Customer operation
SolvisMax

For gas or oil burners and residential district heating systems with SolvisMax

Wärme. Leben. Zukunft

Contents

1 Information About These Instructions

These instructions include the necessary information about how to operate and adapt your system according to your individual needs.

Please keep these instructions with the system so they can be referred to when necessary.

As we are interested in improving our technical documentation, we appreciate feedback of any kind.

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Please consult with your installer regarding questions about operation.

Using these instructions

Menu entries

All of the cited menu entries for the SolvisControl system controller are printed in bold and are placed in quotation marks.

System versions

The SolvisMax solar heating system is comprised of multiple versions. The following reference shows if there are differing or special equipment characteristics or operating information for the various system versions:

SolvisMax Gas and Öl

In this example, the information relates to all SolvisMax versions with oil and gas burners.

Symbols used

⚠ **DANGER**
Immediate danger, with serious health consequences and even death.

⚠ **WARNING**
Danger, with potentially serious health consequences.

⚠ **CAUTION**
Possible risk of moderate or light injury.

ⓘ **CAUTION**
Risk of damage to unit or system.

ⓘ Useful information, notes and work tips.

📝 Change of document, referring to another document.

E Energy-saving tip with suggestions on how to save energy. This reduces costs and helps protect the environment.

2 Notes

2.1 Safety Notes

> ⓘ **CAUTION**
> **Observe instructions**
> Solvis is not liable for any damage resulting from non-observance of these instructions.
> - Read the instructions carefully before operating the system.
> - Observe the safety notes.
>
> ⚠ **DANGER**
> **What to do if there is a risk of fire**
> - Immediately switch off the heating emergency switch.
> - Shut off the fuel supply.
> - Have a suitable fire extinguisher ready.
>
> ⓘ **CAUTION**
> **Observe ambient conditions**
> Malfunction or failure of system possible.
> - Avoid ambient temperatures outside of the permitted range of 0°C to +50°C.
> - Avoid dew condensation and an annual mean relative humidity higher than 75>% (briefly 95%).
>
> ⓘ **CAUTION**
> **Check for damage**
> Damage to the controller, to cables or to connected pumps or valves may cause severe damage to the system.
> - Do not operate the system/unit if there is visible damage to any of its components.
>
> ⓘ **CAUTION**
> **Avoid contaminants**
> - Water, oil, grease, solvent, dust, foreign bodies, aggressive vapours and other contaminants must be kept away from the system and the units.
> - Cover the system and the units when performing construction or other work in the area to protect them from dirt and contaminants.
> - Do not remove the protective foil on the unit until immediately before startup.
>
> ⓘ **CAUTION**
> **Do not make any unauthorised modifications**
> Otherwise, there is no guarantee that the system will function correctly.
> - You must not make any changes to the components of the unit.
> - Only use original spare parts.

2.2 Use

Intended use

The units and components in this system are intended only for heating and for hot water production with possible solar support, as described in this document.

Operating this system for any other purpose is prohibited. Exceptions require express written approval or statement from Solvis in advance.

Exclusion of liability

Solvis accepts no responsibility for damage to the unit or resulting damages if:

- installation and start-up have not been carried out by a specialist company recognised by Solvis,
- the system is not being used as intended or is being operated incorrectly,
- maintenance was not performed, or
- maintenance, modifications or repairs have been performed on the heating system by someone who is not a specialist.

Guarantee and warranty

We offer a **warranty** in accordance with our general terms and conditions. On various components, we also offer guarantees lasting several years.

Glossary

Certain terms are used in these instructions that have the following meaning if not otherwise indicated:

- **Standard value**: Values stored in the controller at the factory. They depend on the respective system configurations. The menus in these instructions usually display the standard values for the SolvisMax Gas; the values of other systems are referred to separately.
- **Internal heat generator**: District heating, gas, or oil burner in the SolvisMax heat exchanger insert.
- **External heat generator**: Gas or oil burner, solid fuel boiler, or heating pump in an external boiler.
- **Solid fuel boiler**: Boilers that are fired with sold fuels, such as wood. They can also be used as an additional heat source.

3 Product Description

For detailed system diagrams, see the ➔ *document (ALS-MAX-7)*.

3.1 Differences between the system versions

Name	Heat generator	Combination storage tank with... *
SolvisMax Gas	a	integrated gas condensing system and optional solar station
SolvisMax Öl	b	integrated oil condensing system and optional solar station
SolvisMax Fernwärme (with district heating)**	c	integrated residential district heating system and optional solar station
SolvisMax Solo	d	external boiler and optional solar station

* *You can retrofit all systems without an integrated heat generator. You can also change the type of heat generator.*
** *Only available in Germany.*
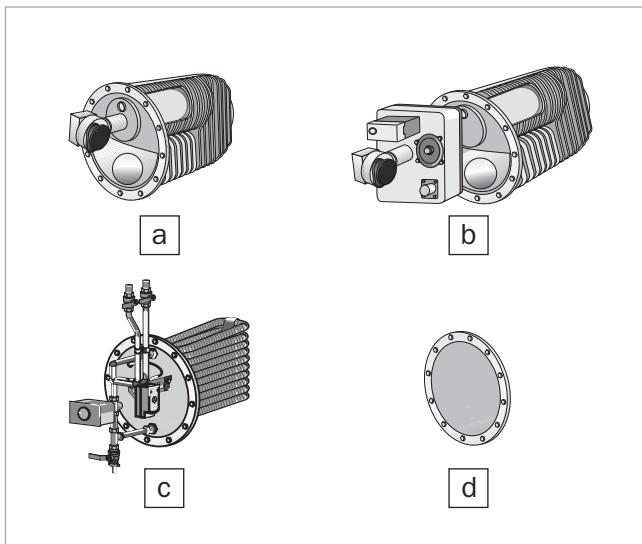
Fig. 1: Heat generator insert

a *Gas condensing heat genera-tor insert*
b *Oil condensing heat generator insert*
c *Residential district heating system insert*
d *Flange cover*

Fig. 2: SolvisMax solar heating system

3.2 SolvisControl

The intelligent SolvisControl adjusts the connected components to weather conditions to maximise the energy utilization in the overall system.

As a result, the storage tank is always charged or discharged to meet requirements. In addition, the heat generator is controlled, the solar circuit and heating circuits are adjusted, and the hot water is heated to the required temperature in direct flow.

Fig. 3: SolvisControl system controller

Operation

You can operate the SolvisControl directly via a touch-sensitive display (touch screen), which has menus in which

you can select items and change parameters. It also includes the "Help" and "Back" function buttons.

Memory card

An externally accessible memory card (Micro SD card) contains the current operating software, language files for various countries, and firmware, which can be easily updated as needed. All of the system operating parameters that you have set can be saved to the card and reloaded whenever needed.

System analysis

A special data logging function allows you to save the system data to the supplied memory card at intervals of minutes and seconds over a very long period of time. This system data can be analysed as required using special analysis software or a spreadsheet program.

3.3 Room controller (optional)

Room controller (BE-SC-2)

The room controller is connected to the SolvisControl system controller and shows information such as the temperature and operating modes. It can be used for both mixed and unmixed heating circuits.

In the event of a system malfunction, "**Er**" (for error) is shown in the room controller display. This applies only to room controller version 24 or later.

The version of the room controller is displayed when the upper part is removed from the wall socket and plugged in again.

> **i** When a room controller is connected, the "Simple operation" operating mode is not available.
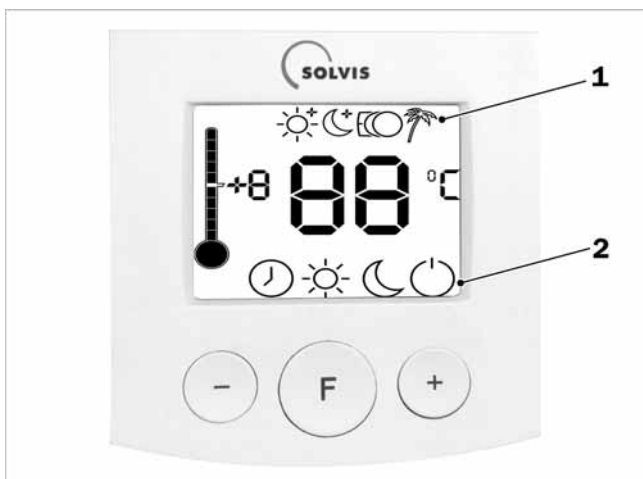
Fig. 4: Room controller BE-SC-2

1   Operating modes can be activated in the central controller only
2   Operating modes can be activated with the "**F**" button

Display of operating modes

Display	Operating mode
☾	Time/automatic mode
☼	Day mode
☼⁺	Time-related day mode (Party mode)*
☾	Lowering mode
☾⁺	Time-related lowering mode (absence fct.)*
⏻	Standby mode
ЄꞒ	ECO mode*
🌴	Leave mode/function*

* Symbol displayed above the room temperature

Operation

- "**+**" and "**–**" buttons: Temperature correction (± 5 levels) to individually adjust the room temperature.
- "**F**" button: For setting the different operating modes and calibrating the temperature display.

3.4 Pool sensor (optional)

Pool sensor

Consists of room sensor BE-SC-2-O-SEN plus contact sensor SEN-A-105-PT (PTC Pt1000, please order separately, for connection to the room sensor)
The heating circuit uses the pool sensor to switch off the swimming pool/pool to be heated once the target temperature has been reached.

4 Operating the SolvisControl

4.1 Operating elements

*Fig. 5: SolvisControl with "**Heating**" menu*

Touch screen

You operate the unit by touching the active fields. To prevent the surface from becoming damaged, do not let the touch screen come into contact with sharp objects. You only need to press the surface lightly **(with clean, dry fingers)**.

Description of symbol buttons

Button	Function
⊘	Time/automatic mode. Press briefly: switch the heating circuit to automatic mode. Press for approx. 3 seconds: change heating times.
☼	Switch the heating circuit to day mode. Press for approx. 3 seconds: party mode.
☽	Switch the heating circuit to lowering mode. Press for approx. 3 seconds: outdoor mode.
⏻	Switch the heating circuit to standby mode.
☂	Activate the leave function.
€	Activate the ECO function. Press for approx. 3 seconds: settings.

Explanation of the operating elements

Button	Function
Time	Function (here: "Time") is activated; press briefly to deactivate.
Time	Function (here: "Time") is deactivated; press briefly to activate.
+ −	Rocker switch. Briefly press "+" or "−" to change the values.
◄ Curve ►	Option button. Briefly press "<" or " >" to change the option.
− 1.20 +	Numeric value button. Briefly press "+" or "−" to change the values.
+ OK −	Rocker switch with "OK" button. Briefly press "+" or "−" to change values, and confirm the numeric value by pressing "OK".
▲ ► ▼	Navigation buttons: You can open additional menu items (pages) here.
?	Help button. Displays help text.
◄◄	Back button. Used to cancel entry or return to the previous menu.

Navigating in the menus

Heating	Chimney sweep*	▶
Water	Memory card	▶
Circula.	Heating circuits	▶
Solar	System status	▶
Other	Continue	▼
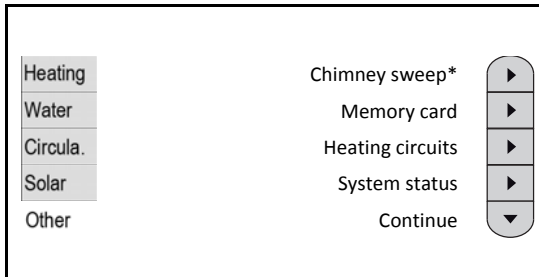
For district heating: "――"

While in expert operation, a tab showing the five main menus is displayed on the left. The menu that is currently selected is highlighted.

Select the relevant item to switch to a different main menu.

Using the navigation buttons, which can be recognised from the arrowheads, you can switch to a further submenu from the "**Other**" main menu. Use the "**Next**" and "**Back**" buttons to scroll down/up a screen.
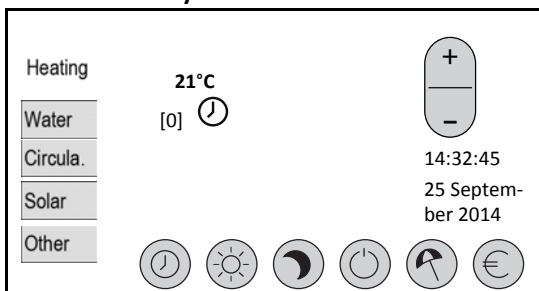
Buttons with symbols

The menu contains all of the important functions and parameters for heating. You can switch between functions by briefly pressing buttons that are marked with symbols. For example, you can use the clock symbol button to switch from "Time/automatic mode" to "**Standby**".

For certain operating procedures (e.g. opening the heating times window, see ➔ *"Changing heating times", page 13*), a button must be pressed for approx. 3 seconds. This is pointed out in the corresponding sections.

> In the figure, the "**Heating**" main menu is displayed if a room controller has been connected. The current room temperature in this example is 21 °C. As standard, the room temperature is not displayed, because a room controller is not included in the standard version; however, it can be ordered separately. See the ➔ *chapter "Room controller (optional)", p. 7.*

4.2 Changing numeric values

Value buttons

To set numeric values in an elongated button (called "rocker switch"), press "**–**" or "**+**" on the rocker switch.

Configure time window

To configure the switch-on and switch-off time of a time window, proceed as follows:

1. Press a numeric value (e. g. "6" hours). The number is selected.
2. To set, select "**+**" or "**–**"
3. Repeat steps 1 to 2 for the 2nd value (e. g. "30" minutes).
4. Repeat steps 1 to 3 for the switch-off time.
5. Then press "**OK**".
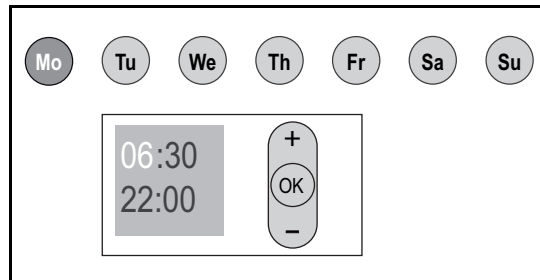
4.3 Operating modes

SolvisControl offers four different operating modes. Depending on the configuration of the heating circuit, which is carried out by the installer, the following two operating modes may be available:

- For "**Simple**" operation, see ➔ *section "Simple operation", p. 12*
- For "**Expert**" operation, see ➔ *section "Expert Operation" , p. 13.*

Other operating modes are "**Installer**operation" and "**Factory service**". These can only be accessed with the relevant code.

4.4 Help texts and messages

4.4.1 Help texts

On most menus, you can open information about the setting options using the Help button. For example, terms are explained and operating options are displayed here.

Help
Please select one of the options.
End with << button
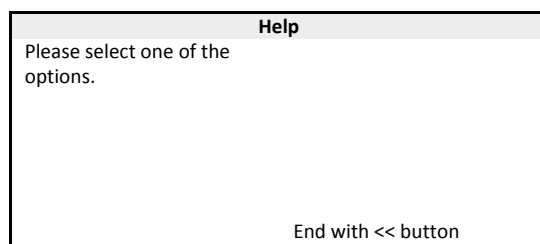
4.4.2 Messages

The SolvisControl constantly monitors the entire system. If malfunctions arise, these are displayed with messages in plain text. There are two different categories of messages. In addition to the simple message about the system status

(status message), there are also malfunction messages that need to be unlocked separately. Further information about the messages is included in ➔ *"Troubleshooting", page 29.*

MESSAGE: Delta-T solar
Possible causes of the malfunction: 1. Improper circulation in the solar circuit 2. Heat exchanger output reduced   If this happens again, inform your installer. End with << button

FAULT: Burner
Burner malfunction, to unlock press "Reset" on the display.   ◯   Reset

5 Starting Up the System

5.1 Notes

Frost protection

Standby button: To prevent the heating system from freezing, even in the case of longer absences, the heating system must be switched to standby mode, see ➔ *section "Standby", p. 12* or ➔ *section "Operating mode: standby", p. 14*.

In simple operation, simply press the standby button again to switch it on; in expert operation, activate the time/automatic mode button.

If you want to continue heating at a specific temperature while you are away for a longer period of time (such as on holiday), select the Leave function, see ➔ *section "Operating mode: leave", p. 14*.

Fuel deliveries

The boiler must be switched off (main switch off) during oil deliveries. After the tank has been filled, the SolvisMax Öl must remain shut off for at least 2 hours (up to 4 hours is better). It is not possible to run the solar system and water heating during this time.

! **CAUTION**

Use approved heating oil only.

Otherwise, the warranty becomes invalid and the boiler may be damaged.

- Operate the boiler with low-sulphur EL heating oil only (max. 50 ppm sulphur).
- Preferably, we recommend using premium quality low-sulphur heating oil in compliance with DIN 51603-1.
- Furthermore, all oil heating boilers for (low-sulphur) heating oils with a biofuel proportion of up to 10 % as per DIN SPEC 51603-6 are approved.

5.2 Switching on the system

Your heating contractor installed your system and started it up. If you want to start up the system after an extended period of downtime, follow the most important steps for restarting the system that are given below.

Fuel supply and power supply

If an external heat generator is available and connected, start it up according the manufacturer's instructions.

SolvisMax Gas and Öl

Open the gas or oil valve on the supply line to the burner.

Switch on the system

1. Switch on the heating emergency switch, if necessary.

2. Press the main switch.

Fig. 6: Switch on the system

Checking the time and date

1. Select "**Heating**".

2. Check the time and date.

3. Set the date and time, if necessary (see ➔ *"Date/time", page 23*).
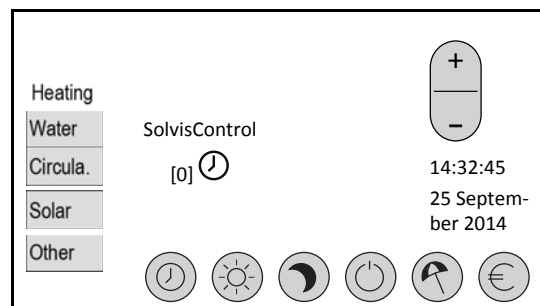
Heating requirement

If the buffer tank has not been sufficiently heated, the heat generator must provide auxiliary heating. It then begins to operate automatically after a short amount of time.

If this does not happen and you believe that the heat generator should start up, check that there is a heating requirement from the controller, i.e. whether output 12 in the system status has a black background see ➔ *section "System status", p. 22* and ➔ *section "Malfunctions with heating and hot water", p. 31*.

6 Simple operation

In simple operation, all important functions are shown together on one menu. The heating system can by operated using two rocker switches and two buttons.

During start-up or re-initialisation, the installer can activate simple operation. Depending on the configuration of the heating circuits, however, simple operation may not be possible. For example, this is the case if a room sensor is connected.
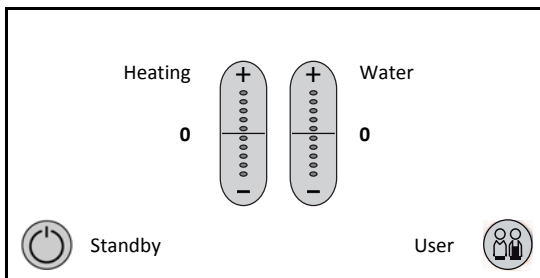
6.1 Standby

"**Standby**" button: Switch off the heating circuits except for the antifreeze. The water heating, circulation, and solar system continue to run. To prevent frost damage, the heating circuits are activated only when the outdoor temperature is below 3 °C (below 5 °C room temperature when the room controller is connected).

To return to time/automatic mode, press the standby button again.

6.2 Heating

"**Heating**" rocker switch: Change the room temperature. If it is too cold, press "**+**" and if it is too warm, press "**–**". This changes the room temperature by up to ± 5 steps.

> The step-by-step adjustment in ± 5 increments has a direct effect on the flow temperature. Depending on the heating system and the existing building insulation, you can change the room temperature by approx. ± 2°C.

> If the setting range of ± 2 °C is too narrow, you must configure the room temperature, see → *para. "Change room target and low temperatures", section "Heating circuits", p. 19.*

6.3 Water

"**Water**" rocker switch: Changes the hot water temperature by up to ± 5 °C (based on the target value). If the water at the tap is too cold, briefly press "**+**" and if it is too warm, press "**–**".

E Do not set the target hot water temperature to be warmer than 48 °C: the lower the temperature, the higher the energy savings. As long as the lines are short, the drinking water will be hygienically perfect, even at low temperatures. Only the amount required will be heated (fresh water system). Temperatures of 42 °C (bathing and showering) or 38 °C (showering only) are sufficient when the lines are also well-insulated.

6.4 User

"**User**" button: For accessing user selection. You can select different operating modes here.

Switching on the expert

1. Select "**User**".
2. Select "**Expert**".
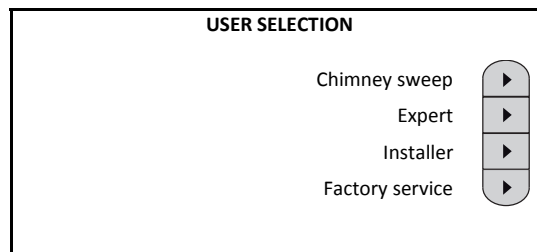
- "**Chimney sweep**": The burner can be switched on for purposes of maintenance or inspection.
- "**Installer**" or "**Factory service**": Additional operating modes for the installer and customer service. To activate each mode, you need a separate number code.

7 Expert Operation

Five main menus with expanded functions and setting options are available in expert operation. You can use these to optimally adapt the heating system to your requirements.

The individual main menus can be opened by pressing the corresponding item on the left side. The following sections explain the setting options.

7.1 Heating

E To maximise energy savings, the heating circuits switch off during the summer when the outdoor temperature exceeds a configurable outdoor temperature value. In this case, it is possible that the target room temperatures will not be achieved, especially in autumn and spring. For this reason, you should carefully adjust the switch-off temperatures to the individual building conditions (see ➔ *"Setting the summer/winter switch" in "Heating circuits", page 19*).

Systems with one heating circuit

The elements of the heating menu:

- In the lower portion of the display, there is a row of buttons for selecting the various operating modes (see the next section for explanations).
- The current time and date are displayed on the right hand side above the row of buttons. (For information about setting the date, see the ➔ *chapter "Date/time", p. 23*).
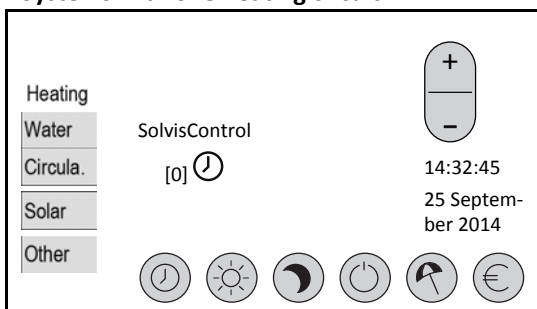- A rocker switch that is used to change the room temperature is displayed above the time. You can raise or lower the room temperature by five increments.
- The temperature increments by which the room temperature is currently being raised (no leading sign) or lowered ("-") are displayed in square brackets below "SolvisControl".
- The symbol that appears next to the square brackets with the temperature increment shows the respective operating mode, which corresponds to the row of buttons at the bottom of the display.
- If a room controller is connected (please order separately; see the ➔ *chapter "Room controller (optional)", p. 7*) the current room temperature where the "SolvisControl" is positioned is displayed.

Systems with several heating circuits
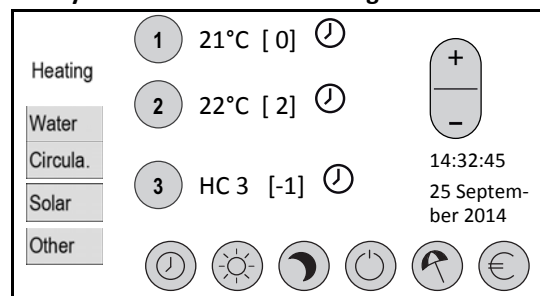
The elements of the heating menu:

- You cannot select an operating mode or temperature on the rocker switch until you have first selected the button with the number of the heating circuit that you want to change.
- In addition to the buttons with the number, either the room temperature (an optional room controller is connected) or "**HC**" is displayed, followed by the number of the heating circuit in question.

7.1.1 Changing the room temperature

Simply press "**+**" or "**-**" on the rocker switch to raise or lower the room temperature. If you have more than one heating circuit, you first have to select the heating circuit that you want to change.

i The step-by-step adjustment in ± 5 increments has a direct effect on the flow temperature. Depending on the heating system and the existing building insulation, you can change the room temperature by approx. ± 2°C.

If you have used this change option and the room is still too warm or too cold, you can reset the target room temperature for the relevant heating circuit (see ➔ *"Changing the target room and low-mode temperatures" in "Heating circuits", page 19*).

7.1.2 Operating mode: time/automatic

Press the button with the clock symbol to activate time/automatic mode.

The currently active operating mode for each heating circuit is indicated by a symbol.

7.1.3 Changing heating times
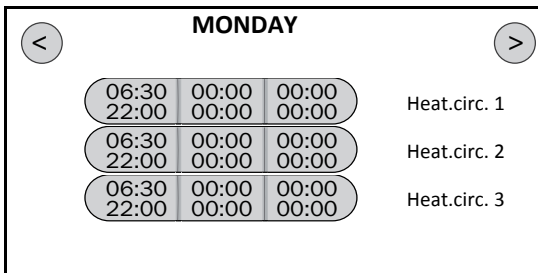
Open the time window

1. Select the heating circuit if you have more than one heating circuit.
2. Press the "Time/automatic mode" button for approx. 3 seconds.

The time windows for all heating circuits are displayed.

3. Select the navigation button: This scrolls through the days of the week. Three different time windows are

available for each heating circuit and each day of the week.

4. Select a time window for the relevant heating circuit.

Configure times

1. Select the button with the day(s) of the week: Selection of the day of the week to which the time window should apply. You can also select several at the same time. Activated days of the week have a dark button.

2. To change the preset starting and ending times, see ➜ *section "Changing numeric values", p. 9*.
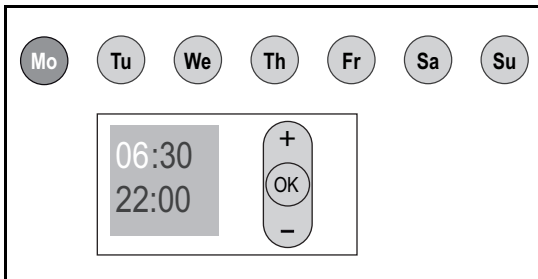
7.1.4 Operating mode: day mode

Set continuous day mode

1. Select the heating circuit if you have more than one heating circuit.

2. Briefly press the "Day mode" button: activates continuous day mode.

3. Press the "Day mode" button for approx. 3 seconds.

A window appears, in which you can set the room temperature and duration of day mode (e.g. during a party).

4. Set the values according to your needs.

The symbol for day mode, followed by the duration of day mode, is displayed in the "**Heating**" main window next to the heating circuit number.
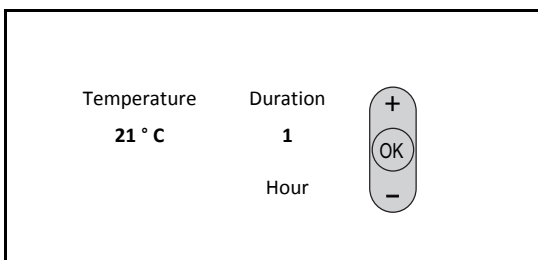
7.1.5 Operating mode: lowering mode

Set the duration for lowering mode

1. Select the heating circuit if you have more than one heating circuit.

2. Briefly press the "Lowering mode" button: activates continuous lowering mode.

3. Press the "Lowering mode" button for approx. 3 seconds.

A window appears, in which you can set the room temperature and duration of lowering mode (e.g. during a period of absence).

4. Set the values according to your needs.

The symbol for lowering mode, followed by the duration of lowering mode, is displayed in the "**Heating**" main window next to the heating circuit number.
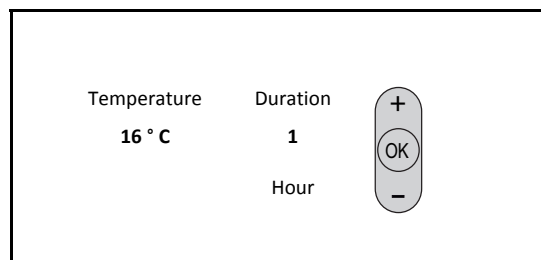
7.1.6 Operating mode: standby

Switching to standby

1. Select the heating circuit if you have more than one heating circuit.

2. Press the "**Standby**" button.

Except for the antifreeze, the heating circuit is now switched off, and the heating circuit pump is deactivated. When the outdoor temperature is below 3 °C, the heating circuit is supplied with the "Min. flow temperature" (antifreeze).

The water heating system remains in operation; that is, the hot water buffer is reheated as required.

Deactivating standby mode

1. Select the heating circuit if you have more than one heating circuit.

2. Activate one of the operating modes (e.g. "**Automatic**") to switch the heating circuit back on.

7.1.7 Operating mode: leave

Select type of leave

You can determine how heating should take place while you are on leave. You always select between a leave at "**Home**" and a leave "**Away**". Proceed as follows:
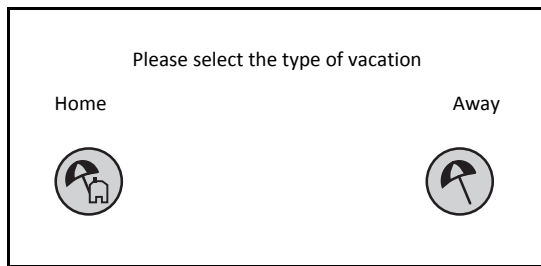
1. Select the heating circuit if you have more than one heating circuit.

2. Briefly press the "**Leave**" button.

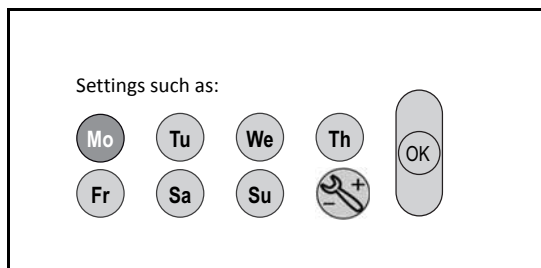A window appears, in which you can select the type of leave.

3. Select whether you are spending your leave "**Home**" or "**Away**".

Please select the type of vacation

Home   Away

Set "Leave" at home

After you press the "**Home**" button, a window appears, in which you can select the days of the week.

1. Select the weekday which has a time window that you will use as a basis for the leave "at home" (in this example, Monday was selected).

2. Briefly press the "**OK**" button: this setting is valid for the following 7 days only.

Settings such as:

Mo   Tu   We   Th

Fr   Sa   Su   OK

3. Alternative: Briefly press the "**Configuration**" button.

A window appears, in which you can enter the target room temperature, the duration in days, and a time window for the heating time.

4. Enter the value required and briefly press "**OK**".

Temperature   Heating time
21 ° C   **06:30**
Duration   to
1 Days   **22:00**
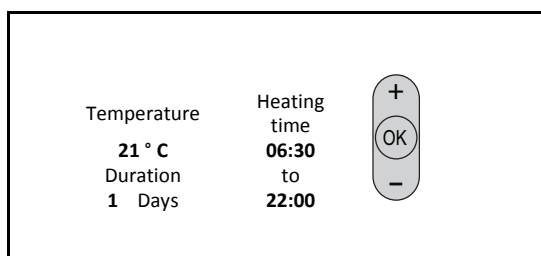
ℹ The "**leave at home**" operating mode only affects the heating circuits. It does not affect the hot water and circulation circuits.

The leave "**away**" operating mode assumes that no one is at home and therefore the heating circuit can be switched to lowering mode.

If all heating circuits are in this operating mode, the auxiliary hot water heating and circulation are also deactivated. A corresponding message is also displayed in the respective menu items.

Set the "Away" button

After you press the "**Away**" button, a window appears, in which you can enter the room temperature and the date of return.

1. Enter the value required and briefly press "**OK**".

Temperature   LEAVE   +
16 ° C   to   OK
                        23/12   –
                        2012
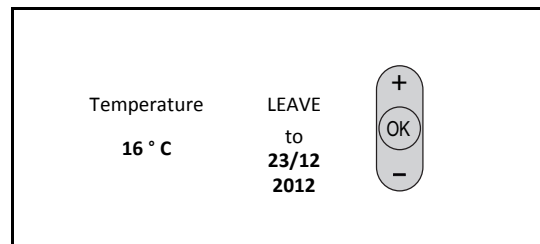
The end date is always the day before your return. After the set date or duration in days has expired, the controller switches the heating circuit to automatic mode.

Example:

You will be away through 23 December, and you want to turn down the heating during this time to save energy. You want to return to a heated apartment on 24 December. **Solution**: Enter an end date of 23/12. The controller will then switch to time/automatic mode when the date changes to 24/12.

You have 3 days of special leave, and you want to spend this leave time at home. The heating should continue running during the day. On the 4th day, you have to return to work. The normal time window should then apply. **Solution**: Select "Home" and enter "3 days" as the duration.

Deactivating leave mode

If you want to terminate the leave function before the specified time has elapsed, proceed as follows:

1. Select the heating circuit if you have more than one heating circuit.

2. Activate one of the operating modes (e.g. "**Automatic**") to switch the heating circuit back on.

7.1.8   ECO function

Briefly pressing the "ECO" button activates the ECO function, i.e., the requirement temperature for the auxiliary heating is reduced in a defined time window.

The ECO function ensures that the heating requirement is primarily covered by sun exposure and avoids early auxiliary heating. This is why the room temperature can temporarily fall when the skies are cloudy.

In order to save additional energy, the hot water circulation is limited to pulse function while the ECO function is active. Time mode is switched off then.

Activate the ECO function

1. Briefly press the "**ECO**" button.

2. Answer the query with "**Yes**".

For all the heating circuits
and the hot water
it will be activated the ECO function.
Do you want to continue?

( ) No   Yes ( )

Deactivate the ECO function

1. To deactivate the ECO function, select an operating mode, e.g. "**Automatic**".

Set the ECO function

1. Press the "**ECO**" button for approx. 3 seconds.

The "**ECO function 1 / 2**" setting window is displayed.

2. Select the minimum acceptable hot water temperature with "**Min. HW target temp.**".

3. For each heating circuit, enter a value for "**Min. room temp.**". This is the lowest room temperature that you find acceptable.

This will not change the time/automatic mode target values for heating and hot water. Instead, it changes the requirement temperatures for the auxiliary heating. If the storage tank is heated by sun exposure (charged), the system can still achieve the time/automatic mode target values. The heat generator ensures that at least the reduced temperatures can be maintained.

ECO function   1/2

min. WW-Target temp.   − 40°C +   ▲
min. room temp. HC1   − 16°C +
min. room temp. HC2   − 16°C +
min. room temp. HC3   − 16°C +   ▼

4. Press the navigation button to set the time window.

A window in which you can open the "**Configure time window**" function appears.

5. Open the "**Configure time window**" function.

6. Select the navigation button: This scrolls through the days of the week. For each day of the week, you can set three different time windows.

7. Select a time window to enter an individual time period.

MONDAY
(<)   (>)

08:00 | 00:00 | 00:00
16:00 | 00:00 | 00:00

06:30-22:30 |00:00-00:00 |00:00-00:00   HW
06:30-22:30 |00:00-00:00 |00:00-00:00   HC1
06:30-22:30 |00:00-00:00 |00:00-00:00   HC2
06:30-22:30 |00:00-00:00 |00:00-00:00   HC3

8. Select the button with the day(s) of the week: Selection of the day of the week to which the time window

should apply. You can also select several days at the same time. Activated days of the week have a dark button.

9. To change the preset starting and ending times, see ➔ *section "Changing numeric values", p. 9*.

Mo   Tu   We   Th   Fr   Sa   Su

06:30   +
22:00   OK
                     −

7.2   Water

Heating   45°C   +
                      On   Target temp.   −
Water   Auto
                      Off   Active: ○
Circula.   1x
Solar   Pump   Aux. heat.
Other

The "**Water**" main menu shows all of the important functions and parameters for drinking water heating. The hot water control function is explained in further detail in ➔ *"Functional Description of SolvisControl" on page 26*.

7.2.1   Setting the hot water temperature

Setting the hot water temperature

1. Press "+" (on the rocker switch with the thermometer symbol) to raise the temperature or press "−" to lower it.

2. If the water temperature is not reached, see ➔ *"Malfunctions with heating and hot water", page 31*.

i   If several persons shower or bathe in short succession, causing the storage tank to use auxiliary heating, the controller switches to "Hot water priority", i. e., the radiators might remain cold until the storage tank has been heated up again.

E   Do not set the target hot water temperature to be warmer than 48 °C: the lower the temperature, the higher the energy savings. As long as the lines are short, the drinking water will be hygienically perfect, even at low temperatures. Only the amount required will be heated (fresh water system). Temperatures of 42 °C (bathing and showering) or 38 °C (showering only) are sufficient when the lines are also well-insulated.

7.2.2 Hot water standby times

Set the hot water standby times

1. Press the "Automatic mode" button for approx. 3 seconds.

2. Select the navigation button: This scrolls through the days of the week. Three different time windows are available for each day of the week. The heating times of the heating circuits are shown at the bottom of the display for informational purposes.

3. Select a time window to enter an individual time period.

<	MONDAY		>	
	08:00 16:00	00:00 00:00	00:00 00:00	Hot water
	06:30 22:30	00:00 00:00	00:00 00:00	Heat. circ. 1
	06:30 22:30	00:00 00:00	00:00 00:00	Heat. circ. 2
	06:30 22:30	00:00 00:00	00:00 00:00	Heat. circ. 3
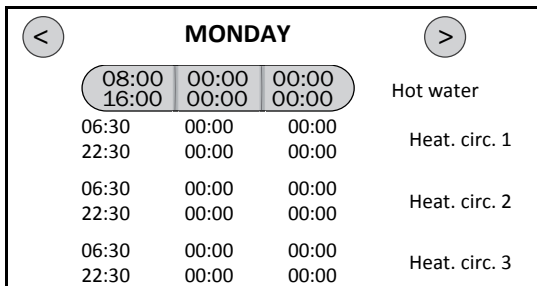
4. Select the button with the day(s) of the week: Selection of the day of the week to which the time window should apply. You can also select several days at the same time. Activated days of the week have a dark colour.

5. Set the starting and ending times as described in the ➔ *section "Changing numeric values", p. 9.*

Mo Tu We Th Fr Sa Su

06:00
20:00
+
OK
−
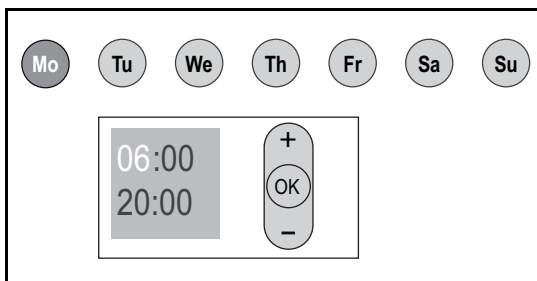
7.2.3 Auxiliary hot water heating button

Heating up the hot water buffer

If there is a need for hot water (for showering or bathing) outside of the hot water standby times, proceed as follows:

1. Choose the "**1x**" button next to "**Reheat**".

The controller switches to hot water priority mode and heats the storage tank to the standby temperature. The radiators may cool down as long as the heating process continues.

> The heating phase lasts for around 30 minutes.

7.2.4 Hot water pump

Checking the hot water pump

To check the hot water pump, you can use the "**Pump**" rocker switch in the "**Water**" main menu to switch the hot water pump.

1. Press "**On**" on the "**Pump**" rocker switch.

2. Listen to hear whether the hot water pump starts up.

3. Select the "**Auto**" button. Automatic mode must always be activated.

7.3 Circulation

Heating	Pump
Water	Imp.
Circula.	
Solar	Time
Other	
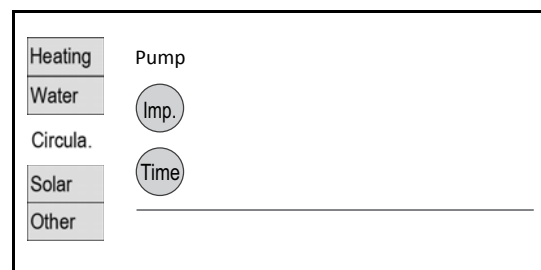
In the "**Circul.**" main menu, the hot water circulation can be activated or de-activated. In this example, the circulation is de-activated (both buttons are light). The circulation control function is explained in detail in the ➔ *section "Functional Description of SolvisControl", p. 26.*

7.3.1 Time control

Set the hot water circulation

The circulation pump runs only within the circulation times, and only when the temperature at the circulation sensor falls below a limit value. To activate the time control, proceed as follows:

1. Select the "**Time**" button. The button must be activated (dark background).

2. Press the automatic mode button for approx. 3 seconds.
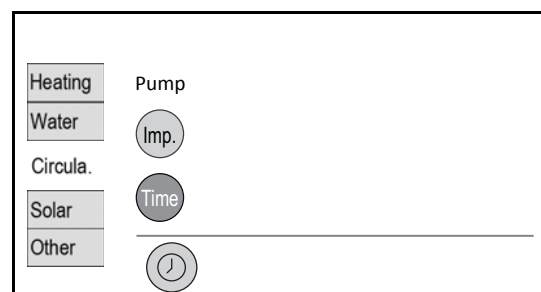
Heating	Pump
Water	Imp.
Circula.	
Solar	Time
Other	⏲

3. Select the navigation button: This scrolls through the days of the week. Three different time windows are available for each day of the week. The heating times for the hot water are shown at the bottom of the display for informational purposes.

4. Select a time window to enter an individual time period.

```
        MONDAY
  <                    >
      06:00  12:00  17:00
      08:00  13:00  20:00    Circulation

      06:00  00:00  00:00
      20:00  00:00  00:00    Hot water
```
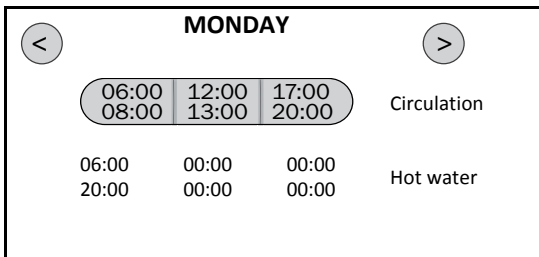
5. Select the button with the day(s) of the week: Selection of the day of the week to which the time window should apply. You can also select several days at the same time. Activated days of the week have a dark button.

6. Set the starting and ending times as described in the ➔ *section "Changing numeric values", p. 9*.

```
 Mo   Tu   We   Th   Fr   Sa   Su

        06:00      +
        08:00      OK
                   −
```
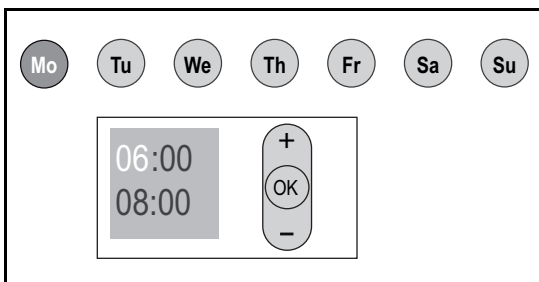
7.3.2   Pulse control

Set the hot water circulation

In "**Pulse**" mode, the circulation pump runs only when the hot water is briefly turned on (pulse) at a tap and when the temperature at the circulation sensor falls below a limit value. To activate the pulse control, proceed as follows:

1. Select the "**Pulse**" button. The button must be activated (dark background).

2. Adjust the value for "**Min. run time**" as required: To raise the minimum run time of the circulation pump, press "**+**"; to lower it, press "**−**".

```
Heating     Pump      Run time   90 s    +
Water                 min.
            Imp.                          −
Circula.

Solar       Time
Other
            _____
```

7.3.3   Time and pulse control

Set the hot water circulation

The two operating modes that were previously described can be activated at the same time. Outside of the time window, the circulation pump is controlled as described in the ➔ *section "Pulse control"*. To activate the pulse and time function at the same time, proceed as follows:

1. Select the "**Pulse**" button. The button must be activated (dark background).

2. Select the "**Time**" button. The button must be activated (dark background).

3. Adjust the value for "**Min. run time**" as required: To raise the minimum run time of the circulation pump, press "**+**"; to lower it, press "**−**".

4. Set the circulation times as required, see ➔ *section "Time control", p. 17*.

```
Heating     Pump      Run time   90 s    +
Water                 min.
            Imp.                          −
Circula.

Solar       Time
Other
            _____
                  🕐
```
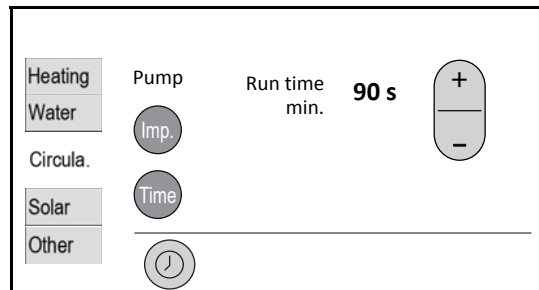
7.4   Solar (measured value display)

The current measurement data for the solar system can be called (if available) in the "**Solar**" main menu. The solar control function is displayed in more detail in the ➔ *chapter "Functional Description of SolvisControl", p. 26*.

```
                    Current power      2.4   kW
Heating             Heat quantity      123   kWh
Water              Solar flow temp.    67.2  °C
Circula.          Solar return temp.   53.1  °C
                    Solar pressure     1.1   bar
Solar           Collector temperature  70.4  °C
Other            Storage tank bottom   44.8  °C
                         Flow          140   l/h
```
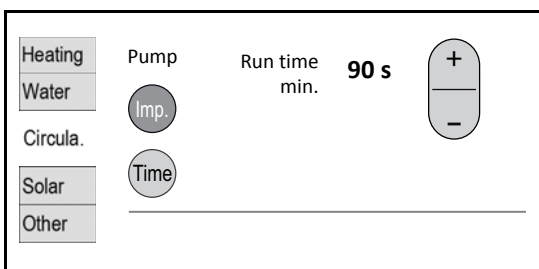
- "**Current power**"*: the heat output that is currently being produced by the collectors.
- "**Heat quantity**"*: the total heat quantity produced by the collectors.
- "**Solar flow temp.**": the current flow temperature in the solar circuit.
- "**Solar return temp.**": the current return temperature in the solar circuit.
- "**Solar pressure**": pressure in the solar circuit.
- "**Collector temperature**": current collector temperature.
- "**Storage tank bottom**": current temperature at the bottom of the storage tank.
- "**Flow**"*: volume flow currently present in the solar circuit.

7.5   Other

Additional setting options are available in the "**Other**" main menu. These are described below.

7.5.1 Chimney sweep

ℹ️ SolvisMax Fernwärme (with district heating) does not have a chimney sweep function.

The chimney sweep function allows for the burner to be run at maximum output for a set time. The chimney sweep can now carry out all required measurements.

This operating mode ends after the specified time has elapsed, or it can be ended ahead of time by pressing the "**Stop**" button (visible when the function is active).
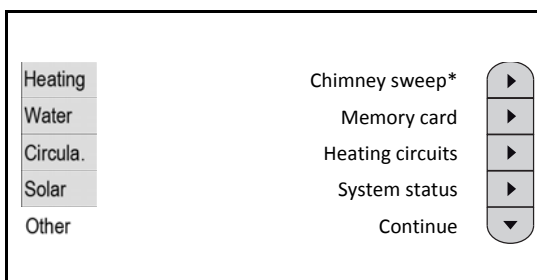
Open the chimney sweep menu

1. Select "**Other**".
2. Select "**Chimney sweep**".
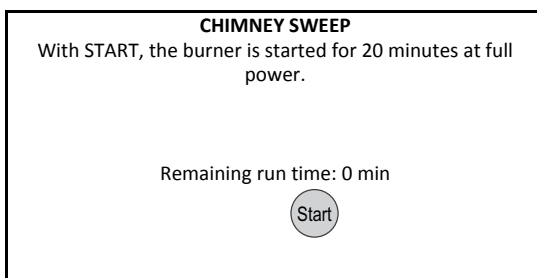3. Continue with the ➔ **section "Start the burner"**.

Heating	Chimney sweep*	▶
Water	Memory card	▶
Circula.	Heating circuits	▶
Solar	System status	▶
Other	Continue	▼

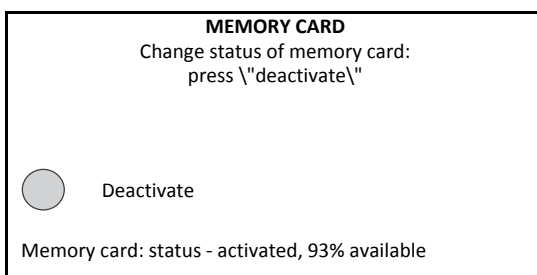*For district heating: "——"*

Start the burner

1. Select "**Start**".

The burner starts, the display changes to "**Stop**" and the remaining run time is displayed.

2. To switch off the burner early, select "**Stop**".

CHIMNEY SWEEP
With START, the burner is started for 20 minutes at full power.

Remaining run time: 0 min

(Start)

7.5.2 Memory card

MEMORY CARD
Change status of memory card:
press \"deactivate\"

◯ Deactivate

Memory card: status - activated, 93% available

In the "**Memory card**" menu, you can deactivate the constant collection of measured values (data logging) in order to remove the memory card.

Once per minute. the SolvisControl transfers all statuses of the inputs and outputs (sensors, pumps, heat requirements, etc.) to the included memory card.

Analysis software is available for displaying and analysing this data on your PC. If you are interested, please consult the firm responsible for installation.

The Solvis Customer Service Department can also analyse this data. The installation firm must e-mail the data to Solvis. This service is subject to additional charges.

7.5.3 Heating circuits

HEATING	
▶	Heat. circ. 1
▶	Heat. circ. 2
▶	Heat. circ. 3
▶	Solar overage
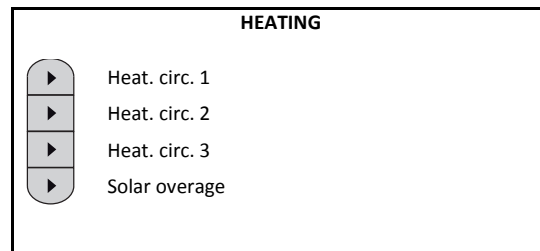
- "**Heat. circ. 1**", "**Heat. circ. 2**", "**Heat. circ. 3**": The setting parameters for the heating circuits are summarised in the "**HEATING**" main menu. The settings are explained using heating circuit 1 as an example. They must be individually adjusted for each heating circuit that is present.
- Use "**Solar overage**" to assign the solar excess function to the heating circuits (see ➔ *"Solar excess function", page 27*).

Query the status

1. Go to the "**Other**" menu.
2. Select "**Heating circuits**".
3. Read the status values.

HEATING>HEATING CIRCUIT 1   1 / 5

Heat. circuit status (Day) ▲
Hot water priority (On)

Operating mode HC (Auto) ▼
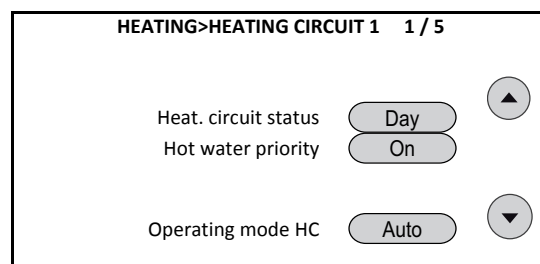
- "**Heat. circuit status**": Current status of the heating circuit (e. g. "**Day**" for day mode, "**Lower**" for lowering mode or "**HW prior.**" for hot water priority heating).
- "**Hot water priority**": "**On**" means that the heating circuit pumps are switched off when the hot water buffer receives auxiliary heating.
- "**Operating mode HC**": This displays the current operating mode of the heating circuit (e. g. "**Auto**" for time/automatic mode).

Flow temperature

In the factory setting, the flow temperature is automatically calculated by means of a heating curve ("curve"), see ➔ *figure*.
The heating curve calculation is dependent on the respec-

tive outdoor temperature.
With the "**Fix**" setting, two fixed flow temperatures can be specified:

- one for day mode (during the heating times) and
- one for lowering mode (outside the heating times).

Set fixed flow temperature

1. Use the down arrow navigation button to access the next menu.

```
HEATING>HEATING CIRCUIT 1    2 / 5


Op. mode flow temp.   ◄  Curve  ►      ▲
Slope           −  1.20  +


                                       ▼
```

- "**Op. mode flow temp.**": With "**Curve**" or "**Fix**", the flow temperature is either adjusted automatically or is independent of the outdoor temperature.

2. Switch "**Op. mode flow temp.**" from "**Curve**" to "**Fix**".
3. Input field "**Fixed flow for daytime**" (briefly press "**−**" or "**+**"): setting the flow temperature in day mode.
4. Input field "**Fixed flow for low-mode**" (briefly press "**−**" or "**+**"): setting the flow temperature in lowering mode.

```
HEATING>HEATING CIRCUIT 1    2 / 5


Op. mode flow temp.   ◄   Fix   ►      ▲
Fixed flow for daytime   −  50°C  +
Fixed flow for low-mode  −  35°C  +


                                       ▼
```
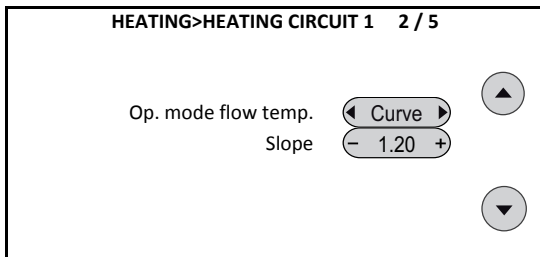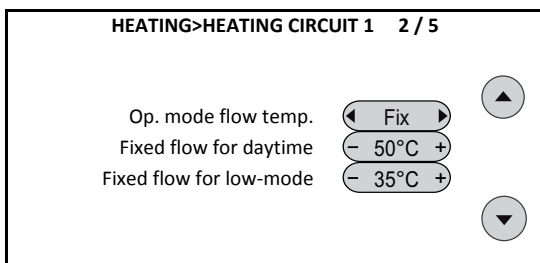
Adjusting the heating curve

The SolvisControl heating curves are displayed in the ➔ *Figure "Heating curves for various target room temperatures"*.

Example:

The target room temperature is set to 20 °C, and the slope is set to 1.0. For an outdoor temperature of 10 °C, the flow temperature is controlled to 32 °C and for an outdoor temperature of -10 °C it is controlled to 48 °C.

The heating curve can be set exactly using the rules in the table. To save energy, corrections should only be made in small steps.

ℹ️ All corrections require a certain amount of time to take effect. For this reason, wait at least one day before making any further adjustments.
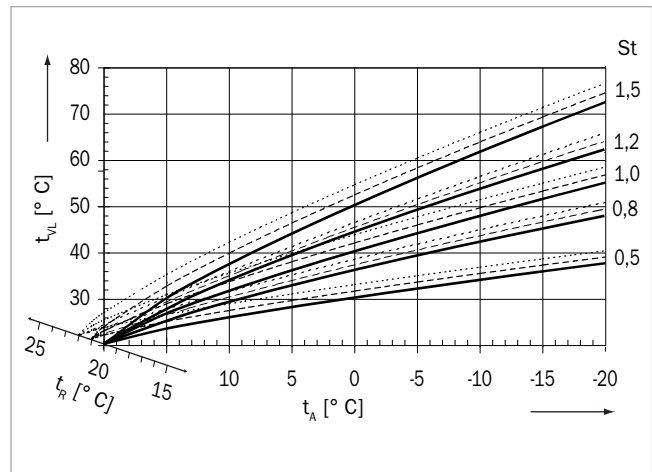
Fig. 7: Heating curves for various target room temperatures

St	*Slope of the heating curve*
t_A	*Outdoor temperature [°C]*
t_R	*Target room temperature [°C]*
t_{VL}	*Flow target temperature [°C]*
Heating curve	*For target room temperature*
--------------	*20 °*
———	*21 °*
....	*22 °*

Recommended values for the slope

Building (heating)	Slope
Old construction (radiator)	1.5
New construction (radiator)	1.2
(Underfloor heating)	0.8

Depending on the special properties of the building, a corresponding heating curve setting is required. Rough guidelines for the slope of the heat curve are shown in the table to the left.

ℹ️ The heating curve can be set exactly using the rules in the table in ➔ *"Adjusting the heating curve" in "Malfunctions with heating and hot water" on page 31*.

Change the room target and low-mode temperatures

1. Use the down arrow navigation button to access the next menu.

2. Adjust the values, if necessary.

```
HEATING>HEATING CIRCUIT 1    3 / 5


Day temp. time wind. 1   −  20°C  +     ▲
Day temp. time wind. 2   −  20°C  +
Day temp. time wind. 3   −  20°C  +
Low-mode temp       −  16°C  +     ▼
```
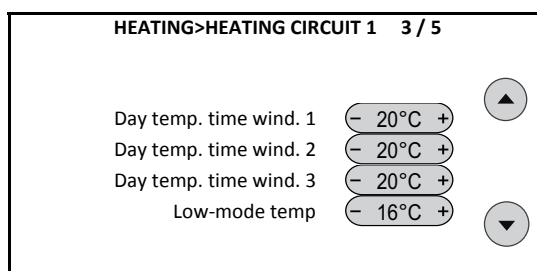
- "**Day temp. time wind. 1 - 3**": Entry of the target room temperatures 1 - 3 that should apply to day mode (within heating time window 1 - 3).

- "**Low-mode temp**": Enter the temperature to which the rooms are to be heated outside of the time windows.

E Adjust the preset values according to your requirements. Keep in mind that reducing the room temperature by only 1°C can result in energy savings of about 5%. For more information on changing the heating times, see ➔ *"Changing heating times" on page 13*.

Set the hold time and room influence

1. Use the down arrow navigation button to move to the next menu.

2. Adjust the values, if necessary.

```
        HEATING>HEATING CIRCUIT 1    4 / 5


                                           ▲
  T. Flow ACTUAL      ( 49 °C )
  T. Flow TARGET      ( 55 °C )
  Room influence      ( −  10%  + )
  Hold time           ( −  0Min  + )      ▼
```

- "**T. Flow ACTUAL**": current flow temperature of the heating circuit if a flow sensor is present.

- "**T. Flow TARGET**": flow target temperature determined by the controller.

- "**Room influence**": if an (optional) room controller is connected, the room temperature can be set to the calculated flow target temperature. We recommend a setting of 10 %.

i If a room controller is being used and if the room influence factor is less than 0, the heating valves in the room in which the room controller is installed must be fully opened.

- "**Hold time**": depending on the outdoor temperature, the heating circuit is switched to day mode earlier by the time set for the hold time. The goal is to start heating up the rooms earlier when the outdoor temperatures are colder.
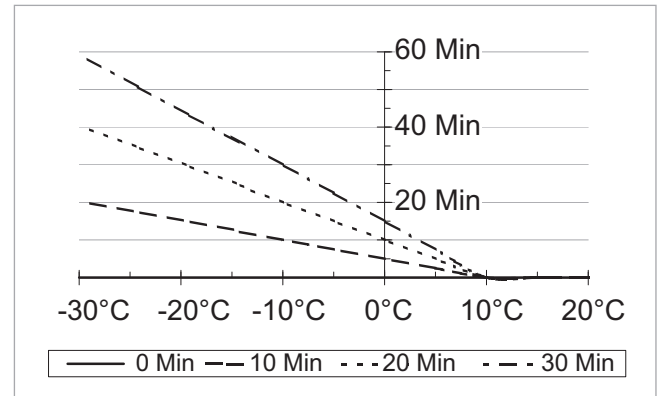
Fig. 8: Hold time

Example:

The hold time is linearly dependent on the outdoor temperature. In the illustration, the time period for early heating is shown in relation to the outdoor temperature for hold times of 0, 10, 20 and 30 minutes.

- At +10°C, the hold time is always 0 minutes.
- At -10 C, the hold time corresponds to the value set in "**Hold time**".

Configuring summer/winter switching

1. Use the down arrow navigation button to move to the next menu.

2. Adjust the values, if necessary.

```
        HEATING>HEATING CIRCUIT 1    5 / 5


                                           ▲
  T. Out. ACTUAL      ( 12°C )
  Avg. outdoor temp.  ( 14 °C )
  MAX. outdoor temp.  ( −  19°C  + )
  MIN. outdoor temp.  ( −  10°C  + )       ▼
```

- "**ACT outd. temp.**": current outdoor temperature

- "**Avg. outdoor temp.**": mean value over 30 minutes (used by the controller)

- "**MAX. outdoor temp.**": switch-off temperature of heating circuit in day mode

- "**MIN. outdoor temp.**": switch-off temperature of heating circuit in lowering mode

The heating circuit is switched off if the mean value of the outdoor temperature falls below or exceeds the **"MIN"** or "**MAX**" value by 2 K (hysteresis).

Example:

With the values to the left, the heating circuit switches off in **day mode** if the average outdoor temperature rises above 19 °C + 2 K = 21 °C. The heating circuit switches on again if the outdoor temperature falls below 19 °C.

In **lowering mode**, the circuit switches off if the medium outdoor temperature rises above 10 °C + 2 K = 12 °C. The

heating circuit switches on again if the outdoor temperature falls below 10 °C.

E The lower you select your switch-off temperatures, the more energy you will save. The factory-set temperatures of 19°C and 10°C are intended for use in newer buildings with good thermal insulation and may need to be adjusted to the existing heat insulation.

> ⓘ **CAUTION**
> **Note the set value for "**MIN. outdoor temp.**".**
> An improper setting may result in damage to the heating system.
> - Do not set the "**MIN. outdoor temp.**" below + 3 °C, otherwise there is no frost protection in lowering mode.

7.5.4 System status

Requesting the system status

1. Go to the "**Other**" menu.
2. Select "**System status**".
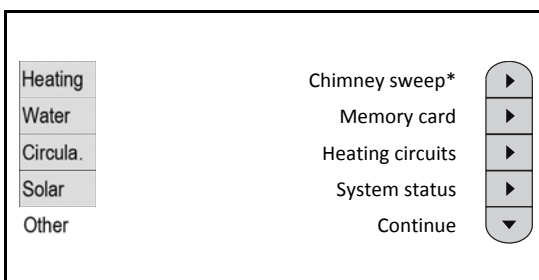
For district heating: "——"

3. Read the status values in the first menu (hot water).
4. Use the navigation button to switch to the next menu.
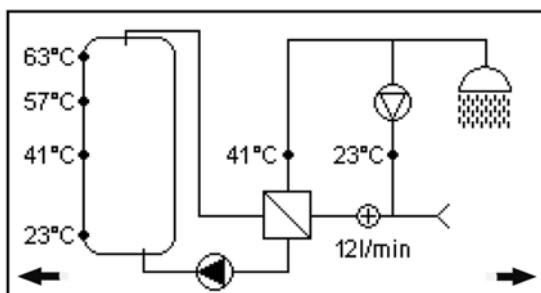
Page 1: Hot water

- Storage tank with S1, S4, S9, and S3 sensors
- Hot water station with S2 and S18 sensors and A2 pump
- Circulation (if activated: pulse, time, and pulse and time) with S11 sensor and A1 pump.

5. Read the status values in the second menu (heating circuits and heat generators).
6. Use the navigation button to switch to the next menu.
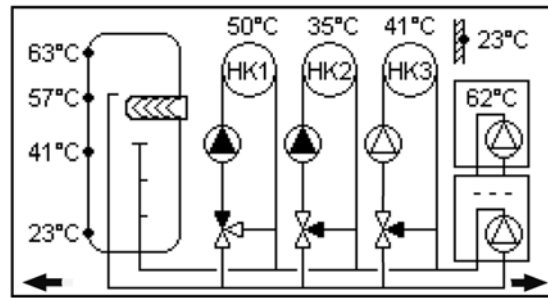
Page 2: heating circuits and heat generators

- Storage tank with S1, S4, S9, and S3 sensors
- Integrated burner on output A12 (gas, oil) and A13 (oil, burner 2) or external boiler, if necessary with load pump A13 and boiler sensor S14
- If available, solid fuel boiler with load pump A7 and kettle sensor S16
- Heating circuit 1 with pump A3, if necessary mixer A8/9 and sensor S12
- If necessary heating circuit 2 with pump A4, if necessary mixer A10/11 and sensor S13
- If necessary heating circuit 3 with pump A5, if necessary mixer A6/7 and sensor S16
- S10 outdoor temperature sensor.

7. Read the status values in the third menu (solar system).
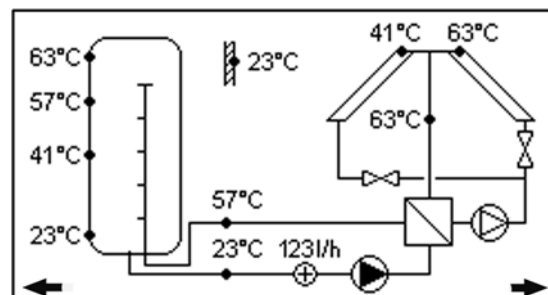
Page 3: solar system

- Storage tank with S1, S4, S9, and S3 sensors
- 2-circuit system with SP1 and SP2 pumps and S5, S6, S7, S8, and S17 sensors
- if present, east-west roof with A6 and A7 valves and S16 sensor
- S10 outdoor temperature sensor.

7.5.5 System information

Requesting system information

1. Go to the "**Other**" menu.
2. Select "**Next**".
3. Select "**System information**".

3. Select "**Counter function**".

Heating	Back	▲
Water	System information	▶
Circula.	Change user	▶
Solar	Counter function	▶
Other	Continue	▼

4. Read the values.

```
       COUNTER FUNCTION    1 / 2

      Solar pump 1 run time   ( xxxxh )
      Solar pump 2 run time   ( xxxxh )
       Solar heat quantity    ( xxkWh )
        HW heat quantity      ( xxkWh )
```

5. Use the navigation button to switch to the next menu.

```
       COUNTER FUNCTION    2 / 2



        Starts burner (A12)      ( 236 )
      Burner run time (total)    ( 156 h )
    Burner run time (stage 2)*   ( 106 h )
```

* With **SolvisMax Öl** only

- "**Burner run time (stage 2)**": Displayed only for **SolvisMax Öl** (2 burner stages on outputs A12 and A13). The run time of the **first** burner stage (on A12) is then calculated as:
Run time 1 Burner level = "**Burner run time (total)**" – "**Burner run time (stage 2)**".

Example:

The values from the figure result in a run time for the first burner stage of: 156 - 106 = 50 h and for the second stage (on A13): 106 h
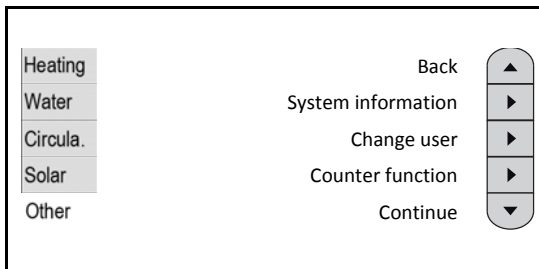
7.5.8 Date/time

Setting the date and time

1. Switch to the "**Other**" menu.

2. Select "**Next**".

Heating	Back	▲
Water	System information	▶
Circula.	Change user	▶
Solar	Counter function	▶
Other	Continue	▼

4. Read the system information.

SYSTEM INFORMATION			
Language:	English	**Special:**	None
System:	SX 15 kW	**HC 1 type:**	Rad. mix
Load fct.:	None	**HC 2 type:**	Mixed floor
WWS:	WWS-24	**HC 3 type:**	Rad.unm.
Collector:	Flat-plate	**Sensor 1:**	R.sens.
Operation:	Standard	**Sensor 2:**	None
		Sensor 3:	None
MA202	N300 P---		

7.5.6 Change user

Switching operating mode

1. Switch to the "**Other**" menu.

2. Select "**Next**".

3. Select "**Change user**".

Heating	Back	▲
Water	System information	▶
Circula.	Change user	▶
Solar	Counter function	▶
Other	Continue	▼
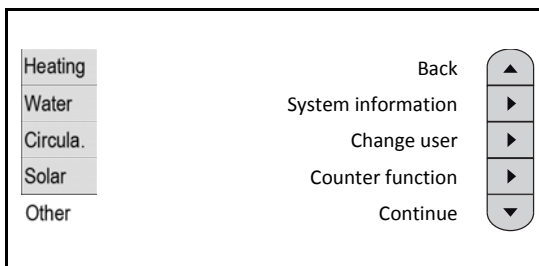
4. Select your required operating mode.

```
              USER SELECTION

           Simple operation   ▶
                    Expert    ▶
                 Installer    ▶
            Factory service   ▶
```
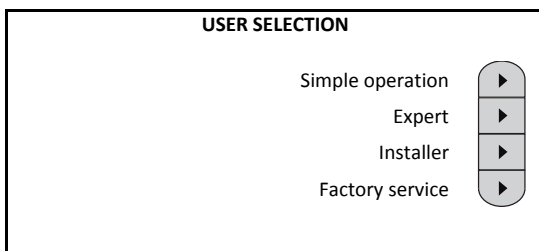
ℹ The "Simple operation" operating mode can only be selected, for example:

- If there is no connected room sensor.
- If the installer answered the query about Simple operation with "yes" during initialisation.

7.5.7 Counter function

Querying counter readings

1. Go to the "**Other**" menu.

2. Select "**Next**".

Heating	Back	▲
Water	System information	▶
Circula.	Change user	▶
Solar	Counter function	▶
Other	Continue	▼

3. Select "**Time/Date**".

Heating	Back	▲
Water	Time and date	▶
Circula.	Load basic settings	▶
Solar	Language	▶
Other	Display	▶

4. To set the time/date, choose "**Set**".

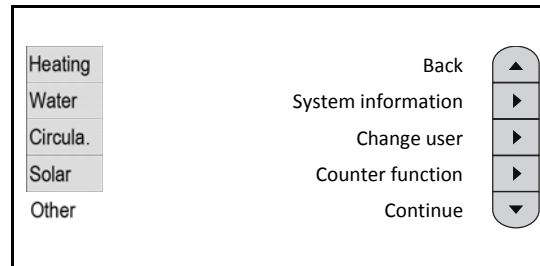| DATE AND TIME	
Time:	14:25:23
Date:	14/12/2012
Day:	Friday
	Set ⬭
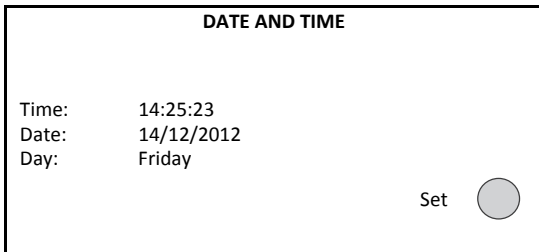
5. Set the date and time as described in the ➔ *chapter "Changing numeric values", p. 9*.

```
  14:25
14.12.2012        + 
  Friday         OK
                  −
```

7.5.9 Load basic settings

Restoring settings

1. Switch to the "**Other**" menu.

2. Select "**Next**" twice.

Heating	Back	▲
Water	System information	▶
Circula.	Change user	▶
Solar	Counter function	▶
Other	Continue	▼
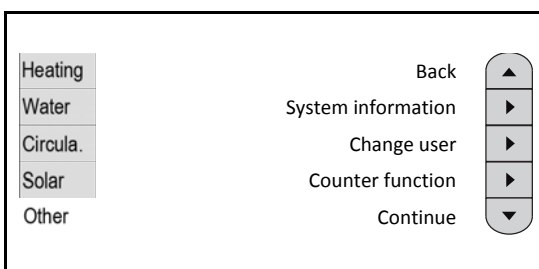
3. Select "**Load basic settings**".
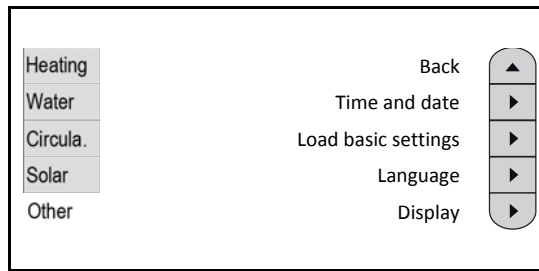
4. To load the settings that were made by the installer during start-up, choose "**Yes**".

LOAD BASIC SETTINGS
Are you sure you want to load the basic settings of the installer? Your own settings will be lost in the process.
⬭ No   Yes ⬭
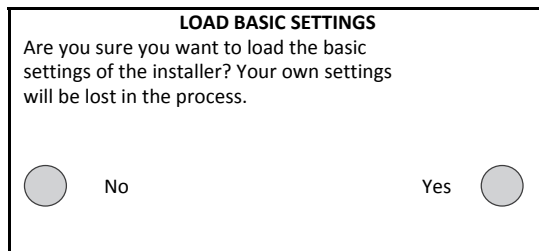
7.5.10 Language

Setting menu languages

1. Switch to the "**Other**" menu.

2. Select "**Next**" twice.

Heating	Back	▲
Water	System information	▶
Circula.	Change user	▶
Solar	Counter function	▶
Other	Continue	▼

3. Select "**Language**".

Heating	Back	▲
Water	Time and date	▶
Circula.	Load basic settings	▶
Solar	Language	▶
Other	Display	▶
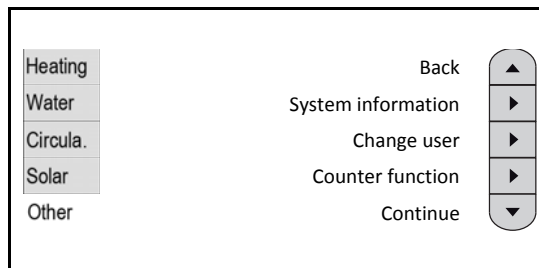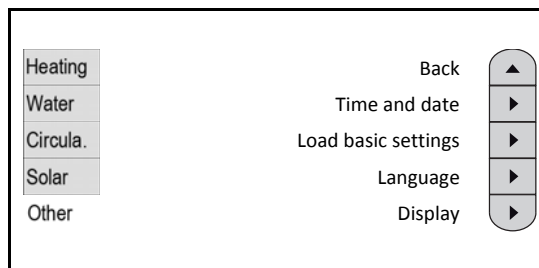
4. Select your required language. If required, choose "**next**" to switch to additional languages.

Sprache/Language/Lingua/Idioma/Langue	
⬭ Deutsch	Español ⬭
⬭ English	Italiano ⬭
⬭ Français	next > ⬭
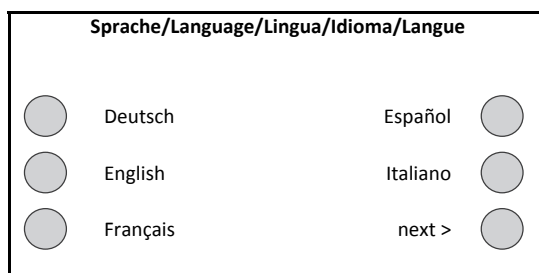
7.5.11 Display

Setting the display

You can set the contrast for the display and adjust the touch screen. You can also activate the signal tone that sounds when you select a button.

1. Switch to the "**Other**" menu.

2. Select "**Next**" twice.

Heating	Back	▲
Water	System information	▶
Circula.	Change user	▶
Solar	Counter function	▶
Other	Continue	▼

3. Select "**Display**".
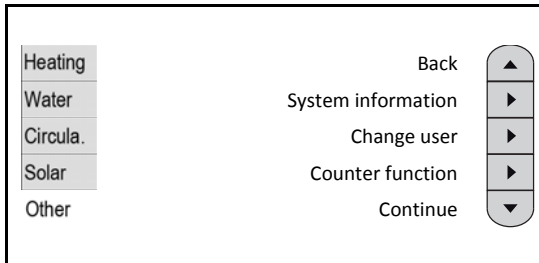
Heating	Back	▲
Water	Time and date	▶
Circula.	Load basic settings	▶
Solar	Language	▶
Other	Display	▶
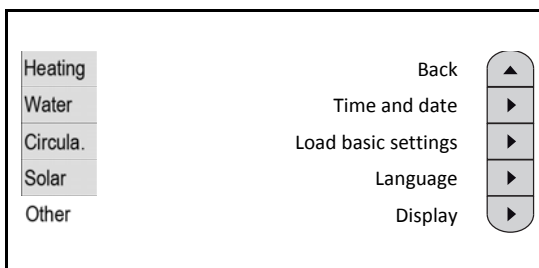
4. Make the desired settings.

5. If necessary, press the Back button if you do not want to save the settings.

6. To save, choose "**Start**" next to "**Save settings**".

DISPLAY SETTING

Contrast	− 10 +
Calibration	Start ▶
Signal tone	◀ On ▶
Save settings	Start ▶
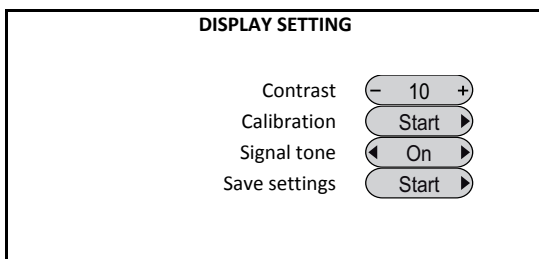
Calibrating the touch screen

Calibration involves adjusting the touch screen. If any inaccuracies occur, you can readjust the touch screen by calibrating it.

Calibrating the touch screen

1. Select "**Start >**" next to "**Calibration**".

2. Follow the instructions on the screen.

3. To save, select "**Screen has been adjusted successfully" – "O.K.**".
   To cancel, press the "**Back**" button when you see the closing message "!! **Screen is not correctly adjusted**!!".

○
Press here
(top left)

Screen adjustment:
Please touch the screen
in the middle of the circle.
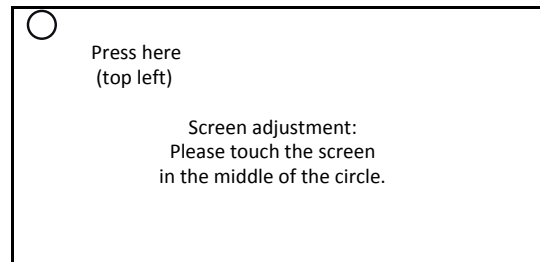
Reset display

If the unit cannot be operated, switch it off and then switch it back on after approx. 10 s. If the controller still cannot be operated, you can reset the display:

1. Switch off the system.

2. Press and hold the "**Back**" and "**Help**" buttons at the same time.

3. Switch the system on while pressing and keep the buttons pressed until the calibration display appears.

4. Follow the instructions on the screen.

8 Functional Description of SolvisControl

8.1 Basic functions

8.1.1 Hot water

Hot water production is carried out with hygienic perfection, in accordance with the **continuous flow principle** using an external heat exchanger. This ensures drinking water quality. The hot water tap temperature is controlled using a volume flow sensor. When you open the hot water tap, the control switches on the hot water pump and regulates its speed for a constant hot water temperature. The tap delivery is mapped in the hot water station.

8.1.2 Circulation

The hot water circulation pump switches on when the temperature at the circulation sensor is lower than the target temperature minus "**Difference on**". It switches back off when the target temperature is reached. After switching off, the pump is blocked for approx. 10 minutes. In addition to this temperature control, it is possible to limit the times in which the circulation pump should run or to switch on the pump with the **pulse** function. To do this, the water tap must be briefly opened and then closed again. Both options can now be activated at the same time. The circulation station provides the circulation load.

8.1.3 Heating

The SolvisControl system controller supplies the house with heat that can be distributed according to need by means of separately controllable heating circuits. The target flow temperature that is needed for the respective room temperature is automatically calculated (using heating curves) in relation to the outdoor temperature.

To save energy, you can use three different time windows for each heating circuit, which can be configured to lower the room temperature at night or during a period of absence. For a longer period of absence, you can use the **leave function** to lower the temperature continuously and increase it when you return. You can use the **party function** when you need to heat for a specific occasion during lowering mode. In standby mode, a **frost protection function** protects the water lines in the house against freezing.

To heat more quickly after the lowering mode, the **hold time** function starts the heating mode early. If it takes to long to heat the rooms when the temperatures are colder, you can further increase the flow temperature in relation to the outdoor temperature. Please consult the installer for more information. The **ECO function** helps you use solar heat more effectively in the autumn or spring.

8.1.4 Solar control

The solar pumps are controlled based on their switch-on and switch-off differences in relation to the respective temperature sensors. The solar pump in the primary circuit is controlled using the collector sensor (S8) and the solar

pump in the secondary circuit is controlled using the solar flow sensor (S7).

Control of the solar pump: the flow within the solar system is controlled using the speed-controlled solar pumps, so that the temperatures in the storage tank can be stratified as needed. This, together with the stratified charger, brings the tank to the standby temperature more quickly. Compared with conventional systems, the burner needs to provide less auxiliary heat.

8.1.5 Solar safety functions

Temperature sensors monitor the collector(s) and storage tank. This allows for a multiple safety function, i. e., the solar pump switches off in the primary circuit if:

- The temperature of the collectors falls below ≥ 120 ˚C.
- The temperatures at the storage tank reference (S3) rise above ≥ 80 ˚C or the temperatures at the top storage tank (S1) rise above ≥ 90 ˚C.

8.2 Special functions

In addition to the basic functions, there are also special functions that the installer sets during the initialisation of the controller:

- East-west roof
- Solid fuel boiler
- 3rd mixed heating circuit.

8.2.1 East/west roof

The best chance of utilising the sun is when the roof surface is facing south and the sun can shine on the collectors continuously (no shadowing). However, on many houses, the roof surfaces face east and west. In such cases, the sun can be utilised continuously if collectors are installed on both roof surfaces.

Both collector fields are each connected to the solar circuit with a solar valve. The installer must initialise the controller using the special "**East-west roof**" function during start-up.

With the aid of the solar valve, the controller switches the relevant side on and off hydraulically on a fully automatic basis according to the position of the sun. You do not need to make any special settings.

8.2.2 Solid fuel boiler

The special function "**Solid fuel boiler**" allows for control of boilers that are manually fired with solid fuels, e.g. a fireplace that is fired with a back boiler pocket. By contrast, automatically fired solid fuel boilers (e.g. pellet boilers) can be connected as "**third-party boilers**".

The SolvisControl takes over the temperature-controlled regulation of the load pump of the solid fuel boiler to be

fired manually. To do this, a boiler sensor must be connected to the SolvisControl.

8.2.3 3rd mixed heating circuit

You can use this function to introduce a third mixed heating circuit. The installer connects the mixing valve to output A6/A7 and the flow sensor to input S16. During the system start-up, "**3rd mixed heating circuit**" must then be entered as a special function.

8.3 Solar excess function

With the solar excess function, you can remove excess heat in order to avoid downtime of the collectors and protect the solar system. The excess heat can be used for solar heating of cellar rooms, baths or swimming pools.

8.3.1 Solar cellar or bath heating

The heating circuit is switched off in the summer when the outdoor temperature is over 21 °C (factory setting, see ➔ *para. "Setting the summer/winter switch", section "Heating circuits", p. 19*). If the solar excess function is activated, excess solar heat can be used independently of this. If it instead becomes cooler and the boiler is in winter mode, the burner provides auxiliary heat if there is not enough solar heat to keep the cellar room or bath sufficiently warm.

The relevant heating circuit can be equipped with a room sensor (see ➔ *section "Room controller (optional)", p. 7*). The heating circuit is switched on if the temperatures at the solar flow (S5) and at the heating buffer top (S4) are higher than the activation temperature. For mixed heating circuits, the "**Target temp. HC mixer**" does the heating.

The solar heating is switched off again when the room temperature has reached "**Day temp. time wind.1**" (see ➔ *para. "Change room target and low temperatures", section "Heating circuits", p. 19*) (for installed room sensor only) or when the activation temperature at the heating buffer at the top (S4) falls below 5 K.

> ⚠ **CAUTION**
> **For unmixed heating circuits, flow temperatures of up to 90°C can be reached.**

8.3.2 Solar swimming pool heating

To heat a swimming pool with the solar excess function, a pool sensor (see ➔ *section "Pool sensor (optional)", p. 7*) is required. The contact sensor is installed in the swimming pool circuit return in order to ensure that there is a switch-off when the target temperature ("**Day temp. time wind.1**") is reached.

8.3.3 Activation

Activate the solar excess function

1. Access the "**Other**" menu.

---

2. Select "**Heating circuits**".

Heating	Chimney sweep*	▶
Water	Memory card	▶
Circula.	Heating circuits	▶
Solar	System status	▶
Other	Continue	▼
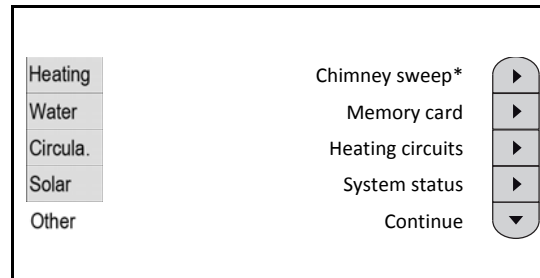
*For district heating: "——"

3. Select "**Solar excess**".

HEATING
▶ Heat. circ. 1
▶ Heat. circ. 2
▶ Heat. circ. 3
▶ Solar overage
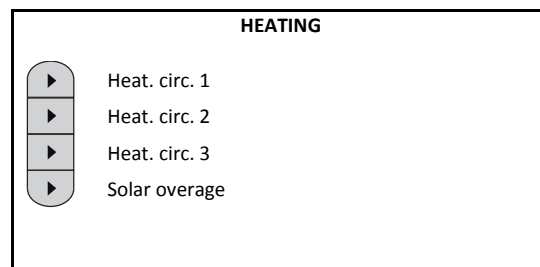
4. Set the heating circuit for which the Solar excess function is to be activated to "**On**".

5. Check the activation temperature: "**Activation temperature**" > Target hot water temperature + 18 K.

6. Use the down arrow navigation button to access the next menu.

OTHER>SOLAR OVERAGE   1/2

Activation temp.   − 70°C +   ▲
Heating circuit pump 1   ◀ Off ▶
Heating circuit pump 2   ◀ Off ▶
Heating circuit pump 3   ◀ Off ▶   ▼
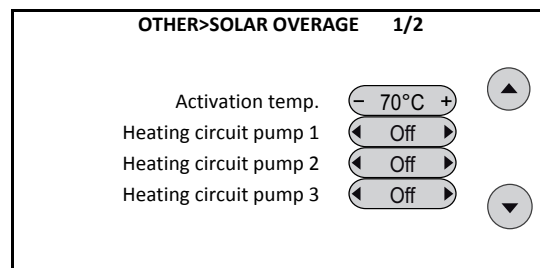
Example:

If the target hot water temperature is 48 °C, the activation temperature has to be set to at least 48 °C + 18 K = 66 °C.

ℹ The requirement temperature for hot water and the heating circuits must never rise above the set activation temperature. If they do, the conventional heat source would continue to provide auxiliary heat if the activation temperature were momentarily reached due to short-term sun exposure.

7. To set the flow temperature, access the "**SOLAR EXCESS   2 / 2**" menu.

```
         OTHER>SOLAR OVERAGE      2/2


      Target temp. HC mixer    −  30°C  +      ▲
        Switch-off sensor      ◄   S4   ►
      Switch-off hysteresis    −  -5K   +
                                              ▼
```
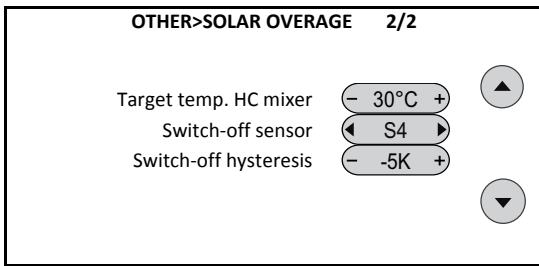
- "**Target temp. HC mixer**": For mixed heating circuits, this temperature is the target value if the heating circuit has been activated by the excess function.

- "**Switch-off sensor**": The reference sensor that de-activates the excess function. "**S4**" causes the storage tank to cool down. At "**S5**", the storage tank remains charges.

- "**Switch-off hysteresis**": Switch-off results when the "**Activation temperature**" and the "**switch-off hysteresis**" fall below the limits on the switch-off sensor. Change these values only after consulting with us.

E The factory setting for the activation temperature is 70°C and should only be changed in exceptional cases. While a lower activation temperature may allow for greater use of excess heat, a setting that is too low can lead to increased energy consumption due to conventional auxiliary heating.

E Make sure that the hot water requirement temperature can never rise above the set activation temperature. Otherwise, the gas or oil burner will keep on providing auxiliary heat if the activation temperature was momentarily reached due to short-term radiation.

8.3.4 Settings

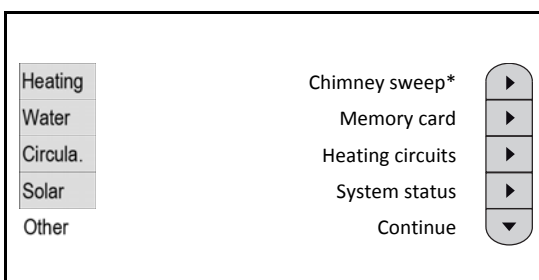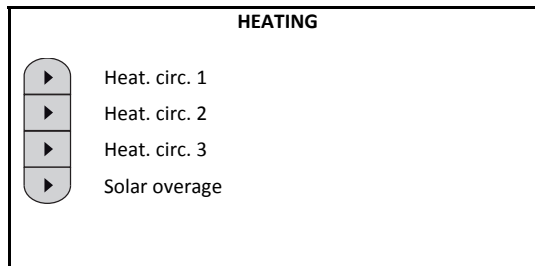**Setting the target room and low-mode temperatures**

1. Go to the "**Other**" menu.
2. Select "**Heating circuits**".

```
  Heating              Chimney sweep*      ►
  Water                Memory card         ►
  Circula.             Heating circuits    ►
  Solar                System status       ►
  Other                Continue            ▼
```

For district heating: "———"

3. Select the heating circuit that is to be operated with the solar excess function.

```
                      HEATING

    ►       Heat. circ. 1
    ►       Heat. circ. 2
    ►       Heat. circ. 3
    ►       Solar overage
```

4. Use the down arrow navigation button to open the "**HEATING>HEATING CIRCUIT 3/5**" menu.

5. For swimming pool heating without burner: "**Day temp.time wind.1**" = 29 °C and "**Low-mode temp.**" = 5 °C.

6. When heating a bath or cellar in a situation in which the burner should also provide auxiliary heat, set the temperatures according to the individual requirements (i. e. use normal heating mode outside the solar excess times).

```
     HEATING>HEATING CIRCUIT 1    3 / 5


    Day temp. time wind. 1   −  29°C  +      ▲
    Day temp. time wind. 2   −  20°C  +
    Day temp. time wind. 3   −  20°C  +
         Low-mode temp.      −   5°C  +      ▼
```
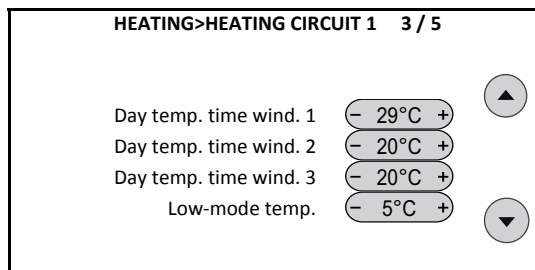
Setting the time windows

- **Swimming pool heating without burner**: The heating time must be de-activated so that the heating circuit is always in low-mode operation. Also set the time windows in the heating circuit with the solar excess function Mo - Su to 0:00 bis 0:00, see ➔ *section "Changing heating times", p. 13*.

- Bath/cellar heating with burner: set according to individual requirements, i. e. use normal heating mode outside of solar excess times.

Decommission the swimming pool

If the swimming pool is decommissioned, make sure that the heat circuit pump is also de-activated (pull out plug), otherwise the heating circuit will begin to operate at temperatures below 5 °C.

9 Troubleshooting

9.1 Status and warning messages

The operating status is not ideal. Countermeasures will be automatically implemented. Additional measures are not normally required. The status or warning message will disappear once the target status is restored. If it appears several times within a fixed period of time, you must act and unlock the message. Messages that are not re-set are displayed as a flashing warning triangle on a circle with a grey background.

Sensor check

Depending on the initialisation, the sensors required for operation are monitored. If a sensor fails or if there is a short circuit, a message is displayed. Appropriate measures for the sensor that has failed are also implemented in addition to the message.

If there are any active messages, a corresponding icon (a warning triangle in a circle) flashes in the expert main screen ("**Heating**" menu) instead of the time/date. Active messages can be displayed again by pressing it.

Messages for all systems with SC-2

Message	Meaning	Effects/measures
"Storage overtemp."	The "HW buffer temp. (S1)" sensor at the top of the storage tank shows a temperature higher than 95 °C.	The solar pump and heat generator are switched off. They can start up again when the storage tank temperature is below 92 °C.
"Delta-T solar"	Solar circuit function check: The collector sensor is 60 K warmer than the "**storage tank reference**" for longer than 30 min. while the solar pump is running. This means that the solar heat exchanger is removing very little heat. If this messages occurs several times in a row, the solar circuit may be defective.	The message is issued and an audible signal sounds. The message is reset if the temperature difference drops to below 60 K.
"Solar buffer full"	The maximum temperatures at the storage tank at the top (S1, factory setting 90 °C) or the bottom (S3, 80 °C) have been exceeded.	The solar pump is switched off. It can start up again when the storage tank temperature drops below 87 °C (at S1) or 77 °C (at S3).

9.2 Malfunction messages

The system is not working. To restart it, you have to clear a fault and reset the malfunction message.

SolvisMax messages

Message	Meaning	Effects	Remedy
"Burn. malfunct."*	The heat generator was switched off via the automatic firing system.	The message is issued and a signal tone sounds. **Only applies to gas burners, 25 and 30 kW, as of November 2015:** error codes from the automatic firing system are also issued (see the ➔ "Gas burner error codes" section, p. 30)	**Gas** and **oil**: unlock the message **Otherwise**: unlock on the automatic firing systems, e. g. in SÖ-NT; see ➔ the "Unlocking a burner malfunction (not for gas, oil and district heating)" section, p. 30.
"STL1"/"STL2"	The safety temperature limiter has been triggered.	The heat generator is switched off.	Notify the installer.
"Solar pressure"	Pressure in the solar circuit is < 1 bar.	The solar pump switches off and an audible signal sounds.	The solar pump switches off and an audible signal sounds. Notify the installer. The message must be unlocked.

* Not displayed for on-site boilers.
** Only for SölvisMax Öl, or also for SolvisMax Gas in Switzerland.

9.2.1 Gas burner error codes

Only applies to gas burners with 25 and 30 kW built in November 2015 or later: the automatic firing system's error codes are displayed in SolvisControl on the second page of the malfunction message. For this purpose, select the navigation button.

SX-LN-3 burner error codes

Code	Meaning	Code	Meaning
001	Overheating flow	129	Overheating flow, lock-out
004	No flame formation	132	No flame formation, lock-out
005	Flame goes out	133	Flame goes out, lock-out
012	Defective sensor	139	Flame simulation
024	Fan speed not achieved	152	Fan speed not achieved
032	Incorrect mains voltage	154	Implausible fan speed
038	Updating error	158	Invalid parameter
050	Activate burner chip card	159	Invalid parameter
051	Activating burner chip card	162	Cannot read chip card
089	Device error	163	Chip card missing
090	Bus timeout	164	Cannot read chip card
095	Programming mode	165	Incompatible chip card
096	Reset exceeded	167	Cannot activate chip card
099	Internal error	198	Defective relay
227	Internal error	255	No SC-2 – automatic firing system connection

9.2.2 Unlocking a burner malfunction (not for gas, oil and district heating)

If a burner malfunction occurs with the **SolvisLino** or with **on-site heat generators**, you must reset the automatic firing system on the burner before you can unlock the message.

Resetting the automatic firing system with the **SolvisLino** or with **on-site heat generators** is described in the ➔ operating instructions for the heat generator. Please contact the relevant manufacturer.

9.3 Malfunctions with heating and hot water

If the hot water and/or flow temperature are too cold, always check first whether the time and date are set correctly in the controller. Then check the time programs, as the heating circuit, drinking water heating or circulation may be not be within the time window.

Fault table

Problem	Cause	Remedy
The room temperature is too cold.	The controller is switched off or is in "Standby" or night mode.	Switch on the main switch on the control console.
		Switch on the heating emergency switch.
		Check the main fuse for the heating system.
	"**BURNER MALFUNCTION**" malfunction message.	**SolvisMax Gas/Öl**: unlock the message. **External heat generators**: unlock the malfunction on the burner; see the ➔ *chapter "Unlocking a burner malfunction (not for gas, oil and district heating)", p.30*.
	The radiator is not warm enough.	The burner may currently be in hot water priority, i.e. the hot water buffer has priority and is being charged due to a high demand for hot water; see ➔ *the "Querying the status" section, chapter "Heating circuits", p.19*.
		Open the radiator valve further.**
	The room temperature cannot be set using the radiator valve.	Increase the target room temperature in the time program of the heating circuit*; see the ➔ *section "Changing the target room and low-mode temperatures", chapter "Heating circuits", p. 19*.
		Change the slope, if necessary* (see the table on the next page).
The room temperature is too warm.	The radiator is too warm.	Close the radiator valve further.**
	All rooms are overheated or the reference room is too warm.**	Reduce the target room temperature in the time program of the heating circuit*; see the ➔ *section "Changing the target room and low-mode temperatures", chapter "Heating circuits", p. 19*.
		Change the slope, if necessary* (see the table on the next page).
		Notify the installer if you cannot resolve the problem.
The reference room is always too warm or too cold.**	The heating curve is set incorrectly.	You need to set another heating curve (see the table on the next page).
Hot water temperature is too low although the storage tank is warm	T.WW.NOM is set too low.	Set T.WW.NOM; see ➔ *section "Setting the hot water temperature", p.16*.
	Air in the storage tank.	Bleed the storage tank (notify installer).

* Each time that the system controller is reset, wait one or two days before making more changes. As a result of physical conditions, changes to the parameters in the control system can often cause fluctuations in the control area (room temperature), which, depending on the existing conditions, can reach a constant value relatively quickly.
** To improve the energy efficiency of your heating system, always ensure that the system is hydraulically balanced. First of all, open all the heating valves fully. The heating valves in the reference room with the temperature sensor (room controller) must always remain fully opened. If all rooms are too warm or too cold to the same extent, change the heating curve on the system controller accordingly. If, on the other hand, the reference room has the proper temperature and the other rooms are too warm, close the heating valves in those rooms further. If it is still too cold in one of the rooms despite having fully opened the heating valves, we recommend that you move the room controller into this room (new reference room).

Adjusting the heating curve

The SolvisControl heating curves are displayed in the ➔ *Figure "Heating curves for various target room temperatures".*

Example:

The target room temperature is set to 20 °C, and the slope is set to 1.0. For an outdoor temperature of 10 °C, the flow temperature is controlled to 32 °C and for an outdoor temperature of -10 °C it is controlled to 48 °C.

The heating curve can be set exactly using the rules in the table. To save energy, corrections should only be made in small steps.

> All corrections require a certain amount of time to take effect. For this reason, wait at least one day before making any further adjustments.
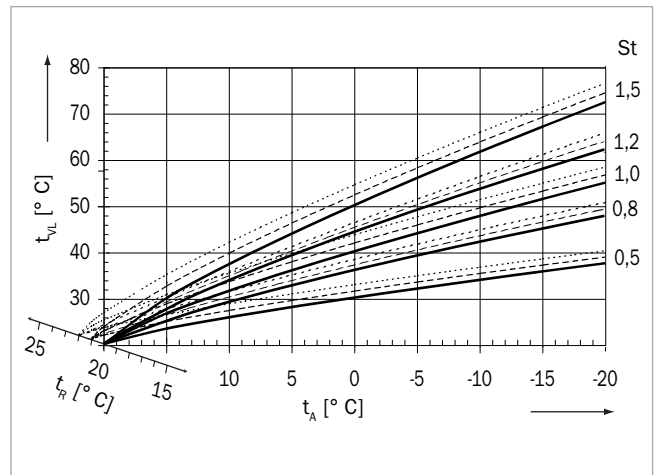

Fig. 9: Heating curves for various target room temperatures

St	Slope of the heating curve
tA	Outdoor temperature [°C]
tR	Target room temperature [°C]
tVL	Flow target temperature [°C]
Heating curve	For target room temperature
--------------	20 °
———	21 °
....	22 °

Correcting the heating curve

Problem	Solution
All rooms are overheated regardless of the outdoor temperature.*	Reduce the target room temperature (see ➔ *"Changing the target room and low-mode temperatures" in "Heating circuits" on page 19*).
The room temperature is too low regardless of the outdoor temperature.*	Increase the target room temperature.
The room temperature is too low in winter, but adequate in autumn and spring.	Increase the "slope" (see ➔ *"What is a heating curve?" in "Heating circuits" on page 19*)
The room temperature is adequate in winter, but too low in autumn and spring.	Increase the target room temperature in the heating times program and reduce the "slope".**
The room temperature is adequate in winter, but too high in autumn and spring.	Reduce the target room temperature in the heating times program **and** increase the "slope".**
The room temperature is too high in winter, but adequate in autumn and spring.	Reduce the "slope".

First of all, open all the heating valves fully. Then make adjustments to the room temperature by setting the heat curve. Only if one or more rooms have an adequate temperature and the other rooms are too warm do you have to close the heating valves there further. If it is too cold in a room, open the heating valves there before you change the heating curve.
**Set the target room temperature so that the temperature difference is compensated. Finally, change the slope by 0.05 per 2°C temperature difference in the opposite direction. Example: The room temperature is approx. 4°C too low in autumn and spring, but adequate in winter. You must increase the target room temperature in the heating time programs by this amount and reduce the slope by 0.1.*

10 Maintenance and Care

10.1 Maintenance interval

Maintenance and cleaning work must be performed once a year in accordance with German Energy Conservation Regulations (EnEV) and to maintain warranty claims.

The required maintenance work is described in the ➔ *installation instructions of the respective Solvis system*.

10.2 General care

⚠ CAUTION

Avoid contaminants

- Water, oil, grease, solvent, dust, foreign bodies, aggressive vapours and other contaminants must be kept away from the system and the units.

- Cover the system and the units when performing construction or other work in the area to protect them from dirt and contaminants.

⚠ CAUTION

Handle the system surfaces carefully.

Cleaners can damage the surface.

- Do not use caustic or solvent-based cleaners to clean the outer cover.

- Remove dirt with a soft, damp cloth.

You should clean the operator interface now and then with a damp cloth (do not use any cleaning agents).
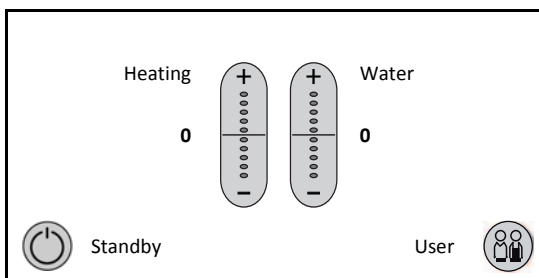
10.3 Switching the heat generator on and off

Depending on the mode the controller is in, proceed as follows to open the chimney sweep function:

Controller in simple operation

Open the chimney sweep menu

1. Select "**User**".

2. Select "**Chimney sweep**".

3. Continue with the ➔ **section "Start the burner"**.
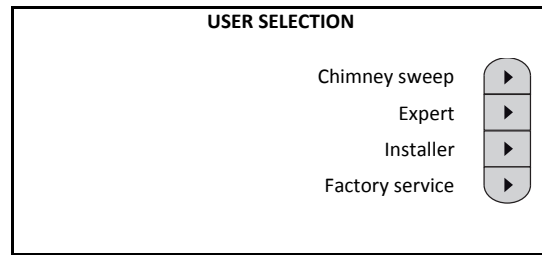
Controller in expert operation

Open the chimney sweep menu

1. Select "**Other**".

2. Select "**Chimney sweep**".

3. Continue with the ➔ **section "Start the burner"**.
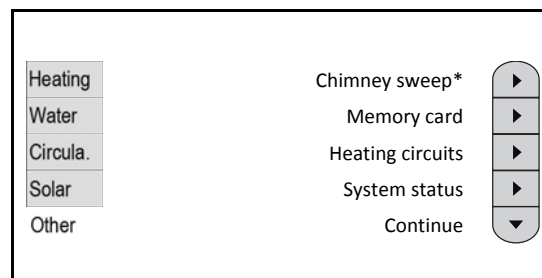
*For district heating: "——"

Start the burner

1. Select "**Start**".

The burner starts, the display changes to "**Stop**" and the remaining run time is displayed.

2. To switch off the burner early, select "**Stop**".
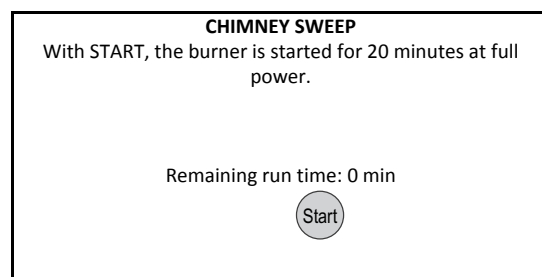
ℹ Exhaust measurements can only be performed if the storage tank is cold and a heating requirement exists. Order the chimney sweep early enough in the heating season. In the summer, the storage tank may be overly heated by the solar collectors.

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11 Decommissioning

Dismantle and dispose of the system

Consult the specialised dealer responsible or us regarding proper decommissioning, disassembly and disposal of the system. All Solvis components sent back to our factory at no cost to us will be disposed of according to regulations at no cost to you.

Disposal of materials

Collect and properly dispose of solar fluid or brine fluid (Tyfocor) that results from draining the solar system. You can send it to hazardous waste depots or to us, if you arrange for the Tyfocor to be delivered to our factory at no cost to us.

Follow the product's technical information and disposal instructions or consult your responsible specialised dealer or us.

12 Appendix

12.1 Time programs overview

Time program for heating

Settings	Time window	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Sunday	
		from	until	from	until	from	until	from	until	from	until	from	until	from	until
Factory, heating circuits 1–3	1	06:30	22:30	06:30	22:30	06:30	22:30	06:30	22:30	06:30	22:30	07:30	23:45	07:30	23:45
	2	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00
	3	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00
Customized settings, heating circuit 1	1														
	2														
	3														
Customized settings, heating circuit 2	1														
	2														
	3														
Customized settings, heating circuit 3	1														
	2														
	3														

Warm water time program

Settings	Time window	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Sunday	
		from	until	from	until	from	until	from	until	from	until	from	until	from	until
Factory	1	06:00	22:00	06:00	22:00	06:00	22:00	06:00	22:00	06:00	22:00	07:00	22:00	07:00	22:00
	2	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00
	3	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00
Customized settings	1														
	2														
	3														

Circulation time program

Settings	Time window	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Sunday	
		from	until	from	until	from	until	from	until	from	until	from	until	from	until
Factory	1	06:00	08:00	06:00	08:00	06:00	08:00	06:00	08:00	06:00	08:00	06:00	08:00	06:00	08:00
	2	12:00	13:00	12:00	13:00	12:00	13:00	12:00	13:00	12:00	13:00	12:00	13:00	12:00	13:00
	3	17:00	20:00	17:00	20:00	17:00	20:00	17:00	20:00	17:00	20:00	17:00	20:00	17:00	20:00
Customized settings	1														
	2														
	3														

Time program for ECO function

Settings	Time window	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Sunday	
		from	until	from	until	from	until	from	until	from	until	from	until	from	until
Factory	1	08:00	16:00	08:00	16:00	08:00	16:00	08:00	16:00	08:00	16:00	08:00	16:00	08:00	16:00
	2	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00
	3	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00
Customized settings	1														
	2														
	3														

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