spacing in a separate cable duct.
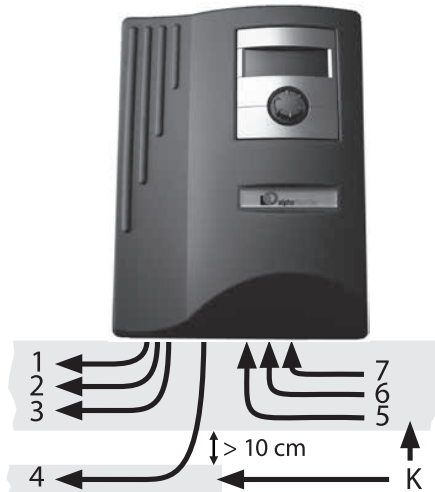
1   230 V power supply to the outdoor unit
2   PWM control signal for circulation pump
3   other 230 V outputs (circulation pumps, mixers, etc.)
4   BUS communication cable to the outdoor unit
5   Sensor cables including the TRL return sensor on the return to the heat pump
6   other 230 V inputs (electricity outage etc.)
7   1~/N/PE/230V power supply (to the terminal block); cable cross-section max. 2.5 mm², internal fuse 6.3 AT
K   Cable ducts

📖   Installation instructions for this in the operating instructions of your heat pump.

CONTROL UNIT VARIANTS

Depending on the heat pump type, the control unit integrated in the heating and heat pump controller is equipped with the following interfaces:

TYPE 1
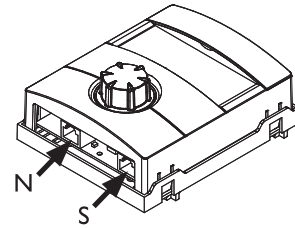
N   Network
S   Connection to the control board

TYPE 2
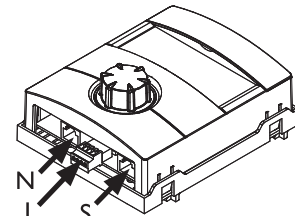
N   Netwoerk
L   LIN-BUS
S   Connection to the control board

TYPE 3
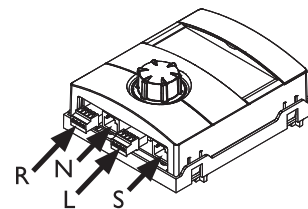
R   RS485 for connecting the room control unit (RBE)
N   Network
L   LIN-BUS to the control board
S   not assigned, AH CI...i, AH CI...is, AH CI...a Mod-Bus

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ASSEMBLY AND INSTALLATION OF SENSORS

The external sensor is a function-critical accessory and included in the scope of supply.

ℹ️ **NOTICE**
If the external sensor is not installed or defective, the heating and heat pump regulator automatically sets the external temperature to -5 °C. The status display of the operating element lights up red, the screen of the operating element reports a fault.

❗ **ATTENTION**
Mount the external sensor on the north or northeast side of buildings. The sensor must not be exposed to direct sunlight.

① Open the housing of the external sensor and align ≥ 2 m over the base of the fastening point. **The cable gland must point to the base**…
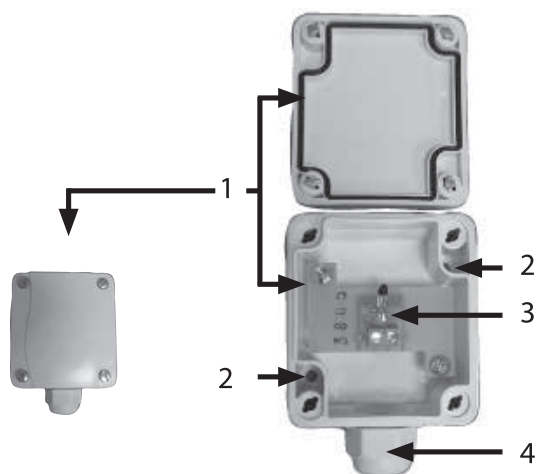
1 xternal sensor housing
2 Fastening holes
3 Cable gland
4 External sensor

② Pencil on fastening holes and drill, insert dowels and screw housing of the external sensor onto the wall…

ℹ️ **NOTICE**
Dowels and screws for fastening the external sensor are not included in the scope of supply.

③ Loosen cable gland from the housing of the external sensor, lead the 2-wire cable (Ø ≤ 1.5 mm² per wire, cable length ≤ 50 m) through the cable gland into the housing…

④ Clamp on cable, tighten cable gland and close the housing of the external sensor.

HOT WATER SENSOR

The domestic hot water sensor is an optional accessory and only functionally-relevant for a separate domestic hot water tank. You may only use domestic hot water sensors which have been approved by the manufacturer of the heat pump..

❗ **ATTENTION**
The domestic hot water tank must be filled before connecting the domestic hot water sensor to the heating and heat pump regulator.

If not already prepared at the factory, mount the domestic hot water sensor (Ø = 6 mm) on the halfway level of the domestic hot water tank – and always above the internal heat exchanger of the domestic hot water tank.
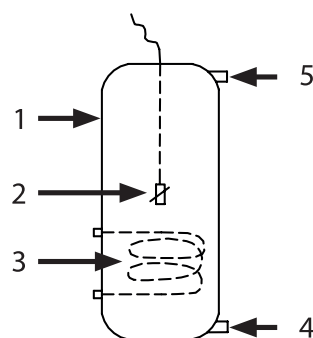
1 Hot-water tank
2 Domestic hot water sensor (Ø = 6 mm)
3 Heat exchanger
4 Cold water connection
5 Domestic hot water connection

EXTERNAL RETURN FLOW SENSOR

The return flow sensor (optional accessory) is functionally-relevant for hydraulic integration of an isolating tank (multifunction tank …). This has to be installed as follows:
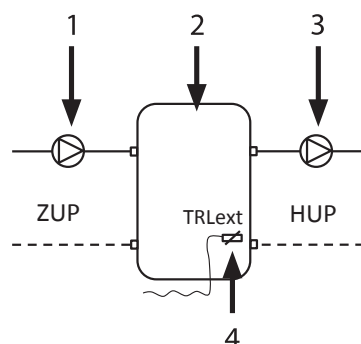

1 Separation or multi-functional storage tank
2 Circulation pump in the separation storage tank (heat pump circuit)
3 Circulation pump from the separation storage tank (heating circuit)
4 External return sensor (Ø = 6 mm)
ZUP Charging loop, heat pump
HUP Discharging loop, heating circuit

Connect the return flow sensor coming from the isolating tank to the circuit board of the heating and heat pump regulator.

Dismantling

> ⚡ **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!**

REMOVAL OF THE BUFFER BATTERY

> ❗ **ATTENTION**
> Before scrapping the heating and heat pump regulator, remove the buffer battery on the main board. You can use a screwdriver to remove the battery from its bracket. Dispose of battery and electronic components in keeping with environmental considerations.

Softwareupdate

A software version < V2.63 must no longer be loaded on a unit (only CN) with software version ≥ V2.63..

Output-controlled air/water heat pumps may only be operated with software version V3.xx and higher..

Commissioning / Switching on for the first time

When switched on for the first time the language selection appears first.

> 📖 Select the display language: part 1 of the conroller manual, section "Basis information on the operation".

You see:

When the heat pump is switched on for the first time the above display appears.
The display always appears when the controller is switched on or on changing to the standards menu. This screen is no longer displayed if the heat pump or ZWE1 has more than 10 operating hours.

No ZWE (second heat generator) is released by the controller until the display is confirmed with OK.

> ⓘ **NOTICE**
> No heat generator runs during a cold start of air/water heat pumps.

> ❗ **ATTENTION**
> The unit can be damaged if the display is confirmed with OK, although the system is not properly filled.

On switching on the controller voltage, under certain circumstances the following is displayed:

After deleting this display the unit can be operated properly. Otherwise test the 3 pole cable for the BUS connection.

The following display then appears:

> ⓘ **NOTICE**
> The heating phase until the compressor starts can take several hours when starting up air/water heat pumps for the first time.

ℹ **NOTICE**

In the case of CN units the flow is monitored while the pump is running. If the flow is not ok, the heat pump does not start up and no error is displayed. To this end, check the ASD input, if it is not set to ON the flow is too low.

Smart Grid

Use of the Smart Grid option depends on the unit type and software version.

If you have any questions regarding the availability of the Smart Grid functionality in your electricity tariff, please contact your electricity supply company

The function is connected via two contacts of the utility lock, from which four possible operating states result.

. ⓘ **NOTICE**

  If utility lock is applied, the Smart Grid functional may not be activated.

ADJUSTABLE UNDER SYSTEM SETTINGS:
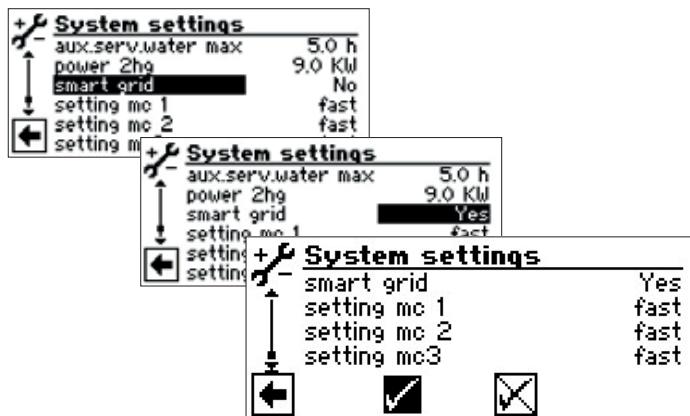
Current operating state visible under Information->Inputs
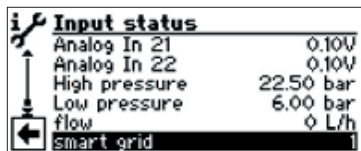
Operating state 1 (1:0)

Corresponds to the current utility lock.

Operating state 2 (0:0) - deviation from standard control behaviour:

 The heat pump operates exclusively within the range of the setpoint hysteresis (i.e. below the setpoint).

Heating: If the system temperature drops to below the lower hysteresis, the heat pump is switched on and heats the system up to the setpoint. The upper hysteresis is ignored. The heat pump only heats until there is no longer any need to worry about possible comfort losses. Domestic water heating takes place as normal.

Operating state 3 (0:1) - corresponds to standard control behaviour:

The target temperature is the set setpoint temperature for heating and domestic hot water. These set temperatures are held taking into account the respective hystereses.

Operating state 4 (1:1) - deviation from standard control behaviour:

The heat pump operates exclusively within the range of the setpoint + hysteresis (i.e. above the setpoint).

Heating: If the system temperature drops to the setpoint, the heat pump is switched on and heats the system up to the setpoint + hysteresis points

DHW: The controller generates a positive hysteresis whose magni-tude is equal to the lower hysteresis and regulates in this area (set temperature + upper hysteresis).

FOR AH CI...i, AH CI...is, AH CI...a and AP CP

```
                    A1
        ┌─────────────────────────────┐
        │   -X4        -X3-2           │
        │  ┌────┐   ┌──────────────┐   │
        │  │L1 L1 L1│ L IN1 IN2 IN3 IN4 IN5│ │
        └─────────────────────────────┘
```

A3

SG1

SG2
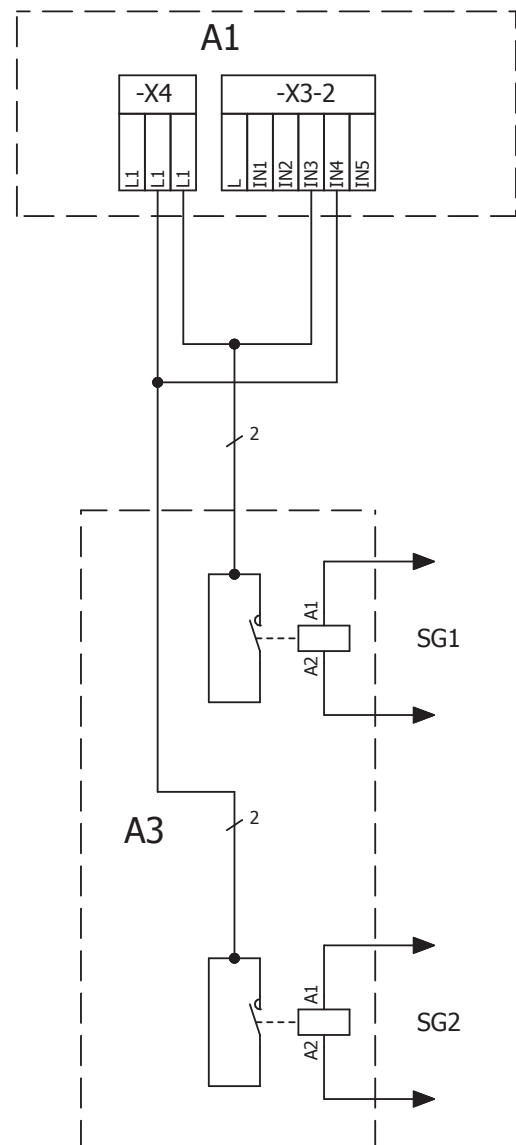
Legend:

Equipement		Function
A1		Controller board; Attention: I-max = 6,3A/230VAC
A3		Sub-distribution unit internal installation
SG1	IN3	Smart Grid activation 1
SG2	IN4	Smart Grid activation 2

⚒ Program area "Service"

SELECT PROGRAM AREA
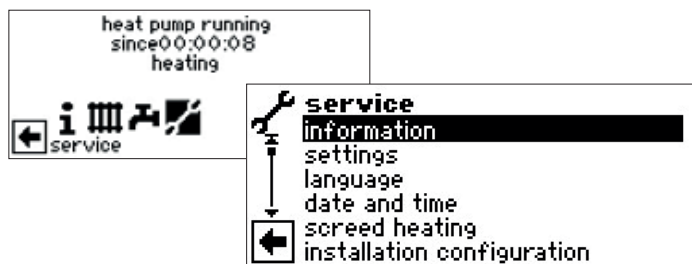
QUERY INFORMATION
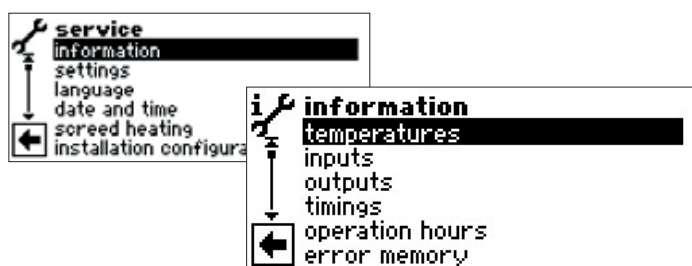
QUERY TEMPERATURES
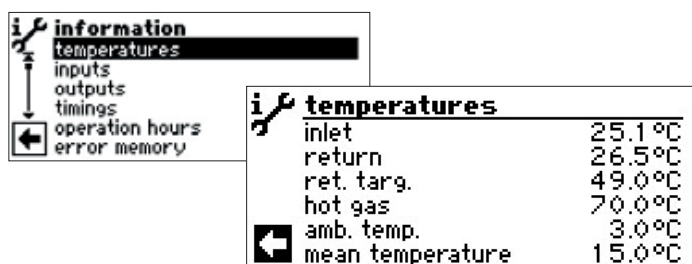
The menu is not shown in full here. Further menu items appear if you scroll down the screen.

Inlet	Flow temperature heating circle
Return	Return flow temp. of heating circle
Ret. targ.	Return setpoint heating circle
Return external	Return temp. in separate tank.
Hot gas	Hot gas temperature
amb. temp.	External temperature
Mean temperature	Average temperature outside over (function heating limit)
Act. service water	Domestic hot water actual temperature
Targ. service water	Domestic hot water target temperature
Heats in	Heat source inlet temperature
Heats out	Heat source outlet temperature
Mixing circle 1 fore.	Mixing circle 1 Forward flow temperature
Mixing circle 1 desir.	Mixing circle 1 Forward flow set temperature

Room temperatures   Is displayed if the room control unit is connected

In addition – depending on the unit type of the connected heat pump – the cooling circuit information provided by sensors in the cooling circuit appears here.

QUERY INPUTS
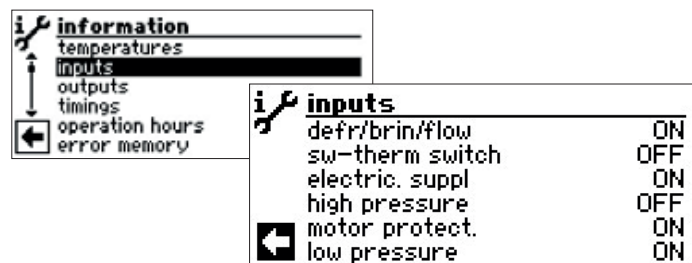
The menu is not shown in full here. Further menu items appear if you scroll down the screen.

ⓘ **NOTICE**
This menu shows whether the digital inputs of the controller are switched on or off.

Defr/Brin/Flow	Defrost, Brine pressure, flow Depending on the device type, the input can fulfil various functions: For *CS, CI devices* Defrost end pressostat: On = Defrost is terminated. For *CN devices* with flow switch connected at the factory: On = Flow okay.
SW-therm. switch	Domestic hot water thermostat On = Domestic hot water requirement
Electr. suppl.	Off-time of the electrical supply Off = Off-time
High pressure	High-pressure pressostat Off = Pressure okay
Motor protect.	Motor protection On = Motor protection okay.
Low pressure	Low pressure pressostat On = Pressure okay.
PEX	Connection of an external current anode (possible for some devices)
AIn	Input analog

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QUERY OUTPUTS
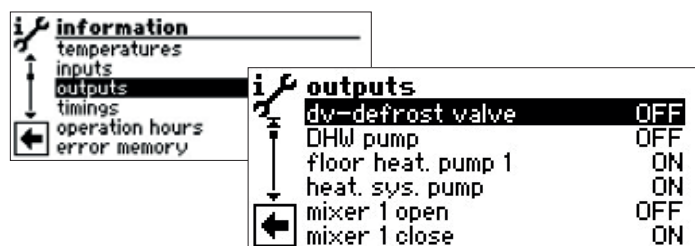
The menu is not shown in full here. Further menu items appear if you scroll down the screen.

CV-Defrost. valve	Valve / Circuit reversal
	ON = Thaw mode or rather cycle reversal becomes active
DHW pump	Domestic hot water circulation pump
Floor heat. pump 1	Floor heating circulation pump
Heat. sys. pump	Heating circulation pump
Mixer 1 Open	Mixer 1 opens
	On = opens / Off = no control
Mixer 1 Close	Mixer 1 Close
On = closes / Off = no control	
Ventilation	Ventilation of the heat pump housing for certain CS, CI devices.
	For CS, CI size types (coding "L2G"), second stage of the ventilator
Fan-heats. pump	Ventilator, well or brine circulation pump
Compressor 1	Compressor 1 in heat pump
Compressor 2	Compressor 2 in heat pump
CP	Circulation pump
Suppl. pump	Additional circulating pump
2nd heat gen. 1	Second heat generator 1
2nd heat gen. 2	Second heat generator 2 – Collective fault (function collective fault: Continuous ON in the event of a fault, cycles 1x per second with automatic RESET enabled)
Control signal UWP	Circulation pump output in %
RPM Ventilator	Current speed of the heat pump's fan
RPM Compressor	Current speed of the heat pump' compressor

CALLING UP TIMINGS
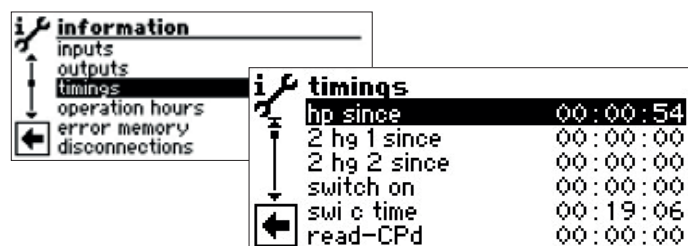
The menu is not shown in full here. Further menu items appear if you scroll down the screen.

HP since	Heat pump running since
	(Time indication respectively in hh:mm:ss)
2 hg 1 since	Second heat generator 1 running since
2 hg since	Second heat generator 2 running since
Switch on	Net input delay
Swi c time	Off-time switching cycle
Read-CPd	Compressor Read-CPd
HC Add-time	Heating control more time
HC Less-time	Heating time less time
ThDsin.sin	Thermal disinfection running since
Stop SW	Off-time domestic hot water
Defrosting	Time until the next defrosting (LW)

QUERY OPERATING HOURS
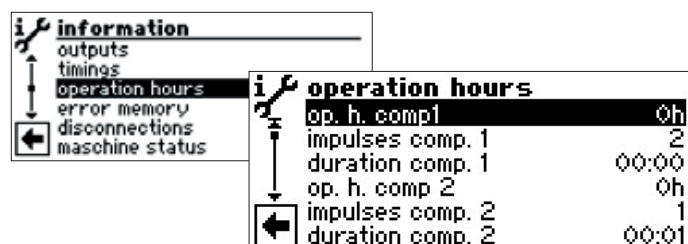
The menu is not shown in full here. Further menu items appear if you scroll down the screen.

Op. h. comp1	Operation hours compressor 1
Impulses comp. 1	Impulses compressor 1
Duration comp. 1	average duration compressor 1
Op. h. comp2	Operation hours compressor 2
Impulses comp. 2	Impulses compressor 2
Duration comp. 2	average duration compressor 2
Operation hours 2hg1	Operation hours second heat generator 1
Operation hours 2hg2	Operation hours second heat generator 2
Operation hours hp	Operation hours Heat pump
Operation hours heat	Operation hours Heating
Operation hours hw	Operation hours
Domestic hot water	
Operation hours cool	Operation hours Cooling

ℹ **NOTICE**
The compressors are only energised alternately following the impulses. A variation in the operation hours of the compressors is, therefore, possible.

CALLING UP ERROR MEMORIES
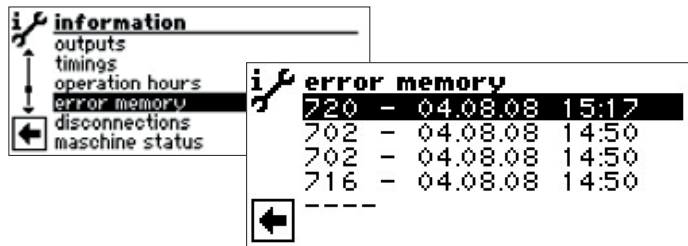
720
Error code (here by way of example)

04.08.08
Date of the resulting error (here by way of example)

15:17
Time of the resulting error (here by way of example)

☞ Meaning of the error codes: page 32

ℹ **NOTICE**
   Maximum the last five resulting errors are displayed.

CALLING UP DISCONNECTIONS
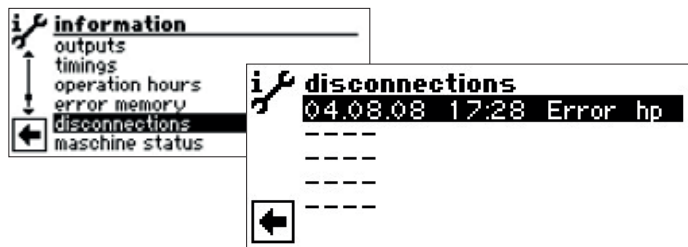
04.08.08
Date of the disconnection (here by way of example)

17:28
Time of the disconnection (here by way of example)

hp / hp fault
Disconnection code (here by way of example)

Error hp	= heat pump fault
err.inst.	= system fault
m.o. 2hg generator	= mode of operation second heat
El. Sup. bl	= el. sup. blockade
Defr. air.	= air defrost (only CS, CI devices)
TPLmax maximum	= temperature limits of application
TPLmin	= temperature limits of application minimum (in reversible CN possible shutdown due to frost protection in cooling mode - evaporation too long below 0°C)
Low lim	= lower limit of application
no requ.	= no request

ℹ **NOTICE**
   Maximum the last five disconnections are displayed.

CALLING UP THE MACHINE STATUS
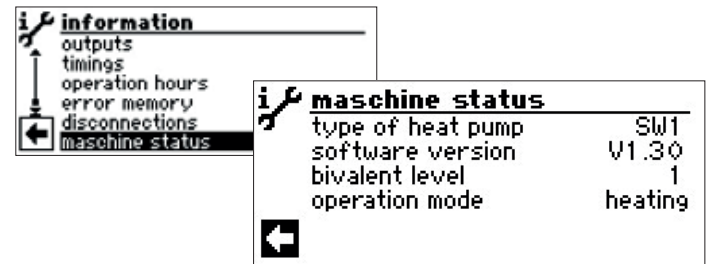
Type of heat pump	Type of heat pump
Software version	of the heating and heat pump regulator
Bivalent level	Bivalent level:
	1 = a compressor may operate
	2 = two compressors may operate
	3 = additional heat generator may operate as well
Operation mode	Current operation mode:
	Heating
	Domestic hot water
	Defros

Only for output-controlled heat pump:

Current capacity	Heating output currently provided by the output-controlled compressor.
	This heating output can be used to set the overflow valve in a storage tank integrated in series according to the setting diagram in the unit instructions.
Capacity demand	Required output for output-controlled compressor controlled by the heating and heat pump controller.
Software version SEC	Current software version of the inverter controller of the output-controlled heat pump

CTA
AC ● Cooling ● Heating

HEAT QUANTITY

Many heat pump types are equipped with heat quantity recording by pressure sensors in the cooling circuit of the heat pump. In these heat pumps the heat quantity can be read out directly – for all other units in the Luxtronik 2.0 series the external heat quantity meter can be retrofitted (accessory).
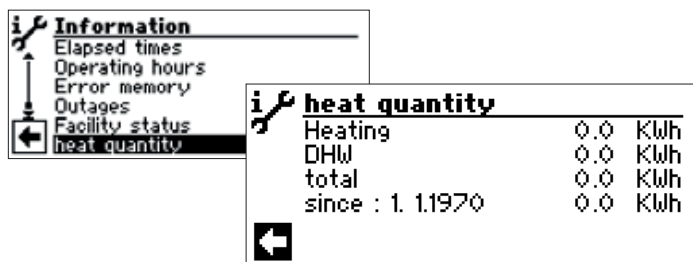
Heating	Recorded heat quantity for heating in kWh
Domestic hot water	Recorded heat quantity for hot water in kWh
Total	Sum of the recorded heat quantities in kWh
Since: 1.1.1970	Date of the last recording. (here by way of example).

Go to and click the date to reset the heat quantity recording to zero. In this way the heat quantity can be recorded for a period defined by you (start date = displayed date).

ⓘ **NOTICE**
If applicable, after displaying the recorded heat quantity for hot water, the recorded heat quantity for swimming pool is displayed.

BACnet
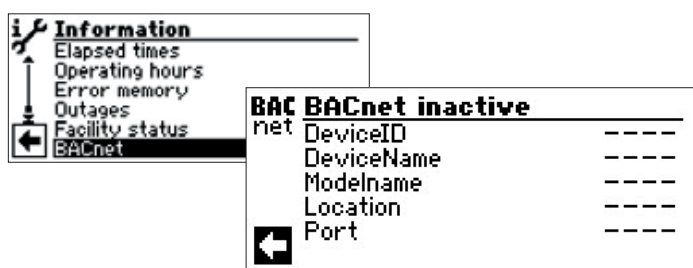
DeviceID	Unique identification number of the unit in the BAC net network
DeviceName	Name of the unit in the BAC net network
Modelname	Model designation of the unit
Location	Location of the unit
Port	BAC net communication port of the unit

MAKING SETTINGS
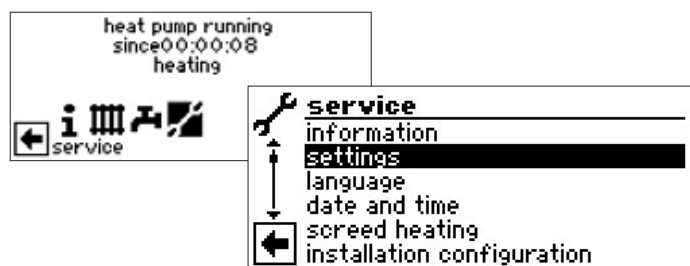
DETERMINE DATA ACCESS

Enter numbersn
entry fields of the four digits numerical code:

Activate the first entry field of the numerical code by pressing the "turn-push button".

Set the first digit by turning the "turn-push button" and confirm the entry by pressing the button.

Move to the respective next entry field and repeat the steps described above.

Finally, move to "☑" and save the entries by pressing the "turn-push button".

The entry fields are automatically set to 0000. The cursor goes automatically to the navigation arrow. The program provides information in the menu line "Access" on the selected status of the data access.

Datea access
Information on the current status of the data access (here: user)

❗ **ATTENTION**
After the service work, always reset the data access to customer.
Incorrect settings not oriented towards the system components can result in faults up to serious damage to the system. Access to fundamental settings of the system must therefore be locked for unauthorised persons.

ⓘ **NOTICE**
The manufacturer is not liable for damage resulting from wrong program settings not oriented towards the system components.

CALLING UP SHORT PROGRAMS

     Part 1 of the controller maunual, program area "Service", section "Calling up short programs".

DETERMINING TEMPERATURES
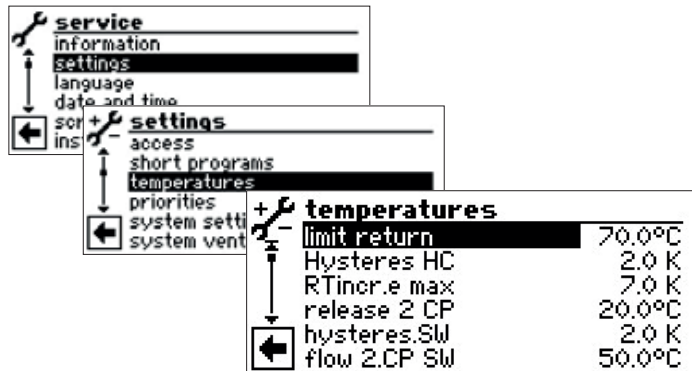
The menu is not shown in full here. Further menu items appear if you scroll down the screen.

Move to the respective required menu field, activate, set the temperature value and confirm by pressing the "turn-push button".

Finally scroll all the way down, cancel or save the settings.

Limit Return 🔒   **Return limi**t

Setting the maximum return setpoint temperatures in heating mode.
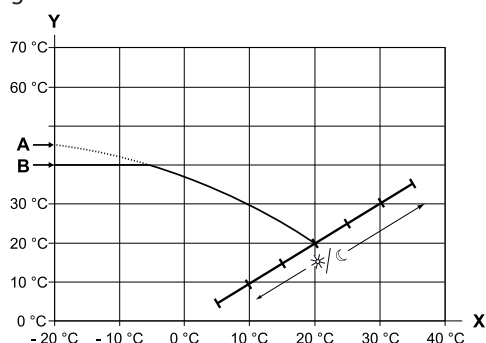
X   External temperature
Y   Return temperature
A   Heating curve-end point
B   Return limit (in the example shown: 40 °C)

Hysteresis HR 🔒   setting for the control hysteresis of the heating regulator

Set a greater hysteresis for very reactive heating systems, and a lower hysteresis for less reactive heating systems.

Example: Hysteresis heating circle return = 2K
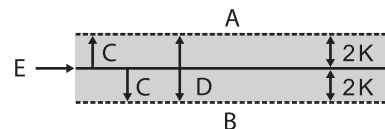
A   There will be no request for heating in this temperature range
B   There will be a request for heating in this temperature range
C   Hysteresis
D   Neutral zone
E   Return setpoint temperature

Hysteresis of output-controlled heat pump

This "Hysteresis HC" function is not available for output controlled heat pumps and AH CI 16a/i. Here the return setpoint is controlled by the output control of the compressor:
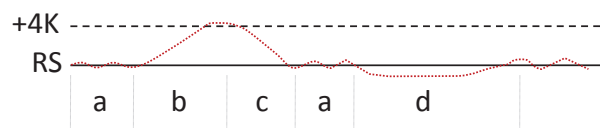
RS   Return setpoint
a   Continuous operation of the heat pump with individual heating output
b   Switch off as soon as the setpoint is exceeded by 4 K
c   Switch on as soon as the temperature falls below the return setpoint
d   Activating the additional heat generator after enable time, if the temperature is permanently below the return setpoint and the compressor operates with maximum output; switch back to pure heat pump mode when return setpoint is reached

RT incr.max 🔒🔒   Return increase maximum

Setting for the maximum permissible overshoots of the return temperature. If the return temperature is overshot, internal minimum running times are ignored and all heat generators switched off. Always set value higher than the value of the hysteresis HC.

Release 2 CP 🔒   Release 2nd compresso

A value is only displayed for devices with two compressors.

Setting of the minimum external temperature from which the second compressor can be released in heating mode. Above the set external temperature, the second compressor remains locked in heating mode

Release 2hg 🔒   Release second heat generator

Setting for the external temperature from which the second heat generator can be released if required. Above the set external temperature, the second heat generators remain locked.

Exception:

In the event of a fault and the setting fault with a 2 hg, the second heat generators are released independently of the set external temperature.

Tp-defr.Air. 🔒🔒   Temperature air defrost

A value is only displayed for L/W devices and if the air defrost is switched on.
Setting for the release temperature for the air defrost. Below the set temperature, the air defrosting is locked.

❗ ATTENTION

Set air defrost only if device type is approved for air defrost.

TDI-Solltemp. 🔒   TDI setpoint temperature

Setting for the setpoint temperature for the thermal disinfection in the domestic hot water preparation.

Hysterese.DHW 🔒   Hysteresis of domestic hot water

Setting for the control hysteresis for the domestic hot water preparation (negative hysteresis).

```
              A
C ──▶  ┌─────────────────┐
       │ ▼ D             │
       └╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌┘
              B
```
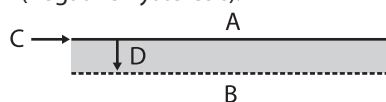
A   There will be no request for domestic hot water preparation in this temperature range
B   There will be a request for domestic hot water preparation in this temperature range
C   Domestic hot water target
D   negative hysteresis

Flow 2. CP DHW 🔒   Flow 2nd compressor Domestic hot water

Is only displayed for devices with 2 compressors.
Setting for the flow temperature from which domestic hot water is prepared with a compressor.
Optimisation of the charging time and the attainable domestic hot water temperatures..

T-outd. max 🔒🔒   maximum external temperature

A value is only displayed for L/W devices
Setting for the maximum external temperature from which the heat pump is locked.
Second heat generators are released as required..

T-outd. min 🔒   minimum external temperature

A value is only displayed for L/W devices.
Setting for the minimum external temperature under which the heat pump is locked.
Second heat generators are released as required..

T-HG max 🔒🔒🔒   maximum hot gas temperature

Setting for the maximum permissible temperature in the cooling circle of the heat pump.

T-def.airend 🔒🔒   Temperature air defrost end

A value is only displayed for L/W devices and if the air defrost is switched on.
Setting for the temperature at which the air defrosting is terminated at the outlet of the evaporator.

☞ pagpage 38, "Overview: Defrost cycle, Air defrost, Flow Max"

Lowering to 🔒   Maximum lowering

Setting for the external temperature up to which a night lowering is carried out.
If the actual external temperature falls below the set value, the lowering temperature is ignored.

Minimum return set-point temperature 🔒

Minimum return set-point temperature, will not be exceeded in operation.

Minimum MK1 flow 🔒

Minimum flow temperature, will not be exceeded in operation.

Flow Max.[1] 🔒🔒   Maximum flow temperature

If this temperature is exceeded in the flow, a compressor of the heat pump is switched off. This applies to all supply types!

☞ page 38

Flow max. MK1 🔒   Maximum flow temperature following the charger mixer

Is only displayed if mixing circle 1 is set to charger mixer.
The forward flow sensor at TB1 will then be used to limit the flow temperature following the mixer. This means: if the TB1 exceeds the value set here, the charger mixer will be moved in >Closed< direction.

min. AT Flow max.[2] 🔒🔒   Heat source temperature-dependent adjustment of the flow temperature.

Heat source temperature-dependent adjustment of the flow temperature.
The outside temperature, up to which the flow max. temperature with the heat pump may be increased, is adjusted here.
Below this outside temperature, the actual VL maximum temperature of the heat pump will fall linearly to the value "Forward flow EG".

Flow limit of applic. [3] 🔒🔒   Heat source temperature-dependent adjustment of the flow temperature.

Here, the maximum forward flow temperature of the heat pump is set at an outside temperature of -20°C.
For further details, see point "min. AT VL max." and the following diagrams:
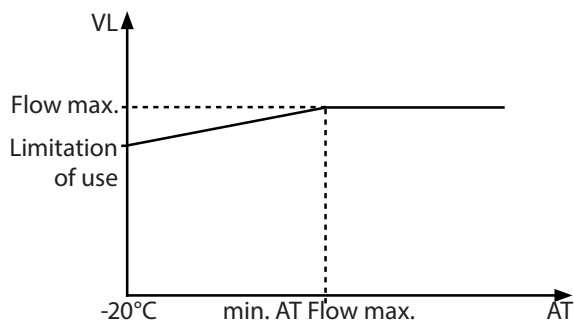
VL = Forward flow
AT = outside temperature

Hysteresis 2.CP short 🔒 Hysteresis heating control
Shorten HR hysteresis. HR. Hysteresis heating regulator from which the cut-in time of the 2nd. compressor stage is shortened (See "System setting").
Cutting-in compressor 2:
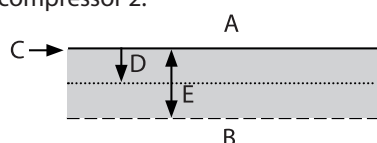
A No cut-in
B Shortened cut-in
C Return flow set value
D Heat regulator hysteresis
E Hysteresis HR shortened

Max. DHW temp. 🔒 Maximum Hot Water temperature
A value, which is set to limit the maximum set temperature of the hot water.

Min. flow cooling 🔒 Minimum CoolingFlow temperature
If the temperature at the cooling sensor falls below this temperature (depending on integration TB1, TB2 or TRL), the cooling is interrupted (factory setting 18 °C). At the same time, the displayed value is the minimum value for settable cooling setpoint temperatures.

**Scroll all the way down,
cancel or save the settings.**

◀ ✓ ☒

DETERMINING PRIORITIES

📖 Part 1 of the controller manual, program area "Service", section "Determining priorities".

DETERMINING SYSTEM SETTING
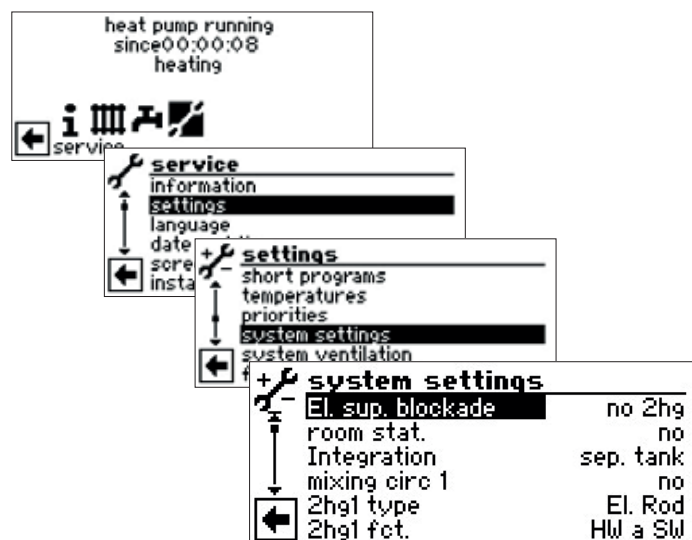
The menu is not shown in full here. Further menu items appear if you scroll down the screen.

Activate and select the required parameters, make the required setting and confirm by pressing the "turn-push button".
Scroll all the way down, cancel or save the settings.

❗ **ATTENTION**
Incorrect settings not oriented towards the system components put the safety and functional capability of the system at risk and can lead to damage.

ⓘ **NOTICE**
Enter deviations from the relevant factory settings in the overview "System setting for the commissioning".

El. sup. blockade 🔒 Electrical supply off-times
no 2hg 2hg at electrical supply off-time also locked
with 2hg 2hg released for electrical supply
Setting only takes effect as 2 hg for boiler or thermal.

Rooms tat. 🔒 Raumstation (Raumfernversteller)
No No room remote adjuster connected
RFV Room remote adjuster connected
RBE Room control unit connected

Integration 🔒 Hydraulic Integration
Setting the hydraulic integration of the buffer tank
Return (Return) hydraulic integration with row tank (flow/return)
Sep. tank (separating tank) hydraulic integration with parallel tank (multifunction tank,…)

cTA
AC Cooling Heating

ℹ **NOTICE**

Setting the hydraulic integration of the buffer tank

Mixing circle 1 🔓   Mixing circle 1

Setting the functioning of the mixer control

Charge   Mixer serves as charger mixer, possibly for a boiler
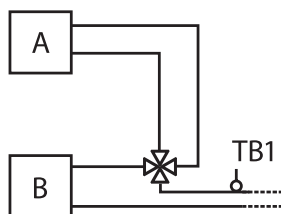
A   Boiler
B   Heat pump
TB1 sensor flow (optional)

Discharge   Mixer serves as a control mixer, possibly for floor heating
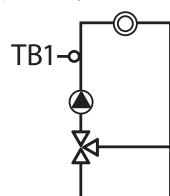
TB1   sensor flow (optional)

Cool   Mixer serves as a control mixer for passive cooling function (LWD reversible active)

No   Mixer without function

ℹ **NOTICE**

For reversible CN MK1 can also be set to "Hz+Cool" or "Cooling" without the expansion board by using the fit-ter or customer service access. The cooling is controlled via the return sensor.

Error 🔒   Error

with 2hg   in the event of a fault in the heat pump, connected 2 hgs are energised according to requirements (HW + SW)

no 2hg   in the event of a fault in the heat pump, connected 2 hgs are only energised if the return temperature < 15 °C (antifreeze); (only heating)

DHW 1 🔓   Domestic Hot Water 1

sensor   Domestic hot water preparation is initiated or terminated via a sensor on the domestic hot water tank

Thermal   Domestic hot water is initiated or terminated via a thermostat on the domestic hot water tank

ℹ **NOTICE**

Connect domestic hot water thermostat on the same terminals as the domestic hot water sensor (low voltage). The domestic hot water thermostat must be suitable for low voltage (floating contact).

Thermostat closed (= signal On) = Domestic hot water requirement.

DHW 2 🔒   Domestic Hot Water 2

CP   Setting CP means circulation pump.

📖   For the corresponding settings, please refer to the description of the circulation pump in the operating manual intended for end customers, found in program section "Domestic hot water" under the section entitled "Circulation".

h.wCP   Setting h.w.CP means that the CP output will be active during domestic hot water preparation and switch off 30 seconds after domestic hot water preparation is complete..

DHW 3 🔒   Domestic Hot Water 3

with CP   Additional circulation pump runs during domestic hot water preparation

no CP   Additional circulation pump does not run during domestic hot water preparation

DHW 4 🔒🔒🔒   Domestic Hot Water 4

Sollwert   Heat pump attempts to reach the set setpoint value of the domestic hot water temperature

DHW 5 🔒   Domestic Hot Water 5

with HSP   Heating circulation pump runs during domestic hot water preparation

no HSP   Heating circulation pump does not run during domestic hot water preparation

par HUP   Heating recirculation pump operates parallel with domestic hot water preparation

DHW+WP max 🔓 Maximum running time domestic hot water preparation + Heat pump

After the set time has expired, the 2nd heat generator in the domestic hot water preparation energises, but only if this has been released previously in the heating mode!

Defr cycle max 🔒   Defrost cycle time, maximum time between two defrost processes

Option only possible for L/W devices:

You can find the time to be set for the relevant L/W device in the operating instructions. If you do not find any data there, the following applies:

👉   page 38, "Overview: Defrost cycle, Air defrost, Flow Max"

Defrost. Air 🔒🔒   Air defrost

Option only possible for L/W devices:

No   Air defrost not released

Yes   Air defrost generally released above the set temperature

👉   Approved appliances, see page 38, "Overview: Defrost cycle, Air defrost, Flow Max"

❗ ATTENTION

Do not set an "air defrost" on non-approved appliances.

Defr.Air max 🔐🔐   Maximum duration of air defrost

Option only possible for L/W devices and if air defrost is released

Defrost 2 🔐🔐

Option only possible for L/W devices with 2 compressors

with 1CP	Defrost with only one compressor
with 2CP	Defrost with two compressors, if these also supply before defrosting

Pump opt. 🔓   Pump optimisation

No	Heating circulation pumps always run, unless another supply type is requested (domestic hot water, …) or the device is switched off
Yes	Heating circulation pumps are switched off, if required

The heating circulation pumps will be switched if the heat pump has not been requested for more than 3 hours. The heating circulation pumps will then cycle for 5 minutes every 30 minutes until the heat pump receives another request.

If the external temperature is above the return setpoint temperature, the heating circulation pumps will be switched off permanently. They will be switched on for 1 minute every 150 hours to prevent them from becoming stuck

Access. 🔐🔐   Data access authorisation

The "Fitter" (= Qualified technicians) provides access to parameters without a password, which otherwise requires "Customer service" access.

Control CP 🔐🔐   Compressor monitoring

Off	Compressor monitoring switched off
On	Compressor monitoring switched on, if the rotating field of the supply line is incorrect, a "Net On" fault will be detectedt

👉   Error number 729, pagpage 32

While the compressor is starting up, compressor monitoring checks the change in temperature in the hot gas. If the temperature of the hot gas does not change while the compressor is running, a malfunction is displayed..

❗ ATTENTION

Only switch on compression monitoring for error locating during maintenance work.

In the case of devices with a power supply monitor, the compressor monitoring is switched off in the factory setting.

Setting hc 🔓   Control of the heating circle

Set AT	flow setpoint temperature of the heating is calculated via a set heating curve
Fixed Tp	flow setpoint temperature can be selected independently of the external temperature specification

Settinng mc1 🔓   Regelung Mischkreis 1

Set AT	return setpoint temperature of the heating is calculated via a set heating curve
Fixed Tp	return flow setpoint temperature can be selected independently of the external temperature specification

Screed heating 🔓

Option only possible for external energy source (wood boiler, solar system with parallel tank,…))

w. mixer	If the mixer is defined as a discharge mixer, it controls according to the setpoint temperature in the screed heating program
wo. mixer	If the mixer is defined as a discharge mixer, it always starts up during the screed heating program

El. Anode 🔐🔐   Electrical anode

Impressed current anode in the domestic hot water tank

Yes	Impressed current anode present
No	Impressed current anode not present

❗ ATTENTION

In the case of devices with an impressed current anode tank, "Yes" must be set in this menu field in order to ensure the corrosion protection of the tank.

The impressed current anode must be connected according to the operating instructions of the relevant heat pump..

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Heating limit 🔓

If the heating limit parameter is set to yes, the heating will automatically be switched off to summer mode and vice versa.

If the heating limit is enabled, the daily mean temperature will be displayed under Service-Information-Temperatures. At the same time, the heating menu will contain the menu item heating limit. You can use this menu item to set the temperature from which the heat pump is not supposed to provide any more heat. If the mean temperature exceeds the value set here, the return setpoint temperatures are reduced to a minimum and the heating circulation pumps switched off. If the mean temperature falls below the set heating limit, heating mode is resumed automatically..

Parall. operation 🔒🔒 (not possible with output-controlled heat pump)

No	default setting, heat pump works independently
Master	heat pump is the parallel connection master and takes over the heat control of the system
Slave	heat pump is part of a parallel connection and receives heating commands from the master HP

📖 Part 1 of the controller manual, program area "Parallel operation"

Pump optim. Time 🔓

If the pump optimisation is switched on (pump optimisation YES), the time be defined, according to which the heating circulation pumps are switched off.
If the heat pump is off during this time because there is no need for heating, the pump will loop - 30 minutes off, 5 minutes on, until there is a further heating requirement..

Remote maintenance 🔓

Yes	Remote maintenance function switched on
No	Remote maintenance function switched off

📖 For further details regarding the use of the remote maintenance: part 1 of the controller manual, program area "Service", section "Remote maintenance".

min defrost cycle 🔒🔒🔒 Defrost cycle time, minimum timebetween two defrost processes

Option only available on L/W appliances
Take the time to be set from the instructions for use for the respective L/W appliance.

TDI Message 🔒 Thermal disinfection signal

If set to NO, then the fault signal/message does not arrive, otherwise see error message 759

☞

release 2hg 🔒 Release second heat generator
Time until the second heat generator is switched on

aux. heat. hot water 🔒 Hot water reheating

No	Deactivated (in the factory)
Yes	Activated, the required hot water value becomes the hot water target value

📖 Part 1 of the controller manual, program area„Domestic Hot Water", section "Hot water reheating"

aux.serv.water max. 🔒 maximum time period for hot water reheating

maximum time period, during which the hot water should be reheated. If this time period is exceeded the hot water reheating is cancelled.

Power 2hg 🔒 Power output of the electric heating element

Only available with PWZS.
The power output of the electric heating element can be set in increments of 0.5 from 0.5 kW to 9 kW
Factory setting: 9 kW

**Scroll all the way down,
save the settings.**

← ☑ ☒

VENTILATING THE SYSTEM
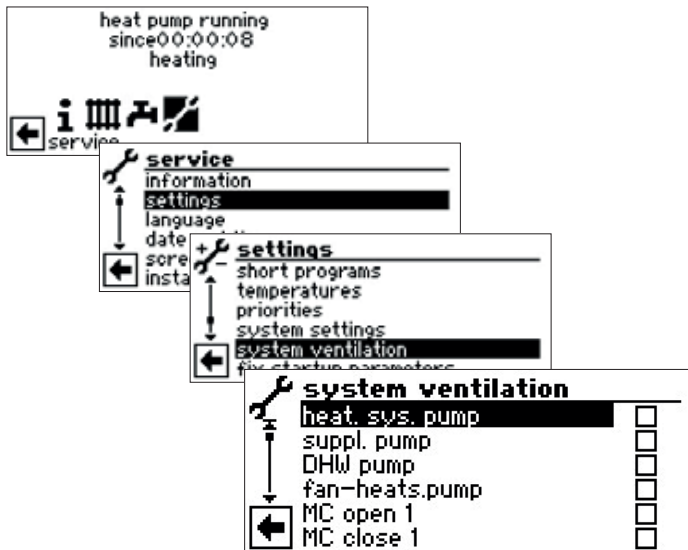
The menu is not shown in full here. Further menu items appear if you scroll down the screen.

Heat.sys.pump	Heating and floor heating circulating pump
suppl.pump	additional circulating pump
DHW pump	Domestic hot water circulation pump
Fan-heats.pump	Fan, well or brine circulation pump
MC open 1	Mixer 1 OPEN
MC close 1	Mixer 1 CLOSE
CP	Additional circulating pump, circulation pump
Duration	Running time of the ventilation
Ex-valveman.open	In CN the expansion valve opens completely for the set running time.

① Activate and select system part(s) to be ventilated…
② Activate and select menu field "duration", set running time (hour cycle).
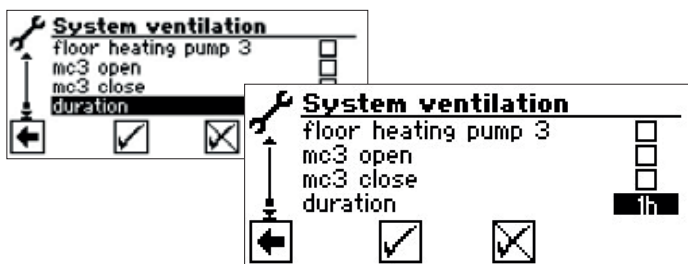
Duration
Factory setting: 1 hour

ⓘ **NOTICE**
Value range for running time = 1 – 24 hours.

Save settings.

ⓘ **NOTICE**
If circulating pumps are selected, the ventilation program will start immediately after the settings have been saved. The ventilation pauses after one hour for 5 minutes and then automatically continues afterwards.

ⓘ **NOTICE**
As long as the ventilation program is active, the corresponding program symbol will appear in the navigation screen ✲:

CTA
AC ● Cooling ● Heating

FIX STARTUP PARAMETERS

ℹ **NOTICE**
The function "Setting startup parameters" requires customer service access.

You can save the settings you made during startup (= setting startup parameters). This allows you to quickly and easily reset the system to the status it had at startup.

The data is stored on the circuit board of the control element.
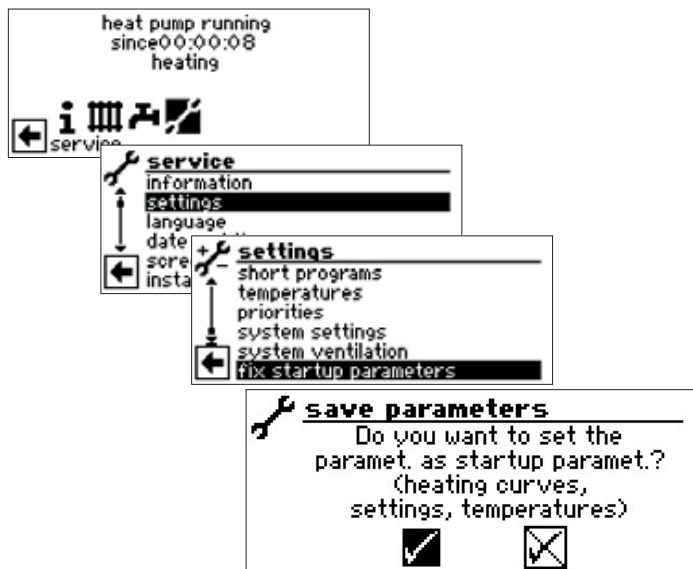
Follow the instructions on the screen.
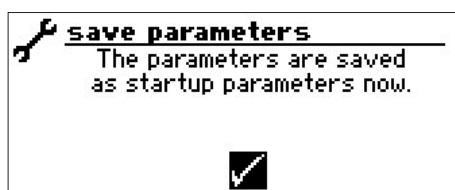
You can also save the settings to an external USB stick.
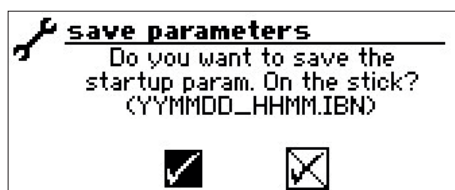
ENERGY EFFICIENCY PUMP
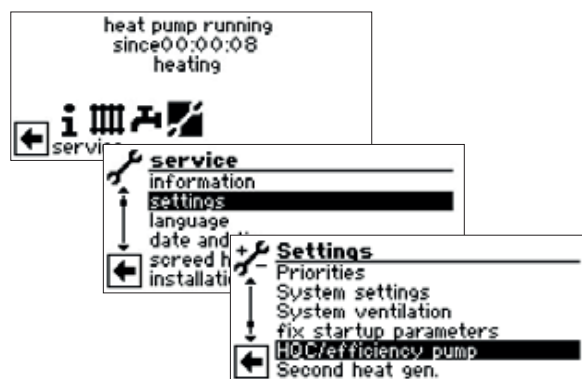
Output-controlled air/water:

Save settings.

SECOND HEAT GENERATOR
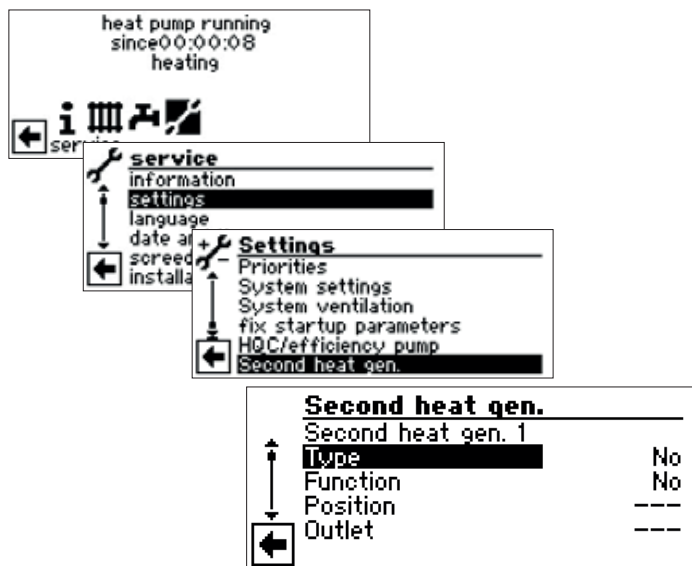
Here you can activate connected additional heat generators and set their parameters or deactivate connected heat generators

ℹ **NOTICE**
The possible settings depend on the respective unit type.

Second heat gen.1	Selected additional heat generator (2. heat gen.)
	If several additional heat generators are connected you can go to their settings by using the "turn-push button" to scroll up or down (no submenu field may be activated during this scrolling).
Type	
No	No 2. heat gen. connected, system operates monovalently
El.Rod	Electric heating element with bivalent level control for heating element (not released during the El. sup. blockade)
Boiler	Heating boiler with bivalent level control for the boiler (in bivalent level 3 is on continuously, until switched back to bivalent level 2)
Thermal	Water heater with bivalent level control for water heater (control behaviour is analogous to that of a heating element; however, is also active during El. sup. blockade)
Function	
Second heat gen 1	
Heating	Heating
HW a SW	Heating or Hot water
Second heat gen 2	
Heating	Heating
SW	Hot water
Position	
Tank	Integrated directly in or on the heating or hot water storage tank
Integrated	Integrated in the heat generator (= heat pump or corresponding hydraulic component)
Outlet	The corresponding output contact for electrical connection of the respective ZWE is displayed automatically. If a type of preparation is selected under "Type" and it is displayed here as outlet "---"", the wiring has already been laid in the factory

SILENT MODE, ONLY **AH CI...is, AH CI...a/i, AP CP**

The compressor and fan will be limited by the rpm in noise-reduced mode. This will mean that the maximum heating capacity cannot be called up anymore. A higher heating rod share can result in increased heating costs. In order to retain the comfort level, the required performance difference will be compensated by the second heat generator (normally the heating element).
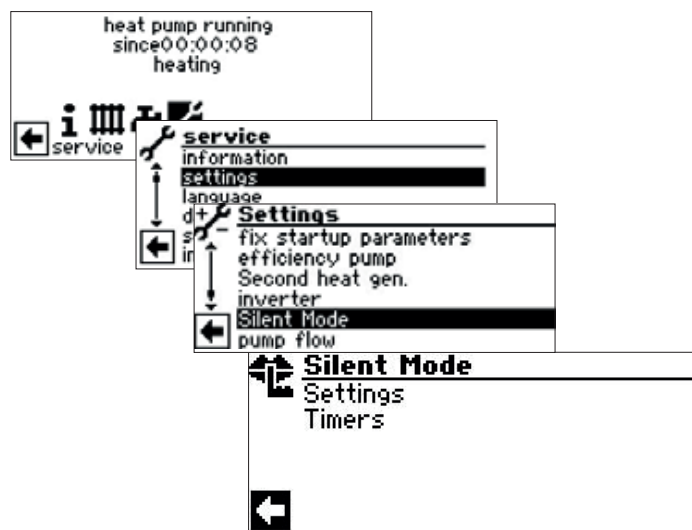
1. With settings selection:

Position Silent Mode to "Yes" (pre-set: No)

2. Selection for time switching programmes:

Silent Mode

Week =

Monday – Sunday
1: 00:00 – 00:00
2: 00:00 – 00:00
3: 00:00 – 00:00

Three time periods can be entered for the whole week.

5 + 2 =

Monday – Friday
1: 00:00 – 00:00
2: 00:00 – 00:00
3: 00:00 – 00:00

Three time periods can be entered for Monday to Friday

Day =

Sunday
1: 00:00 – 00:00
2: 00:00 – 00:00
3: 00:00 – 00:00

Three time periods can be entered for exact times of day

The set time is noise-reduced mode.

HOT GAS UTILISATION, ONLY **AP CP**

Higher temperatures of up to 75°C are available with hot gas utilisation. The temperature is not always guaranteed. The heat pump must already be in operation due to another requirement.

The heat pump will switch off with a desuperheater temperature of 80°C.

The recirculation pump will be actuated every 30 minutes for 30 seconds with a hot gas temperature higher than 85°C

⚠️ **CAUTION!**
Injuries caused by hot temperatures!

Very high temperatures can occur on the desuperheater **and the pipework for the hot gas utilisation when the hot gas utilisation is in operation. Any contact can lead to burns. Never touch the desuperheater or pipework when in operation or afterwards**

The hot gas utilisation is set to "Yes" as default.

If hot gas utilisation is not used, then this must be set to "No" under system settings.

1.   switch of the desuperheater:
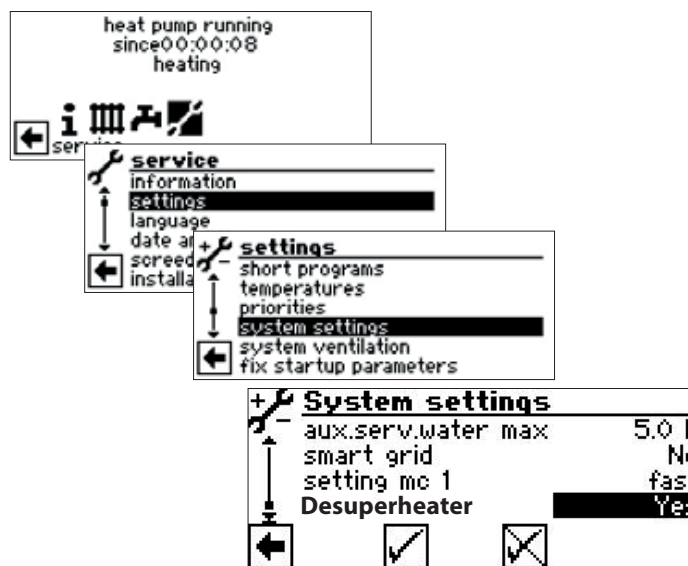
2.   Is the desuperheater switched on, you can fix the temperature

Here you can fiy the temperature of the desuperheater from 30°C to 75°C.

You can switch the desuperheater on and off:

SELECTING LANGUAGE OF THE SCREEN DISPLAY

📖 Part 1 of the controller manual, section "Basic Information on the operation".

DETERMINING DATE AND TIME

📖 Part 1 of the controller manual, section "Basic Information on the operation".

SETTING TEMPERATURES AND TIME INTERVALS

Example:
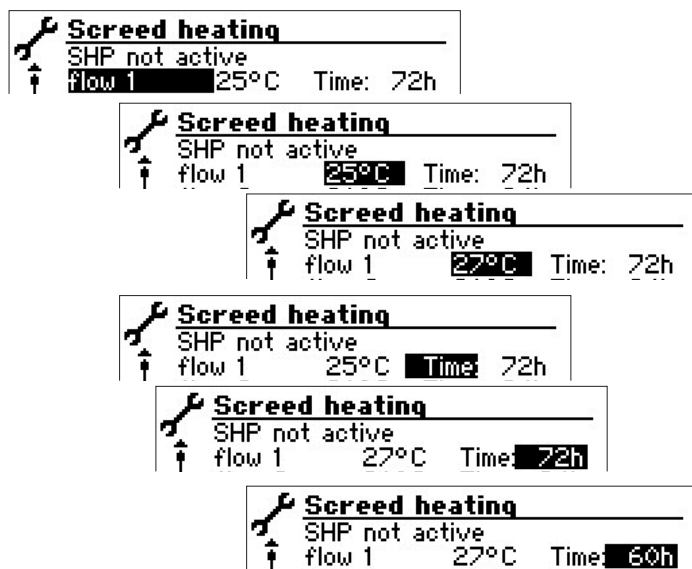
Procedure repeat for the table lines "Flow2" to "Flow10".

ℹ **NOTICE**
If less than ten levels are required for heating the screed, set the time interval to "0h" for all levels not required.

❗ **ATTENTION**
Do not start any domestic hot water high-speed charge while the screed heating program is running..

ℹ **NOTICE**
If the temperatures in the heating system are greater than the setpoint temperature of the first flow temperature level, start the screed heating program with the next highest flow temperature level. Otherwise the screed heating program can trigger an error message in the first flow temperature level.

SCREED HEATING PROGRAM
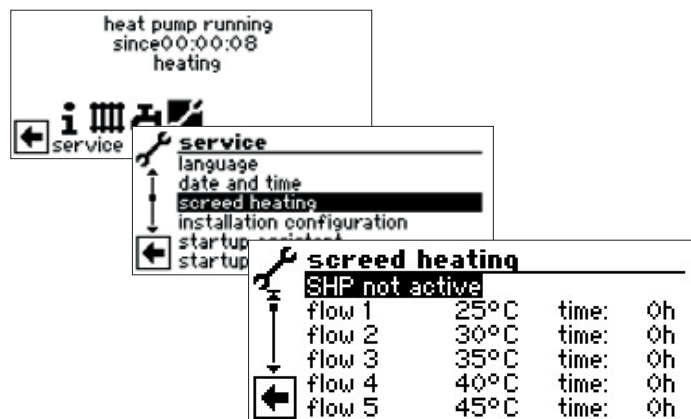
ℹ **NOTICE**
Values of the factory setting correspond to the specifications of some screed manufacturers, but can be changed on site.

❗ **ATTENTION**
Always check values of the factory setting or desired values in respect to whether they correspond to the manufacturer specifications for the screed which is to be heated..

STARTING SCREED HEATING PROGRAM

ℹ **NOTICE**
While the screed heating program is running, -10°C is displayed as the outdoor temperature. It is not possible to heat water.

ℹ **NOTICE**
In the screed heating program, all connected heat generators are released if necessary. However, the following applies:

A heating system is designed for heating in general and not for heating screed. It may therefore be necessary for the screed heating phase to integrate additional heat generators in the system..
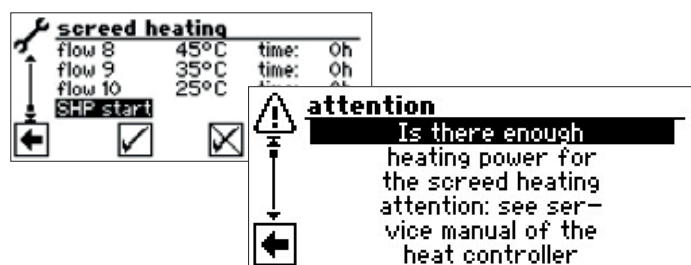
The menu is not shown in full here.
scroll down the screen.
answer the confirmation prompt.

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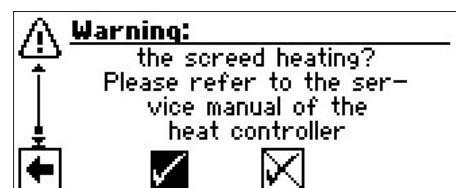
ℹ **NOTICE**

If you respond to the confirmation prompt with ☒ , the screed heating program will not start, If you respond to the confirmation prompt with ☑ , the screen will change back to the menu "Service screed heating".

```
🔧 screed heating
   flow 8      45°C   time:   0h
   flow 9      35°C   time:   0h
   flow 10     25°C   time:   0h
  SHP starting
←
```

```
🔧 Screed heating
   flow 8      40°C   Time:  24h
   flow 9      35°C   Time:  24h
   flow 10     25°C   Time:  24h
   SHP starting
←        ✓        ☒
```

```
🔧 Screed heating
   Deactivate SHP
   flow 1      27°C   Time:   3h
   flow 2      30°C   Time:  24h
   flow 3      34°C   Time:  24h
   flow 4      37°C   Time:  24h
←  flow 5      40°C   Time:  24h
```
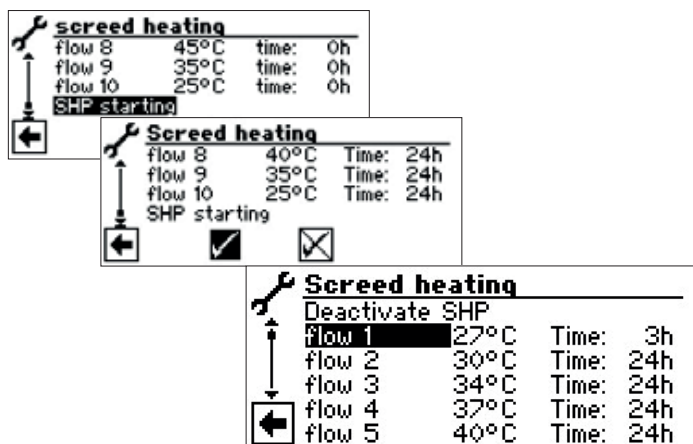
After starting the screed heating program, the programmed flow temperature levels are automatically executed in succession.

The time interval set for a flow temperature level is not necessarily the actual time which is necessary to reach the next flow temperature level. Depending on the heating system and power of the heat pump, it may take varying lengths of time until the next flow temperature level is reached.

If a flow temperature level is not reached on account of too low a heating power, a corresponding error message will appear in the screen. The error message informs you about the flow temperature level which has not been reached. However, the screed heating program continues running and attempts to reach the next flow temperature levels.

ℹ **NOTICE**

After expiry of a flow temperature level, the relevant time interval is set to "0h". This ensures that the screed heating program continues after a potential power failure at the start of each flow level at which it was interrupted.

ℹ **NOTICE**

If the error message "Power screed heating" appears (= error number 730), this is only an indication that the screed heating program could not process a flow temperature level in the specified time interval. The screed heating program continues to run nevertheless. The error message can only be acknowledged if the screed heating program has finished or has been manually switched off

ℹ **NOTICE**

As long as the screed heating program is running, the corresponding program symbol will appear in the navigation screen: ▨:

```
         Heat pump runs
         since :02:02:17
  Level  1  +27.0°C  03:00:00
                       ▨
  ← i ▥ ⚒ ❄ 🔧
    to standard menu
```

MANUALLY TERMINATING SCREED HEATING PROGRAM

```
         Heat pump runs
         since :02:03:55
  Level  1  +27.0°C  03:00:00
                       ▨
  ← i ▥ ⚒ ❄ 🔧
    Screed heating
```

```
🔧 Screed heating
   Deactivate SHP
   flow 1      27°C   Time:   3h
←
```

```
🔧 Screed heating
   SHP not active
   flow 1      27°C   Time:   3h
   flow 2      30°C   Time:  24h
←
```

```
🔧 Screed heating
   flow 8      40°C   Time:  24h
   flow 9      35°C   Time:  24h
   flow 10     25°C   Time:  24h
   SHP start
←        ✓        ☒
```
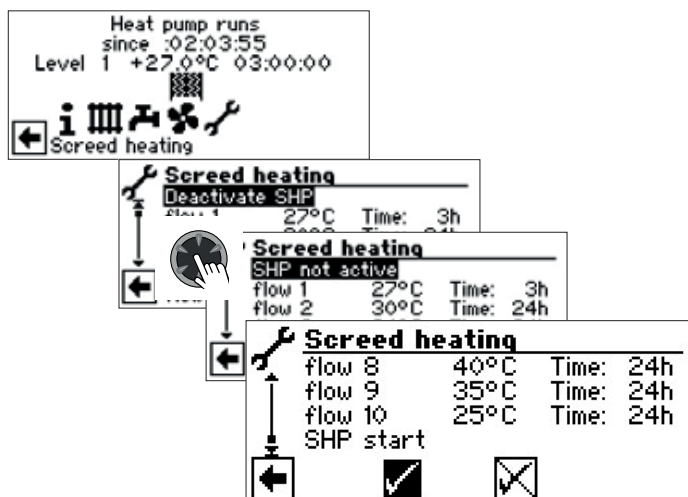
SYSTEM CONFIGURATION

ℹ **NOTICE**

If there is a type of use which is not required for your system, it is not necessary for the associated program areas to be represented in the screen.

An example: Your system is only designed for heating mode. No components are installed for the domestic hot water preparation. That means you do not require access to the menus of the program area "Domestic hot water". It is therefore not necessary for these menus to be shown in the screen. In the "System configuration" you can specify that these menus do not appear in the screen and therefore remain hidden..

ℹ **NOTICE**

However, hiding a menu does not affect the function or operation of a type of use. If the type of use is switched off, this must be set in the menu "Mode of operation".

```
         heat pump running
         since 00:00:08
            heating
  ← i ▥ ⚒ ▨
    service
```

```
🔧 Service
   Datum und Uhrzeit
   Ausheizprogramm
   Anlagenkonfiguration
   IBN - Assistent
↓  Parameter  IBN Zurück
←  Datenlogger
```

```
🔧 installat. Conf.
   heating              ☒
   domestic hot water   ☐
←        ✓        ☒
```
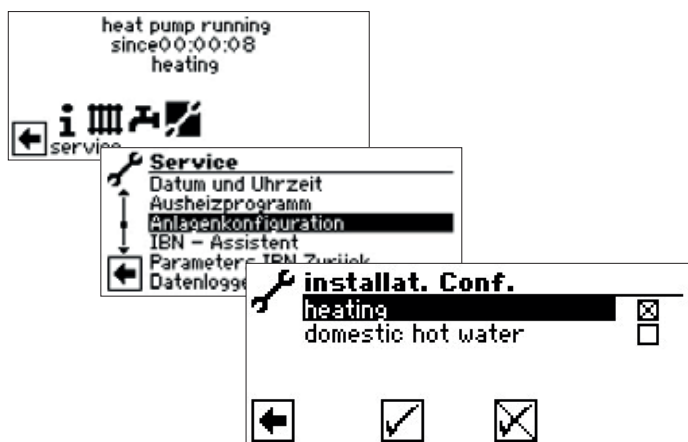
Deselect program area not required.
The example shown reveals that the menus of the program area "Heating" are displayed in the screen. The menus of the program area "Domestic hot water" are not displayed.

STARTUP GUIDE

The control unit is equipped with a commissioning assistant. (startup guide). This assistant will guide you through the most important settings of the regulator during initial commissioning. The "GO" symbol in the main menu flashes. Click on the symbol to launch the commissioning assistant. The symbol will disappear as soon as initial commissioning is complete. For more information on the commissioning assistant, please refer to the corresponding sections in this operating manual.
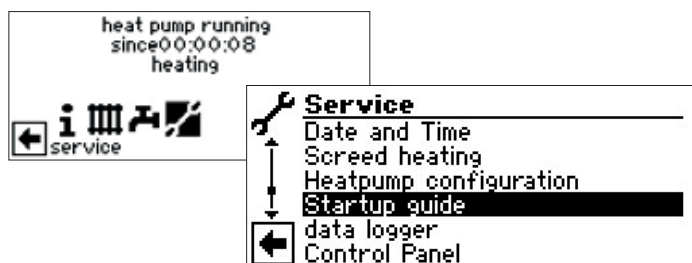
You will be guided step-by-step through several selection options used to set up your heat pump.

For example:
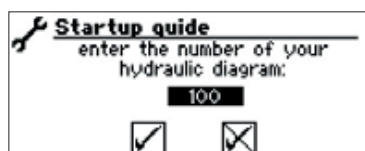
For the number of the control setting, please refer to the hydraulic diagrams we have published
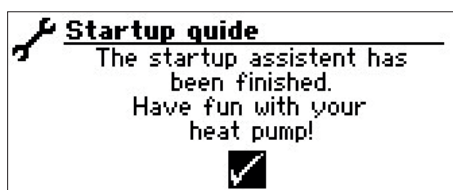
STARTUP GUIDE PARAMETERS BACK

If your heat pump was commissioned by an authorised customer service partner and the startup parameters have been stored, you can use this menu item to restore these parameters. This may be helpful if settings have been changed and let to a system malfunction. Please Notice that all settings such as heating curves, system settings, set values will be reset to the values applicable at commissioning. This does not apply to the time switches.

Die Schaltuhren sind davon nicht betroffen.
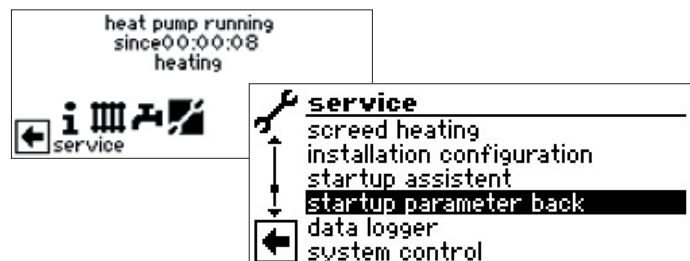
You will be guided through the following menu items:

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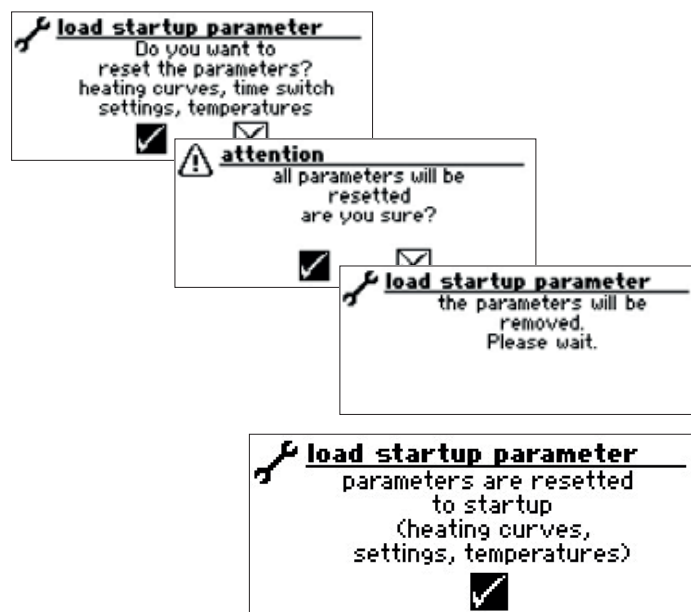
DATA LOGGER

📖 Part 1 of the controller manual, program area "Service", section "Data logger".

CONTROL PANEL

ADJUSTING THE CONTRAST OF THE CONTROL ELEMENT DISPLAY

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

WEB SERVER

📖 Part 1 of the controller manual, program area "Service", section „Control Panel / Web server".

REMOTE MAINTENANCE

📖 Part 1 of the controller manual, program area "Service", section "Control Panel / Remote maintenance".

Error Diagnosis / Error messages

No.	Display	Description	Remedy
701	Error low pressure. Please call fitter	Low pressure pressostat or low-pressure sensor in the cooling circle has responded.	Check HP for leakage, switching point pressure state, defrosting and T-outd.min.
702	Low pressure stop RESET autom.	Low pressure in the cooling circle has responded. After some time, automated HP restart	Check HP for leakage, switching point pressure state, defrosting and T-outd.min.
703	Antifreeze Please call fitter	If the heat pump is running and the temperature in flow is < 5 °C, antifreeze is detected	Check HP power, defrost valve and heating system.
704	Error hot gas Reset in hh:mm	Maximum temperature in the hot gas cooling circle exceeded. Automatic HP restart after hh:mm	Check coolant quantity, evaporation, overheating flow, return and HS-min.
705	Motor protection VEN Please call fitter	Motor protection has responded	Check set value and ventilator / BCP.
707	Coding of HP Please call fitter	Break or short-circuit of the coding bridge in HP after the first switch-on	Coding resistance in HP, check plug and connection line.
708	Return sensor Please call fitter	Break or short-circuit in the return sensor	Check return sensor, plug and connection line.
709	Flow sensor Please call fitter	Break or short-circuit in the flow sensor	Check flow sensor, plug and connection line.
710	Hot gas sensor Please call fitter	Break or short-circuit in the hot gas sensor of the cooling circle	Check hot gas sensor, plug and connection line.
711	External temp. sensor Please call fitter	Break or short-circuit in the external temperature sensor. No fault shutdown. Fixed value to -5 °C	Check external temperature sensor, plug and connection line.
712	Domestic hot water sensor. Please call fitter	Break or short-circuit in the domestic hot water sensor No fault shutdown.	Check domestic hot water sensor, plug and connection line.
713	HS-on sensor Please call fitter	Break or short-circuit in the heat source sensor (inlet)	Check heat source sensor, plug and connection line.
714	Hot gas SW Reset in hh:mm	Check thermal application limit of the HP. Domestic hot water off for hh:mm	Check flow of domestic hot water, heat exchanger, domestic hot water temperature and circulation pump.
715	High-pressure switch-off RESET autom.	High pressure in the cooling circle has responded. After some time, automated HP restart	Check flow of HW, overflows, temperature and condensation.
716	High-pressure fault Please call fitter	High pressure pressostat in the cooling circle has responded several times.	Check flow of HW, overflows, temperature and condensation.
718	Max. outside temp. RESET autom. in hh:mm	Outside temperature has exceeded permissible maximum value. Automatic HP restart after hh:mm	Check outside temperature and set value.
719	Min. outside temp. RESET autom. in hh:mm	Outside temperature has fallen below the permissible minimum value. Automatic HP restart after hh:mm	Check outside temperature and set value.
722	Tempdiff HW Please call fitter	Temperature spread in the heating mode is negative (=erroneous)	Check function and location of the flow and return sensor.
723	Tempdiff SW Please call fitter	Temperature spread in the domestic hot water mode is negative (=erroneous)	Check function and location of the flow and return sensor.
724	Tempdiff defrosting Please call fitter	Temperature spread in the heating circle is > 15 K during defrosting (=danger of frost)	Check function and location of the flow and return sensor, HCP capacity, overflows and heating circles.
725	System error SW Please call fitter	Domestic hot water faulty, desired tank temperature is fallen below substantially	Check circulating pump HW, tank filling, shutoff move and 3-way valve. Ventilate hot water and SW.
726	Sensor mixing circ 1 Please call fitter	Break or short-circuit in the mixing circle sensor	Check mixing circle sensor, plug and connection line.
728	Sensor HS Off Please call fitter	Break or short-circuit in the heat source sensor at the HS outlet	Check heat source sensor, plug and connection line.

No.	Display	Description	Remedy
729	Rotating field error Please call fitter	Compressor without power after switching on	Check rotating field and compressor.
730	Screed heating error Please call fitter	The screed heating program could not reach an FL temperature level in the specified time interval. Screed heating program continues running.	The screed heating program could not reach an FL temperature level in the specified time interval. Screed heating program continues running.
732	Cooling fault Please call fitter	The hot water temperature of 16 °C has been fallen short of several times	Check mixer and heating circulation pump.
733	Anode fault Please call fitter	Fault input of the impressed current anode has responded	Check connection line between anode and potentio stat. Fill SW tank.
734	Anode fault Please call fitter	Error 733 present for more than two weeks and domestic hot water is locked	Acknowledge error in order to release DHW preparation again. Rectify 733.
735	Error Ext. En Please call fitter	Only possible with installed Comfort / expansion board: Break or short-circuit in the sensor "External energy source"	Check sensor "External energy source", plug and connection line.
736	Error solar collector Please call fitter	Only possible with installed Comfort / expansion board: Break or short-circuit in the "solar collector" sensor	Check "solar tank" sensor, plug and connection line.
737	Error solar tank Please call fitter	Only possible with installed Comfort / expansion board: Break or short-circuit in the "solar tank" sensor	Check "solar tank" sensor, plug and connection line.
738	Error mixing circle 2 Please call fitter	Only possible with installed Comfort / expansion board: Break or short-circuit in the "mixing circle 2" sensor	Check "mixing circle 2" sensor, plug and connection line.
750	Return sensor external Please call fitter	Break or short-circuit in the external return sensor	Check external return sensor, plug and connection line.
751	Phase monitoring fault	Phase-sequence relay has responded	Check rotary field and phase-sequence relay.
752	Flow error	Phase-sequence relay or flow switch has responded	Check rotary field, phase-sequence relay, flow, switching point for DFS, filter, air clearance
755	Lost connection to slave Please call fitter	A slave has not responded for more than 5 minutes.	Check network connection, switch, and IP addresses. Perform HP search if necessary.
756	Lost connection to master Please call fitter	A master has not responded for more than 5 minutes.	Check network connection, switch, and IP addresses. Perform HP search if necessary.
758	Defrosting malfunction	Five times in a row, defrosting has either lasted longer than 10 minutes or was terminated with a feed temperature of < 10 °C	– Check for icing-up of the evaporator – Check on output of the HUP at limits specified for heating water – Check heating pump for leaks – Check switch setting for AEP
759	TDI message	Unable to correctly carry out thermal disinfection 5 times in succession	Check setting of second heat generator and safety temperature limiter
760	Defrosting fault	Defrosting ended 5 times in succession by maximum time (strong wind impinges on evaporator)	Protect the fan and evaporator from strong wind

No.	Display	Description	Remedy
761	LIN timeout	LIN timeout	Check cable/contact
762	sensor (evaporator intake)	Tü sensor error (evaporator intake)	Check sensor, replace if necessary
763	sensor (compressor intake)	Tü1 sensor error (compressor intake)	Check sensor, replace if necessary
764	Sensor Compressor heater	Sensor error Compressor heater	Check sensor, replace if necessary
765	Overheating	Overheating longer than 5 minutes below 2K	When switching on for the first time, check rotary field, otherwise phone customer service
766	compressor's functional range	Operation for 5 minutes outside the compressor's functional range	Check rotary field
767	STB E-Rod	STB of the heating element has been activated at the SEC	Check the heating element and press the fuse back in
768	Flow monitoring	Insufficient flow at LW160H (A)V in defrost cycle	Check hydraulics, check pump, check flow
769	Pump control	After 10 sec compressor runtime excessively low flow.	Check PWM cable, check pump
770	Low superheat	Overheating lies below the limit value for a lengthy period	Check the temperature sensor, pressure sensor and expansion valve
771	High superheat	Overheating lies below the limit value for a lengthy period	Check the temperature sensor, pressure sensor, fill quantity and expansion valve
776	limit of application-CP	Compressor operates outside its use limits for a lengthy period	Check the thermodynamics
777	Expansion valve	Expansion valve is defective	Check the expansion valve, connection cable and if applicable the SEC board
778	Low pressure sensor	Low-pressure sensor is defective	Check the sensor, connector and connection cable
779	High pressure sensor	High-pressure sensor is defective	Check the sensor, connector and connection cable
780	EVI sensor	EVI sensor is defective	Check the sensor, connector and connection cable
781	Liquid temp. sensor before EXV	Liquid temperature sensor upstream of the ex-valve is defective	Check the sensor, connector and connection cable
782	Suction gas EVI temp. sensor	Suction gas EVI temperature sensor is defective	Check the sensor, connector and connection cable
783	Communication SEC - Inverter	Communication between the SEC & the inverter is disrupted	Check the connection cable, interference suppression capacitors and wiring
784	VSS lockdown	Inverter is blocked	Disconnect the complete system from the power supply for 2 minutes. If it occurs again, check the inverter and compressor
785	SEC-Board defective	Error found in the SEC board	Replace the SEC board
786	Communication SEC - Inverter	Fault found in communication between the SEC and HeatingIO of the SEC	Check the Heating/IO SEC board cable connection
787	VD alert	Compressor signals faults	Acknowledge fault. If an error occurs repeatedly, phone the authorised service personnel (customer service)
788	Major VSS fault	Fault in the inverter	Check the inverter
789	LIN/Encoding not found	Control unit unable to find coding. Either the LIN connection is interrupted or the coding resistor is not detected	Check the connection cable LIN / coding resistor
790	Major VSS fault	Fault in the power supply of the inverter / compressor	Check the wiring, inverter and compressor

CTA
■ AC ■ Cooling ■ Heating

No.	Display	Description	Remedy
791	Lost ModBus communication	SEC board no longer reachable for some time. 791 is triggered if an HeatingIO board has been found (without separate coding), but no SEC board can be detected on it	If it concerns the SEC configuration, test the ModBus cable between the HeatingIO and SEC board. Also check the SEC board to see whether everything is flashing as it should. If it is NOT a configuration with SEC board (e.g., because it concerns a P184 unit), check the coding resistor of the HeatingIO
792	LIN-connection lost	Unable to find a master board or any configuration	Check the coding connector on the LIN board(s)
793	Major VSS fault	Temperature sensor fault in the inverter	Fault acknowledges itself
794	Overvoltage	Overvoltage on inverter	Inspect the inverter voltage supply
795	Undervoltage	Undervoltage on inverter	Inspect the inverter voltage supply
796	Safety switch off	„Safety input was triggered Case 1 - Inverter malfunction Reset automatically? Case 2 - High-pressure pressostats in refrigerating circuit have triggered Reset automatically?"	„Case 1 - Inspect inverter. Remedy fault Case 2 - Inspect HW throughflow, overflow, flow temperature sensor and high-pressure sensor. Remedy fault."
797	MLRH is not supported	Heating rod regulating is not supported	-
798	ModBus connection lost	"ModBus error on fan. Reset automatically."	Inspect ModBus cabling to fan
799	ModBus connection lost	"ModBus error on ASB electronic printed circuit board. Reset automatically."	Inspect ModBus cabling to ASB electronic printed circuit board

ACKNOWLEDGING A FAULT

If a fault occurs and an error message appears in the screen, then:

① Notice error number…

② Acknowledge error message by pressing the "rotary pushbutton" (for 7 seconds). The screen changes from the error message to the navigation screen…

③ If this error message occurs again, contact the fitter or authorised service personnel (= customer service), if the error message prompted you to do this. Communicate error number and arrange further procedure..

FLASHING CODES ON CONTROLLER BOARD

Green LED flashes every second	everything ok
Red LED flashes briefly for short	Data being received over LIN bus
Green and red LED light up	The board can receive a software update
During the software update the green LED is lit and the red one flickers quickly	

Technical Data

INSTALLATION

Only in frost-free, dry and weatherproof rooms.

Ambient temperature: 0 °C – 35 °C

Electrical connection: 230 V AC, 18 VA, 0.1 A
(max. power consumption regulator without any appliances connected)

OUTPUTS

Relay contacts: 8 A / 230 V,

Fuse: 6.3 AT (for all relay outputs)

In total consumers up to 1,450 VA can be connected to the outputs

INPUTS

Optocoupler: 230 V

Sensor inputs: NTC sensor 2.2 kΩ / 25 °C

CONNECTIONS

Control line: 12-pole, outputs 230 V

Sensor line: 12-pole, low voltage

Plug-in terminals: 1-pole, screw terminals

INTERFACES

USB: USB version 2.0 (USB 2.0)
Host, A plug (only for a USB stick!)

Ethernet: 1 x 10 Base-T / 100 Base-TX
(RJ-45, plug, bent)

PROTECTION CLASS

Protection class   IP 20

CTA ● AC ● Cooling ● Heating

TEMPERATURE SENSOR CHARACTERISTIC CURVE

t / °C	R / kΩ
-25	21,291
-20	16,425
-15	12,773
-10	10,010
-5	7,903
+/-0	6,284
+5	5,030
+10	4,053
+15	3,287
+20	2,681
+25	2,200
+30	1,815
+35	1,505
+40	1,255
+45	1,051
+50	0,885
+55	0,748
+60	0,636
+65	0,542
+70	0,464
+75	0,399
+80	0,345
+85	0,299
+90	0,260
+95	0,227
+100	0,198
+105	0,174
+110	0,153
+115	0,136
+120	0,120
+125	0,106
+130	0,095
+135	0,085
+140	0,076

SENSOR MEASURING RANGE

Type of sensor	Measuring range	Autom. value in case of sensor defect
PEX	-40°C to 40°C	-
TA	-30°C to 100°C	-5 °C
TBW	-40°C to 40°C	75 °C
TFB1	-20°C to 150°C	75 °C
TRL ext	-40°C to 40°C	5 °C
TVL	0°C to 100°C	5 °C
TVL2/TEH	0°C to 100°C	5 °C
TRL	0°C to 100°C	5 °C
optional circuit board		
TSS	-20°C to 140°C	150°C
TSK	-20°C to 140°C	150°C or 5°C
TB2	0°C to 100°C	75°C
TB3	0°C to 100°C	75°C
TEE	0°C to 100°C	5°C

Overview: Defrost cycle, Air defrost, Flow Max

	Defrost cycle	Air defrost		Flow Max	
		from / end	Flow Max.	min. AT flow max.	Flow limit of applic.
CS 6is-BWW	45	–	57		
CS 8is-BWW	45	–	57		
CS 6is-BWW-D	60	7/6	61	-7	52
CS 8is-BWW-D	60	7/6	61	-7	52
CS 10is-BWW	60	7/6	57		
CS 12is-BWW	60	7/6	57		
CS 7a	60	–	57		
CS 8a	60	–	57		
CS 10a	60	–	57		
CS 12a	60	7/6	57		
CS 15a	60	–	59		
CS 19a	45	–	59		
CS 25	45	–	61	-4	50
CS 26	45	–	57		
CS 33	60	7/6	59		
CB 1-10	45	–	64	-15	60
CB 1-18	45	–	64	-15	60
CB 15	45	–	64		
CB 32	60	–	64		
CS 09ar	60	7/–	61	-7	50
CS 14ar	60	7/–	61	-7	50
CS 1-07a	60	–	57		
CS 1-08a	60	–	57		
CS 1-10a	60	7/6	61	-7	50
CS 1-12a	60	7/6	61	-7	50
CS 1-14a	60	7/6	61	-7	50
CS 1-18a	60	7/6	61	-7	50
CS 1-25a	60	7/6	61	-7	50
CS 1-31i	60	7/6	59		
CS 1-31a	60	–	59		
CI 16a	45	–	65	-15	60
CI 8i	variable	–	60	0	45
CI 12i	variable	–	60	0	45
CI 8a	variable	–	60	0	45
CI 12a	variable	–	60	0	45
CI 8is	variable	–	60	0	45
CI 12is	variable	–	60	0	45
CP 45a	60	–	65	-10	60

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System setting during commissioning

Parameter	Factory setting	Setting Start-up	Value range	Access
Limit return	45 °C	°C *)	35 °C – 70 °C	Fitter
Hysteres HC	2,0 K	K *)	0,5 – 3,0 K	Fitter
RTincr.e max	7,0 K	K *)	1,0 – 7,0 K	AS
Release 2 CP	5 °C	°C *)	-20 °C – 20 °C	Fitter
Release 2hg	-2 °C	°C *)	-20 °C – 20 °C	Fitter
Tp-defr. Air.	10 °C	°C *)	0 °C – 20 °C	AS
TVth.disinf2	65 °C	°C *)	50 °C – 70 °C	User
Hysteres. SW	2,0 K	K *)	1,0 – 30,0 K	Fitter
Flow 2.CP SW	50 °C	°C *)	10 °C – 70 °C	Fitter
T-outd. max	35 °C	°C *)	10 °C – 45 °C	AS
T-outd. min.	-20 °C	°C *)	-20 °C – 10 °C	Fitter
T-HS min	S/W: -9 °C W/W: 3,5 °C	°C *)	-20 °C –10 °C	AS Plant
T-HG max	130 °C	°C *)	90 °C – 140 °C	Plant
T-def.airend	2 °C	°C *)	2 °C – 10 °C	AS
Lowering to	-20 °C	°C *)	-20 °C – 10 °C	User
Flow max	device-dependent	°C *)	35 °C – 75 °C	User
Flow max. MC1	40 °C	°C *)	25 °C – 75 °C	User
min. AT flow max.	-7 °C	°C *)	-20 °C – 5 °C Settings only possible for reversible units	AS
Flow limit of applic.	50 °C	°C *)	35 °C – 75 °C Settings only possible for reversible units	AS
Hysteresis 2.CP short	4.0 K	K		Fitter
service water max	65°C	°C *)	30 °C – 65 °C	Fitter
min. flow cooling	18°C	°C	5°C - 25 °C	Fitter
Min return target temperature	15°C	°C *)	15 °C – 30°C	Inst
Min. MK1 flow	20°C	°C *)	20 °C – 40 °C	Inst
Max. MK1 flow	45°C	°C *)	25 °C – 75 °C	Inst
El. sup. blockade	no 2hg	no 2hg · with 2hg *)	no 2hg · with 2hg	Fitter
Room stat.	No	No · RFV *)	No · RFV	User
Integratation	Return	Return · Sep.tank *)	Return · Sep.tank	Fitter
Mixing circ 1	No	No · Charge · Discharge · Cool *)	No · Charge · Discharge · Cool	User
Mixing circ 1 CN reversible	No	No · Charge · Discharge · Cool *)	No · Charge · Discharge · Cool	Fitter

Parameter	Factory setting	Setting Start-up	Value range	Access
Error	No	No • Heating • Domestic Water • Yes*)	No • Heating • Domestic Water • Yes	🔧 Fitter
Service water 1	Sensor	Sensor • Thermal *)	Sensor • Thermal	👤 User
Service water 2	CP	CP • h.w.CP *)	CP • h.w.CP	🔧 Fitter
Service water 3	with CP	wo. CP • with CP *)	wo. CP • with CP	🔧 Fitter
Service water 4	set value.	set value • max value *)	set value • max value	🏭 Plant
Service water 5	device-dependent	wo HSP • with HSP *)	wo HSP • with HSP	🔧 Fitter
SW+HP max	0 h	h *)	0 h – 8 h	👤 User
Defr cycle max	45 min	min *)	45 • 60 • 90 • 120 • 180 • 240 • 300 min	🔧 Fitter
Defrost. Air..	No	No • Yes *)	No • Yes	👥 AS
Defr. Air max	15 min	min *)	5 min – 30 min	👥 AS
Defrost 2	with 1CP	with 1CP • with 2CP *)	with 1CP • with 2CP	🏭 Plant
Pump opt.	Yes	No • Yes *)	Suppl. pump • CP	👤 User
Access	Fitter	User • Fitter • AS *)	User • Fitter • AS	👥 AS
Heat source only SWP BG 1	No	No • Brine • Water, Water/Brine	No • Brine • Water, • Water/Brine	👥 AS
Flow	device-dependent	No • Flow • Pow.suppl. • pow.a flow *)	No • Flow • Pow. suppl. • pow.a flow	👥 AS 🔧 Fitter
Control CP	On	Off • On *)	Off • On	👥 AS
Setting hc	set. AT	set. AT • Fixed Tp. *)	set. AT • Fixed Tp.	👤 User
Setting mc 1	set. AT	set. AT • Fixed Tp. *)	set. AT • Fixed Tp.	👤 User
Speed MK1	fast	fast • medium • slow	fast • medium • slow	🔧 Fitter
Screed heating	w. mixer	wo. mixer • w. mixer *)	wo. mixer • w. mixer	👤 User
El. Anode	device-dependent	No • Yes *)	No • Yes	👥 AS
Heating limit	Yes	No • Yes *)	No • Yes	👤 User
Parall. operation	No	No • Slave • Master *)	No • Slave • Master	🔧 Fitter
Remote maintenance	No	No • Yes *)	No • Yes	👤 User
Pump optim. Time	180 min	*)	5 – 180 min	👤 User
efficiency pump	No	No • Yes *)	No • Yes	🔧 Fitter
heat quantity				🔧 Fitter
min defrost cycle	45 min	min	45 • 60 • 90 • 120 • 180 • 240 • 300	🔧 Fitter
TDI Message	Yes	No • Yes *)	No • Yes	🔧 Fitter
release 2hg	60 min	min	20 min - 120 min	🔧 Fitter
aux. heat. hot water	No	No • Yes *)	No • Yes	🔧 Fitter

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Parameter	Factory setting	Setting Start-up	Value range	Access
aux.serv.water max	–	min	20 min - 120 min	🔒 Fitter
Power 2hg	9 kW	kW *)	0,5 kW – 9 kW	🔒 Fitter
energy efficiency pump	No	No • Yes *)	No • Yes	🔒 Fitter
2hg only Luxtronik 2.0	60 min	min	20 - 120 min	🔒 Fitter
Second heat gen. 1 Type	No	No • El. Rod • Boiler • Thermal *)	No • El. Rod • Boiler • Thermal	🔒 Fitter
Second heat gen. 1 Function	No	No • Heating • Heating a SW *)	No • Heating • Heating a SW	🔒 Fitter
Second heat gen. 1 Position	– – –	– – – • Tank • integrated *)	– – – • Tank • integrated	🔒 Fitter
Second heat gen. 2 Type	No	No • El. Rod *)	No • El. Rod.	🔒 Fitter
Second heat gen. 2 Function	No	No • Heating • SW *)	No • Heating • SW	🔒 Fitter
Second heat gen. 2 Position	– – –	– – – • Tank • integrated *)	– – – • Tank • integrated	🔒 Fitter
desuperheater	Yes	No • Yes *)	No • Yes	🔒 Fitter
Silent Mode	No	No • Yes *)	No • Yes	🔒 Fitter

*) Please enter value or cross out if not applicable

Important abbreviations

Abbreviation	Meaning
1CP	1. compressor in heat pump
2CP	2. compressor in heat pump
2 hg	Second heat generator
2hg1 fct	Function of the second heat generator 1
2hg1 type	Type of the second heat generator 1
2hg2 fct	Function of the second heat generator 2
2hg2 type	Type of the second heat generator 2
2nd heat gen. 1	Second heat generator 1
2nd heat gen. 2	Second heat generator 2
Addit. pump	Additional pump
Amb. temp.	External temperature
Amb. temp.	Ambient temperature
Amb. temp. max.	Maximum external temperature
Amb. temp. min.	minimum external temperature
AS	Customer service
av. so Compr.1	Average duration of the 1st compressor
av. so Compr.2	Average duration of the 2nd compressor Well /
Biv.-Level	Bivalent level
BUP	Domestic hot water pump
CFT	Collective fault
Control CP	Compressor monitoring
CP	Compressor
CP	Circulation pump
Defr	Defrost
Defr cycle	Defrost cycle
Defr. air.	Air defrost released above the set temperature
Defr. max	Maximum air defrost time
Electr. suppl.	Off-time of the electrical supply
ERR.INST.	System fault
ERR-HP	Heat pump fault
EVU	Release signal electrical supply
Ext	External
Fan-heats. pump	Fan, well or brine circulation pump
Floor heat. pump1	Floor heating circulating pump
Flow	Temperature sensor flow
Flow max	maximum flow temperature
Flow 2CP SW	Flow 2nd compressor domestic hot water
FVT	Forced ventilation
HC Add-time	Heating control more time
HC Less-time	Heating time less time
Heat	Heating
Heat. sys. pump	Heating circulation pump
High pressure	High-pressure pressostat
Hot water pump	Domestic hot water circulation pump

Abbreviation	Meaning
HP	Heat pump
HP since	Heat pump running since
HP-Type	Heat pump type
HS	Heat source
HS in	Heat source inlet temperature
HS out	Heat source outlet temperature
HSI	Temperature sensor heat source inflow
HSO	Temperature sensor heat source outflow
Hysteres. SW	Hysteresis of domestic hot water
Hysteresis HC	Hysteresis of heating control
Imp. Compr 1	Impulses compressor 1
Imp. Compr 2	Impulses compressor 2
L/W	Air/Water
LA	Ventilation off
Limit Return	Return limit
Low pressure	Low pressure pressostat
Lowering to	maximum lowering
MC1 desir.	Mixing circle 1 – flow – set temperature
MC1 fore.	Mixing circle flow temperature
Mixing circ 1	Mixing circle 1
Motor protect.	Motor protection
Op. h. 2hg1	Operation hours, additional heat generator 1
Op. h. 2hg1	Operation hours, additional heat generator 1
Op. h. 2hg2	Operation hours, additional heat generator 2
Op. h. comp1	Average running time of 1st compressor
Op. h. comp2	Average running time of 2nd compressor
Op. h. hp	Operation hours heat pump
Par. mode	Parall. operation
Pump opt.	Pump option
Read-CPd	Compressor Read-CPd
Release 2 CP	Release 2nd compressor
Release 2hg	Release second heat generator
PEX	Party external Room station possible for WZS devices potent. ext.
Ret. targ.	Return setpoint temperature
Roomstat.	Room station (= room remote adjuster)
RRA	Room remote adjuster
RTincr.e max	Return increase maximum
Screed heat.	Screed heating
Stop SW	Off-time domestic hot water
Suppl. pump	Additional circulating pump
SW	Domestic hot water
SW actual	Domestic hot water actual temperature
SW des val	Domestic hot water target temperature

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Abbreviation	Meaning
SW.	Domestic hot water
Swi c time	Off-time switching cycle
SW-therm. switch	Domestic hot water thermostat
SW-Version	Software version
TA	External sensor
TB1	Temperature sensor mixing circle 1
TBW	Domestic hot water temperature sensor
T-def.airend	Temperature air defrost end
ThDsin.	Thermal disinfection
THG	Temperature sensor hot gas
T-HG max	maximum hot gas temperature
T-HS min	minimum heat source temperature
Tp-defr. air.	Temperature air defrost
TRL	Temperature sensor return
TRL-E	Temperature sensor return external
TSW	Temperature sensor domestic hot water
TVth. disinf2	Thermal disinfection – set temperature
VD	Ventilation day mode
VEN	Fan
Vent. air inlet	Air input ventilator (= defrosting function)
Ventilation	Ventilation of the heat pump housing
ZUP	Additional circulation pump
VP	Ventilation Party (= Continuous daytime operation)
ZWE	Second heat generator