

Operating instructions

firestar 15-40

BioControl



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1. Introduction

Dear Customer,

Your heating system is operated using a HERZ firestar boiler unit and we are pleased to be able to welcome you to the wide circle of satisfied operators of HERZ equipment. The HERZ biomass furnace system is the result of many years of experience and further development. Please take into account that a good product also requires the correct service and maintenance, in order to be able to fulfil its function.

Therefore, please read through this documentation carefully – it will be worthwhile.

Please take particular note of the safety notes.

Adhering to the operating regulations is a precondition of any claim against the factory guarantee. In the event of faults, please contact your heating specialist or the HERZ factory customer service.

Yours sincerely, **Herz**

HERZ Feuerungstechnik (Fuel Technology)

Warranty / Guarantee (general)

For Herz furnaces there is a 5-year warranty on the boiler body, storage devices and Herz solar collectors. For electrical parts such as electric motors, service cabinets, ignition devices etc. we offer a 2-year warranty starting from the commissioning of the equipment. Wearing parts are excluded from the guarantee / warranty. Claims on the guarantee also become invalid for missing or incorrectly working return flow bypass, where set-up¹ is not conducted by HERZ authorised specialists, as well as where a non-prescribed fuel is used².

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We reserve the right to make technical changes.

Version 06/2009

¹ Maintenance by the manufacturer





² Furthermore, hot water quality must be fulfilled according to ÖNORM H 9195 or VDI 2025
Betriebsanleitung firestar 15-40 English V2.8

2. Safety notes

- Please read the documentation carefully prior to commissioning and pay particular attention to the marked safety notes. Please look up in these instructions anything about which you are unsure.
- Ensure that you understand the instructions in this manual and that you are sufficiently informed about the functioning of the biomass furnace system. HERZ is at your disposal at all times for any questions.
- For safety reasons the operator must not alter the system, the construction or its condition, without the agreement of the manufacturer or their authorised representative.
- Ensure you have sufficient fresh air entering the boiler room. (Please take note of any regional regulations or directives).
- The tightness of all connecting points is to be monitored before the system is started up.
- A portable fire extinguisher of the prescribed size must be placed in front of the boiler room. (Please take note of any regional regulations or directives).
- When opening the combustion chamber doors take care that no flue gas and sparks are released. Never leave the combustion chamber door open. Toxic gases may be emitted.
- Never heat up the boiler with liquid fuels such as petrol or similar.
- Carry out maintenance work (maintenance plan) regularly or make use of our customer services. (TRVB minimum maintenance interval are to be respected)
- When maintaining the system or opening the control system the power supply must be interrupted and the general valid safety regulations respected.
- No fuels should be stored outside the equipment in the boiler room Furthermore, the storage of items not required for operating the equipment is not permitted in the boiler room.
- Always use low voltage lamps for lighting the storeroom (these must be approved for use by each manufacturer).
- The equipment can only be operated using designated fuels.
- Prior to further transportation of ashes, these must be cooled down for a minimum period of 96 hours before storage.
- If you have any questions, please contact us on telephone no. +43/3333/2411 - 0.
- The first start-up must be carried out by HERZ factory customer service or an authorised specialist. (otherwise guarantee claims are invalid)



...Warning notes

	<p>Risk of injury from incorrect handling of the equipment Material damage may also occur.</p>
	<p>Warning – hot surfaces</p>
	<p>Warning – injury to hands</p>
	<p>No access for unauthorised persons</p>

However, adherence to guidelines for transportation, installation, operation and maintenance notices as well as technical data (in the operating instructions, product documentation and on the equipment itself) which are not specifically highlighted, is also vital to avoid breakdowns which may directly or indirectly cause major personal or material damage.

GENERAL NOTE

For reasons of clarity and possible permutations, this documentation does not contain all detailed information and cannot take account of every conceivable operating or maintenance scenario.

Should you require further information or encounter specific problems, which are not handled in detail in the documentation supplied, you can obtain the required information from your specialist dealer or direct from HERZ.

People (including children) who are not in a position to use the equipment safely due to their physical, sensory or mental capacities or their inexperience or lack of knowledge should not use this equipment without supervision or instruction by a responsible person.

Basic safety informaion



Due to its functionally limited electrical and mechanical characteristics with regard to usage, operation and maintenance, if the equipment is not able to work according to its appropriate use or improper interference occurs, it may cause serious health and material damage. It is therefore conditional that the planning and implementation of all installations, transportation, operation and maintenance will be carried out and supervised by responsible, qualified persons.



When operating electrical equipment certain parts are inevitably under electrical tension or mechanical stress. Only appropriately qualified staff may work on the equipment. Staff must be basically familiar with the content of these and all other instructions. The smooth and safe use of this equipment is dependent upon appropriate transportation and storage as well as designated operation and careful maintenance. Notes and indications on the equipment must also be observed.

INSTALLATION

General notes

In order to guarantee correct functioning of the equipment, the installation of the equipment must be carried out with adherence to the relevant standards and installation regulations of the manufacturer.

Manufacturer documents for the devices and components being used the equipment are available from HERZ upon request.

OPERATION AND MAINTENANCE

General safety notes



For safe operation and maintenance of all equipment, it is assumed that actions will be carried out appropriately by qualified staff, taking heed of the warning notes in this documentation and the notes on the equipment.



Under incorrect operating conditions, temperatures above 80°C could occur at parts of the casing.

OPERATION

General safety notes



Coverings that prevent the moving of hot or rotating parts or which are required for the correct supply of air and effective functioning, must not be opened during operation.



Any faults or unusual operating conditions such as the emission of smoke or the appearance of flames mean that the equipment must be immediately switched off using EMERGENCY OFF. The HERZ factory customer service must then be notified of this straight away.

- Where the main switch on the boiler room door is activated or if the power supply fails, the equipment immediately goes out of operation. The residual amount of fuel burns independently without toxic gases being given off, provided that the naturally occurring chimney draw is sufficiently high. The chimney must therefore be dimensioned and designed according to DIN4705 or EN 13384.
- The noise caused by the machinery during operation does not have any adverse effects upon the health of people.

MAINTENANCE

General safety measures



Before commencing any work on the equipment, but particularly before opening coverings of parts under voltage, the equipment must be enabled according to the instructions. As well as the main electrical circuit, any additional or auxiliary circuits should be noted. The usual

Safety rules according to Ö-NORM are:

- Switch off all poles on all sides
- Ensure that they is not switched on again
- Check that there is no voltage
- Earth and short-circuit
- Covering neighbouring live parts and isolate dangerous parts



The aforementioned measures may only be retracted once the equipment is completely installed and the maintenance completed.



For overhaul work in the combustion chamber, ash chamber, on flue gas-carrying parts, emptying of the ash store, etc., the use of personal dust protection masks and gloves is required.



For overhaul work in the storage room, low voltage bulbs must be used. The design of electrical equipment in the storeroom must conform to ÖNM7137.

In order to prevent any commissioning errors due to incorrect maintenance, it is recommended that regular maintenance servicing be carried out by authorised staff or the HERZ factory customer service.

Spare parts may only be obtained direct from the manufacturer or sales partner. No health risks will be caused to the customer from noise arising from the machinery. Details of any residual risks can be requested from the residual risk analysis from Herz as required.

3. FUELS

The HERZ – *firestar* is suitable for burning logs, wood chips and carpentry waste (e.g. planing shavings). Smaller split logs enable higher boiler performance than whole ones. We recommend triangular firewood with side lengths of 50cm and edge lengths of 8cm. Too coarse or too long firewood may lead to reduced performance and hollow fire. The heat value of the wood is primarily dependent on its moisture content. The heat value decreases with increased moisture. The combustion of wood with high moisture content also causes a decrease in the degree of efficiency of the boiler.

Wood should therefore be stored for at least two years in a dry, ventilated place. Oak for about a year longer. Dry bark displays a heat value similar to wood but there is more likely to be increased formation of ash.

A. Combustion time at nominal load up to

Type	<i>firestar 15</i>	<i>firestar 19</i>	<i>firestar 20</i>	<i>firestar 30</i>	<i>firestar 40</i>
Softwood	5,5 hours	5 hours	6,5 hours	6 hours	3,5 hours
Hardwood	6,5 hours	6 hours	8 hours	7 hours	4,5 hours
Wood chips	3 hours	3 hours	4 hours	3,5 hours	2,5 hours

4. Starting up a cold system

After a long period of not being used, you should take particular note of the following points when starting up the system:

Where the equipment has cooled down, the boiler requires a proportionate amount of time to reach temperature if all heat consumers are switched on during the heating up process.

Therefore, firstly put only one small heating circuit into operation and only switch the other heating circuits on when the boiler has reached its operating temperature. The first start-up should only be carried out by HERZ factory customer service or persons authorised as such.

5. Sealing the boiler

It is imperative that all doors are closed during operation so that no leak air can disrupt the combustion process. If this is not observed then damage to the boiler may result.

6. Operation with low performance decrease

Should fuel be burned in the transition period (spring or autumn) it is vital to ensure that for low decreased performance (less than 50%) the filling shaft is not completely put on. Decreased performance of less than 50%, means the boiler and the chimney may become clogged with soot. It is also possible that smoke may develop in the chimney. The *firestar* boiler should therefore **basically** be operated equipped with a correctly dimensioned **buffer** (according to EN 303-5).

7. Overheating of the boiler

Should the boiler temperature exceed 110°C, the safety temperature limiter switches the controls off and the warning light illuminates. After the equipment has cooled off under about 75°C, the **Safety Temperature Limiter** should be tripped by unscrewing the covering cap (press the knob). Then screw up the covering cap again afterwards. Before re-starting the cause of the overheating should be identified and corrected.

Thermal flow protection

If the boiler overheats then the “thermal flow protection” opens automatically (at 95°C) via a sensor and cold water flows through the heat exchanger. The boiler water is thereby cooled off and dangerous operating conditions are prevented. The water heated up in the heat exchanger must be able to run away freely (directly into the waste water channel). After the boiler water has cooled off to about 90°C the “thermal flow safeguard” automatically interrupts the cold water feed. After cooling off, the equipment pressure and/or water level of the equipment is to be controlled and if necessary the missing amount of water topped up. According to DIN 4751 sheet 2, the operator is obliged to regulate the functioning of the “thermal flow safeguard” and the heat exchanger belonging to it at least once a month by activating the test button. Furthermore this safety instruction is to be monitored once a year by the manufacturing company or another competent organisation.

Note:

Where there is a combined non-functioning of the “thermal flow protection” and heat exchanger, the set-up of the equipment is prohibited.

8. Sweating of the boiler

During long-term operation it should be guaranteed that the return flow temperature does not fall below 60°C. For this reason a return flow temperature bypass is obligatory.

Note:

Corrosion damage caused by too low return flow temperatures, do not come under the guarantee or warranty claims.

9. Taking out of operation

The mains switch should not be turned to “OFF” during the burn-off but only after complete burn-off. (Status: unit off)

10. Boiler operation

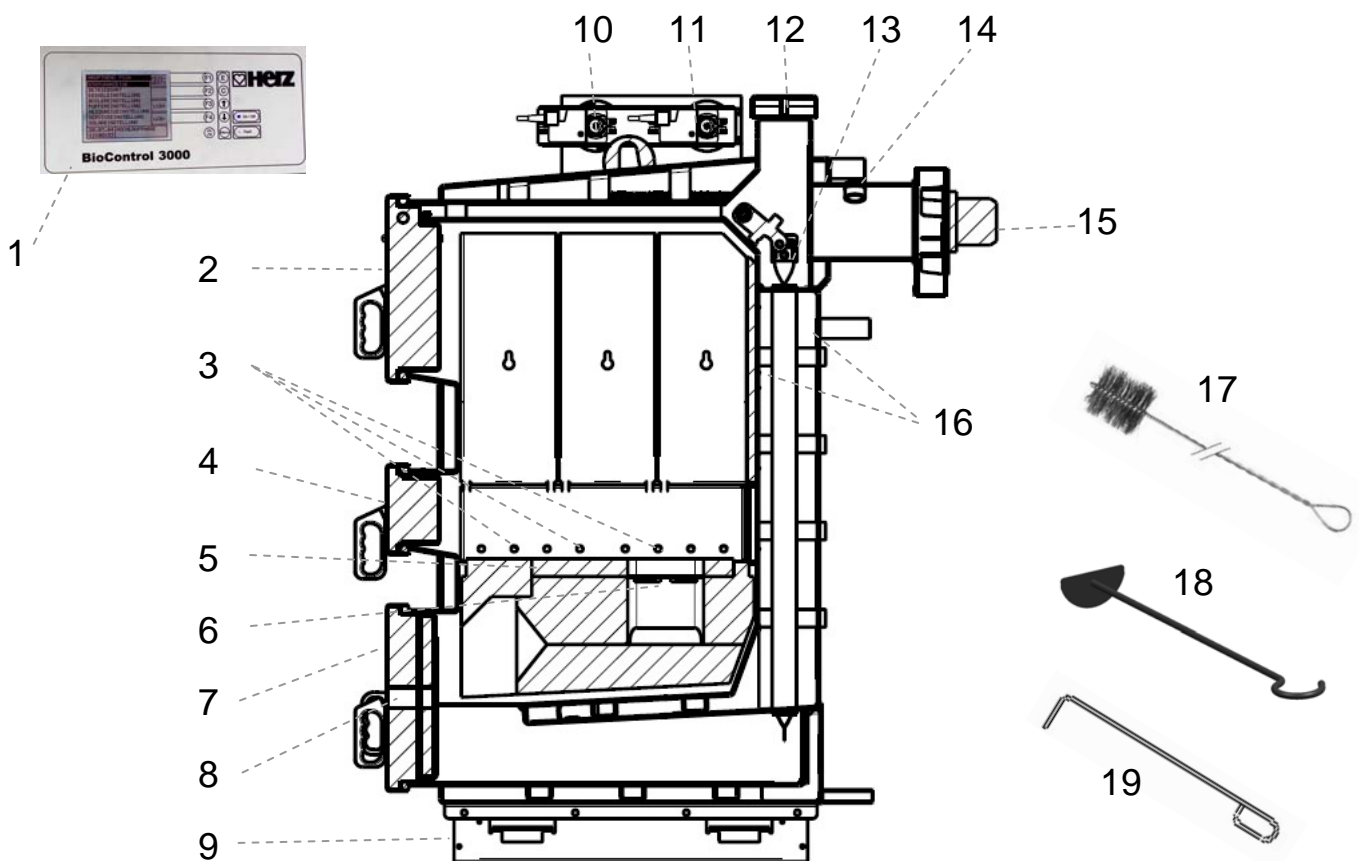
A. Heating up

After the casing door is opened the “burning” phase starts automatically.

If it is not desired or necessary to heat up the boiler, this process can be interrupted with a long press of the On/Off button and confirmation of the SWITCH OFF message by once again pressing On/Off.

To form a good flame it is recommended that the lower third of the filling shaft be filled with small pieces of wood. After that normally chopped wood (size around 8cm) can be used for filling.

Then open the lighting up door (4) and light up with an oil ignition, wood shavings or cardboard. After this all doors should be closed once again.



Legend:

- | | | |
|----------------------------|-----------------------------|------------------------------------|
| 1...BioControl 3000 | 8...Viewing glass | 15...Ventilator |
| 2...Filling shaft door | 9...Ash tray | 16...Heat recovery area |
| 3...Primary air feed | 10...Secondary air aperture | 17...Cleaning brush (optional) |
| 4...Lighting-up door | 11...Primary air aperture | 18...Bellows for burner plate |
| 5...Burner plate | 12...Cleaning cover | 19...Bellows for primary air feeds |
| 6...Secondary air aperture | 13...Turbulators | |
| 7...Ash doors | 14...Lambda sensor | |

B. Re-heating



- Open the casing door – with the ventilator going at full speed, so that the flue gas is sucked out via the smoke flue channel by opening the filling shaft door (2).
- Slowly open the filling shaft (2)
- Put in the fuel
- If necessary, press the F2 button (re-heat) on the main menu on the terminal (only possible in high running and control phase where the text “re-heat” is visible).
- Close the filling shaft door and casing door.

The HERZ firestar special boiler is characterised by its long combustion duration. It does not have to be re-filled with fuel at frequent intervals. It is recommended that the **filling shaft only be filled according to the heating requirement**, so that frequent opening of the filling shaft door does not have a negative effect on combustion.

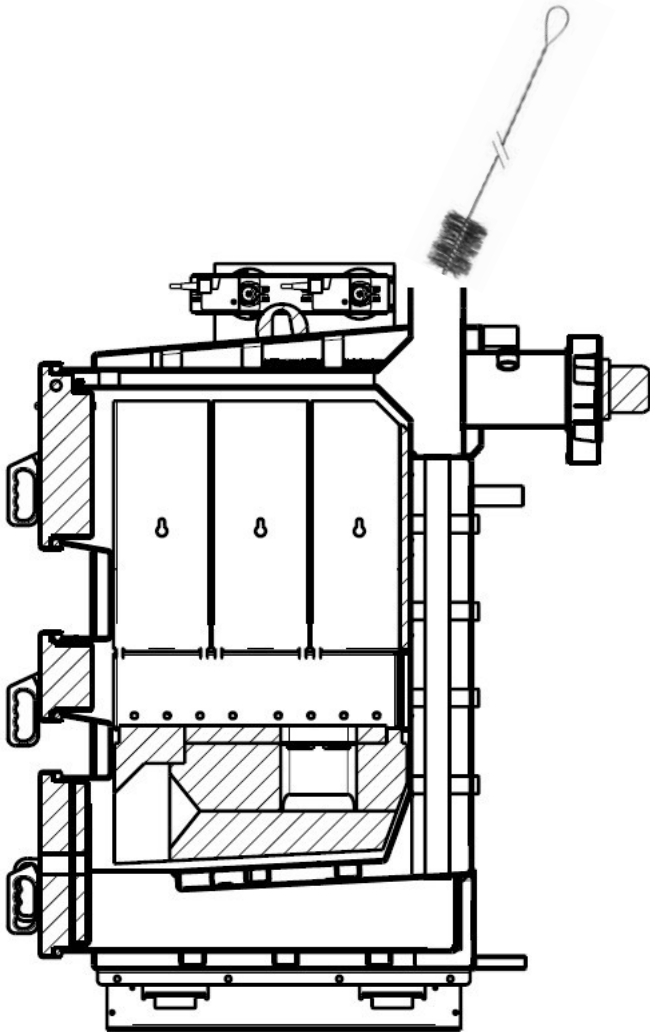
C. De-ashing and cleaninggeneral

In order to counteract increased fuel consumption, rising flue temperature, decreasing efficiency level, etc., we recommend that the boiler be cleaned at frequent intervals. The combustion chamber only has to be cleaned every two to six days, depending on the type of fuel used. The heat recovery areas are automatically cleaned at each start-up or switching off of the equipment.

Should automatic cleaning not be available, we recommend manual cleaning every 2 to 4 weeks. For semi-automatic cleaning only, the lever for the heat exchanger cleaning should only be activated before each firing up.

D-1. Cleaning of the heat recovery areas (manual)

Rust and fly ash deposits on the heat recovery areas (16) have a considerable effect on the economy and performance of the boiler. The thinner this deposit, the higher the fuel utilisation, i.e. the more frequently the boiler is cleaned the lower the fuel consumption.



- removing the upper boiler casing
- loosening screw caps and removing cleaning cover (12)
- removing and cleaning of turbulators (13)

- Clean the heat recovery areas with the boiler brushes (17). Here the ventilator can also be switched on in order to suck away any dust forming in the air. This can simply be carried out in the Unit Off condition in the so-called aggregate test. (Main menu – service setting – aggregate test)

After cleaning

- Set the turbulators (13) correctly again,
- Put on the cleaning cover (12), tighten the closing screws and
- install the boiler casing.

The accumulated ash should be removed via the ash door (7).

E-1. Cleaning of the combustion chamber – firestar

This only has to be cleaned every two to six days, depending on the type of fuel used. When burning fuels with a high proportion of fly ash (e.g. paper, cardboard, bark, etc.) on combustion, the combustion chamber should be cleaned more frequently.

- Open the casing door and ash door (7)
- Clean the combustion chamber
- Keep the primary air feeds (3) clean with bellows for primary air feeds (19)
- Keep the combustion plate inputs clean with (5) clean with bellows for primary air feeds (19)
- Clean out the combustion tray and combustion plate using the bellows for the combustion plate (18)
- Close the ash door (7) and casing door

Any elongation fissures on the insulation plates or combustion chamber bricks do not affect their functioning and therefore do not represent a claim against the guarantee.

Note:

The combustion chamber must always be cleaned last, as the ash may fall in the burn-off areas when cleaning the heat recovery area.

F. Cleaning the flue pipe

This should be cleaned at least once a month using a chimney cleaning brush. **Note:** Remove the flue temperature sensor before cleaning as it could be damaged.

G. Filling shaft

The filling shaft walls are not heating surfaces and must therefore not be cleaned. The deposit arising on the filling shaft walls is a normal chemical process and flakes off from time to time by itself or can be removed using the bellows (18).

Note:

For perfect functioning of the boiler the filling shaft door must always be shut tightly.

H. Checking the heat exchanger

In "hard water" areas in particular, there should be checks on whether the heat exchanger is limed up and has to be cleaned. Where faults are identified, ongoing maintenance is offered, as this may mean important safety checking for operation in closed heating units (checking the heat exchanger can be carried out by manually pressing the thermal flow protection. There should be a free flow of water into the heat exchanger).

I. Checking the water level for the heating unit

Care should be taken that the required water level or unit pressure (min. 1.5 bar in cold condition) should be maintained in the heating unit. Regular checks are required.



Too low a unit pressure may lead to simmering noises or the build up of steam bubbles in the unit.

11. Keeping the boiler room clean

Items that are not required for the operation or maintenance of the boiler unit, should not be stored in the boiler room. Cleanliness and tidiness enable good access for service and maintenance and reduce the risk of accidents.

12. Fault-free operation

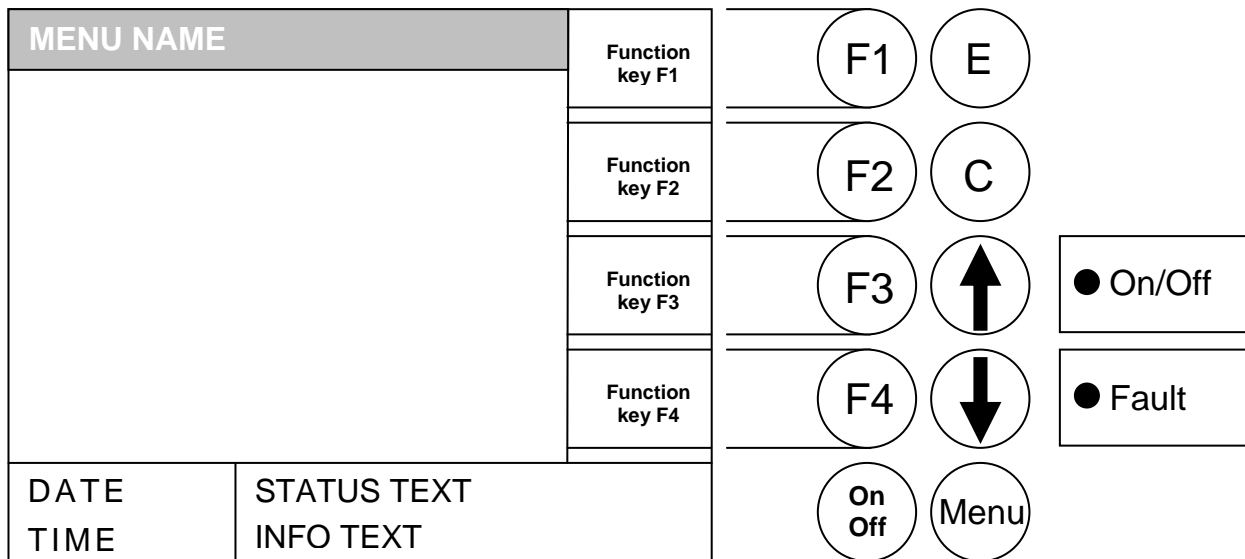
To avoid fault-free operation, some basic points should be adhered to for installation, service and maintenance. The following table may be helpful to the operator for rectifying any faults.

Please note that faults arising due to non-adherence to installation and/or service instructions, do not come under the guarantee or warranty provisions.

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Screen layout



Operating conditions (combustion control):

Unit off :

In this condition the unit is switched off.

Ready: :

The maximum boiler temperature (**BOILER MAX**) was switched off due too low a heat capture being achieved and the boiler has therefore been switched off. The boiler starts up again as long as the boiler temperature 3°C under **BOILER MAX** falls.

Burning phase :

In the **BURNING PHASE** condition, after manual start-up by the user, wait to see if the logs catch fire in the combustion chamber. During the **MAX BURNING TIME** (adjustable) an adequate flue temperature (**HEATING UP FROM MIN**) is adjusted so that it can be switched on into the **HIGH RUNNING PHASE** condition. If this flue temperature is not set, it switches into the **UNIT OFF** condition and a fault is declared accordingly.

High running phase :

In the **HIGH RUNNING PHASE** condition, after lightings the logs, it tries to stabilise the combustion and achieve the minimum boiler temperature. The optional combustion control (lambda control) is already activated at this time. When reaching 65°C the boiler temperature (set out in the program) is switched on into the control phase. Should the flue temperature decrease in this phase (under **HEAT UP MIN**), it switches into the **NEW START-UP**.

Control phase :

The **CONTROL PHASE** condition carries out actual boiler control, which splits into an output and combustion control (OPTIONAL). If the boiler temperature in this phase increases above the maximum boiler temperature (**BOILER MAX**), it switches into the **READY** condition. Should the flue temperature decrease in this phase (**HEAT UP MIN**), it switches into the **NEW START-UP**.

New start-up :

The **NEW START-UP** condition tries to re-stabilise the combustion within a time limit (adjustable). It will always be activated if the flue temperature is too low. If stable combustion adjusts again, it switches immediately into the **CONTROL PHASE**. Should a sufficient flue temperature not be achieved after a specified time (**under HEAT-UP MIN**), the boiler is switched off as it is switched to the **UNIT OFF** condition.

Re-heating

The **RE-HEATING** condition is used for safe operation for re-heating. If the customer re-heats a larger amount of logs in operation, then this operation is activated. The boiler then remains in this condition for the time set. Should the boiler temperature in the meantime increase above the maximum boiler temperature, the boiler will be switched off. After the set time, it switches to the **CONTROL PHASE** condition once an adequate flue temperature is reached, and if the flue temperature is too low (under **HEAT UP MIN**), it is switched off and reported as a fault. This function may only be activated by the **MAIN MENU**, if the unit is in **HIGH RUNNING** or **CONTROL PHASE**.

Chimney sweeper :

The **CHIMNEY SWEEPING** condition is available as a test mode for the chimney sweeper. The boiler is precisely operated using rated output and the chimney sweeper can carry out its test measurements. The boiler usually runs high and the chimney sweeper function is only activated instead of the **CONTROL PHASE**. This condition is left when deactivation occurs or when the boiler maximum temperature is exceeded or when the maximum chimney sweeping time is exceeded.

Flue temperature control:

The flue temperature control begins if the **HEAT UP FROM MIN** is exceeded. The target temperature modulates between the set values **FLUE NL** and **FLUE PL**. In the high running phase as well as when re-heating, it will be controlled at an increased flue temperature (**FLUE NL + FLUE DELTA**).

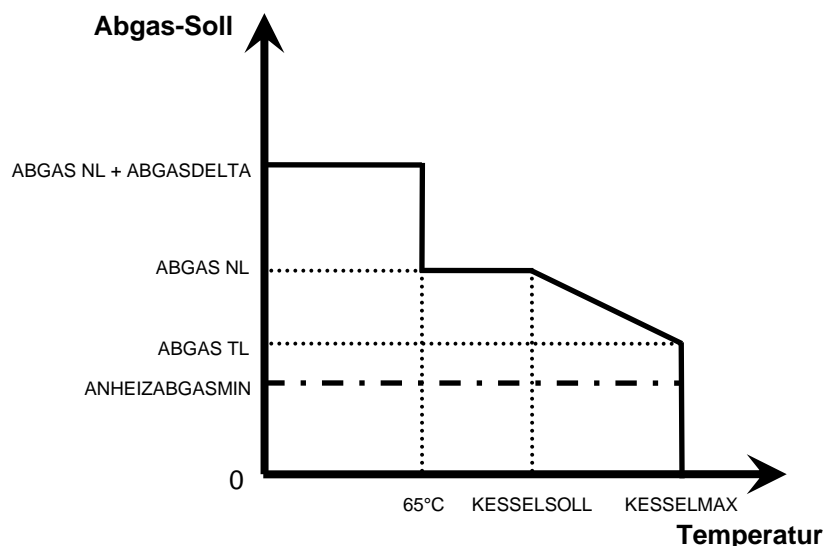
Frost protection:

If the unit goes into frost protection, then the return flow pump is switched on and the return flow mixer moves to ON.

Lambda control :

The primary and secondary air is controlled via the lambda sensor. This serves to optimise the combustion and can detect slight fuel fluctuations.

Control curve:

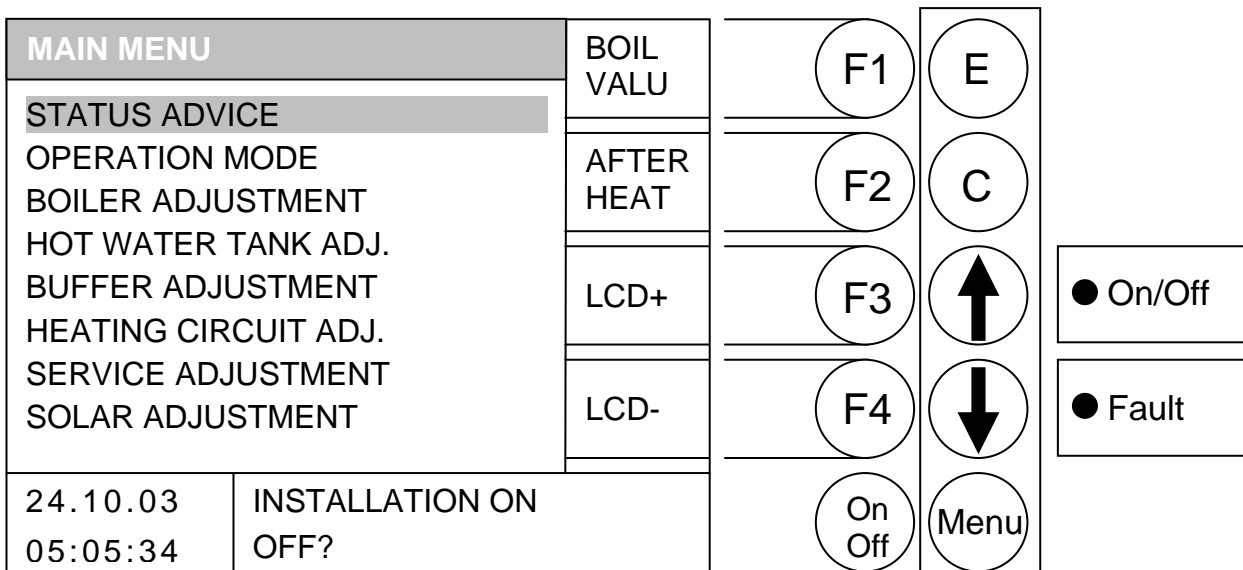


Description of menu management and setting values

MAIN MENU

Objective: Displaying the output type, setting the contrast or branching off into the sub-menus.

This page is loaded automatically after the equipment is switched on via the main switch. From here you can navigate easily through the settings.



By pressing the button

- F1 : (BOILER VALUE) the "BOILER VALUES" window is called up.
- F2 : (RE-HEAT) switches into the re-heat condition
- F3 : (LCD+) increases the contrast
- F4 : (LCD-) reduces the contrast

- ↑ : the bar is pushed up.
- ↓ : the bar is pushed down.

- E : goes into the window behind the bar.
- C : No function
- Menu : Leaves the current menu. Pressing several times takes you back to the main menu.
- OnOff : the system is switched on/off

The current condition of the equipment is displayed in the status text. Additional information is displayed in the information text irrespective of the current menu.

Switching on and switching off the equipment

a) Switching on

The mains switch must be switched on first (green set behind). Pressing the On/Off button for 1 second brings up the text "Switch on?". Pressing the On/Off button for a short time switches on the equipment. Furthermore the unit starts automatically if the casing door (door contact) is closed. In the event that the equipment does not switch on, the fault which is causing this is shown on the display. (see rectifying faults in the appendix)

b) Switching off

The unit can only be switched off via the mains switch. However, this should only be carried out in the "unit off" condition. If the unit is accidentally started up via the door contact (e.g. after cleaning, etc.) there is the option of switching the boiler off in the burnout phase. Pressing the On/Off button for 1 second brings up the text "switch off?". Quickly pressing the On/Off button switches the equipment off.

c) Re-heating

If necessary, it can be changed to the "re-heat" condition after depositing the fuel. This is carried out by pressing the F2 button (only possible when in operation).

You have the option of going into any sub-menu from the main menu.

This can be done via the down or up arrow. Confirm using ENTER. Using the (F3) LCD+ and (F4) LCD- function buttons, you have the option in the main menu of changing the contrast for the display.

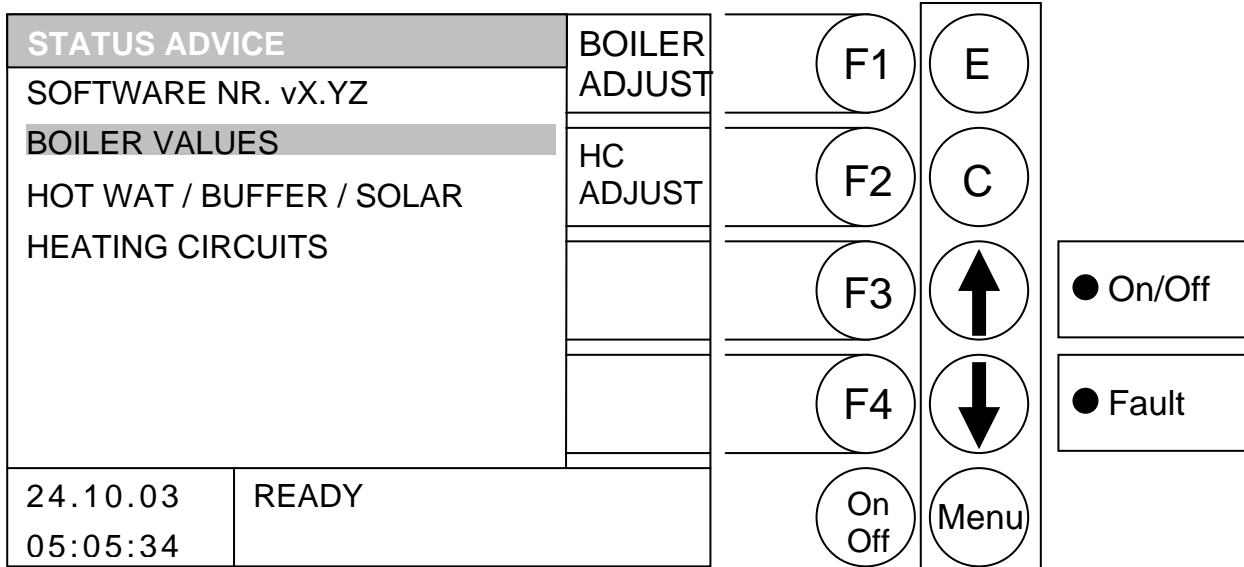
Furthermore, there is the option of changing the current boiler values using the F1 function button directly on the status side. A more detailed description of this menu can be found under the boiler values status display.

Some windows described below are code protected for safety reasons and may only be opened by entering this code. For security reasons there is a second code level, which is only intended for the service engineers and can therefore only be opened using a service code.

STATUS ADVICE

MAIN MENU → STATUS ADVICE

Objective: Displays the software version number as well as branching into the images on the boiler values, hot wat/buffer/solar and heating circuits.



By pressing the button

- F1 : Changes to the “BOILER ADJUSTMENT” menu
- F2 : Changes to the “HEAT CIRCUIT ADJUSTMENT” menu
- F3 : No function
- F4 : No function
- ↑ : the bar is pushed *up*.
- ↓ : the bar is pushed *down*.
- E : goes into the window behind the bar.
- C : No function
- Menu : Changes to the main menu
- OnOff : the system is switched on/off

- BOILER VALUES: Clear display of all relevant boiler values
- HOT WAT/BUFFER/SOLAR: Clear display of all relevant buffer / boiler / solar values
- HEATING CIRCUITS: Clear display of all relevant heating circuit values

If, for example, you would like to look at the boiler values, simply activate the ENTER button (E) after correct positioning of the display bar.

All boiler values ascertained are presented on this page. Furthermore the target maximum and minimum values are always displayed (if available at the current value).

The following options are in place to change the status display on the heating circuits. From the status display sub-menu page you can move the selection bar up or down using the up or down arrow on the heating circuits menu item or if you are in the status display for boiler values via the F1 function button.

BOILER VALUES

MAIN MENU → STATUS ADVICE → BOILER VALUES

Objective: Displays the relevant boiler values.

BOILER VALUES					HC 1-2	F1	E	
	ACT	MUST	MAX	MIN				
BOILER/TEMP	68	75	85	59				
EXGASTEMP	165	165	170	100	HOTWA BUFBE	F2	C	
BACKFLOW	60	60	-	-				
ROT.SPE	480	480	-	375				
PRIM AIR	173	-	-	250				
SEC AIR	356	-	-	-		F3	↑	● On/Off
O2[‰]	85	85	-	-				
CO2[‰]	125	125	-	-				
BF MIXER		OP	CL					
BF PUMP		ON				F4	↓	● Fault
24.10.03	READY							
05:05:34						On Off	Menu	

By pressing the button

- F1 : Changes to the "HEATING CIRCUIT 1-2" menu
- F2 : Changes to the "HOT WAT/BUFFER/SOLAR" menu
- F3 : No function
- F4 : No function

- ↑ : No function
- ↓ : No function

- E : No function
- C : No function
- Menu : Changes to the "STATUS ADVICE" menu
- OnOff : switches the system on / off.

- BOILTEMP: Displays the boiler temperatures in °C
- EXGASTEMP: Displaying the flue temperature in °C
- BACKFLOW: Displays the backflow temperatures in °C
- ROTARY SPEED: Displays the suction speed in ‰
- PRIMARY AIR: Displays the current primary air flap correction in %.
- SEC AIR: Displays the current secondary air flap correction in %.
- O2[‰]: Displays the O2 values (e.g. 90 = 9% O2)
- CO2[‰]: Displays the CO2 values (e.g. 114 = 11.4% O2)
- BF mixer: Displays the conditions of the backflow mixer (current condition is shown behind)
- BF PUMP: Displays the condition of the backflow pump (current condition is behind this)

HEATING CIRCUIT 1-2

MAIN MENU → STATUS ADVICE → HEATING CIRCUIT 1-2

Objective: Displays the relevant heating circuit values.
Same page for heating circuits 3-4 and heating circuits 5-6.

HEATING CIRCUIT 1-2					HOTWAT BUFF	F1	E
	ACT	MUST	MAX	MIN		F2	C
FLOWTEMP1	51	54	80	30	BOILER VALUE		
ROOM TEMP1	24	25+2	-	-			
FLOWTEMP2	63	65	75	25			
ROOM TEMP2	21	-	-	-			
BACKFLOW1	-2	45	55	-	HC 5-6	F3	↑
HC PUMP		1	2	1			
MIXER1		OP	CL				
MIXER2		OP	CL		HC 3-4	F4	↓
AMB. TEMP		21	-	-			
24.10.03		READY				On Off	Menu
05:05:34							

● On/Off

● Fault

By pressing the button

- F1 : Changes to the "HOT WAT/BUFFER/SOLAR" menu
- F2 : Changes to the "BOILER VALUES" menu
- F3 : Changes to the "HEATING CIRCUIT 5-6" menu
- F4 : Changes to the "HEATING CIRCUIT 3-4" menu

- ↑ : No function
- ↓ : No function

- E : No function
- C : No function
- Menu : Changes to the "STATUS ADVICE" menu
- OnOff : the system is switched on/off

- FLOWTEMP1 : Displays the current advance flow temperature in °C
- ROOMTEMP1: Displays the current room temperature in °C
- FLOWTEMP2 : Displays the current advance flow temperature in °C
- ROOMTEMP2: Displays the current room temperature in °C
- BACKFLOW1-2: Displays the current advance flow temperature in °C
- HC PUMP: Displays the conditions of the heating circuit pumps (current condition is behind this)
- MIXER1: Displays the condition of the heating circuit mixer (current condition is behind this)
- MIXER2: Displays the condition of the heating circuit mixer (current condition is behind this)
- AMB.TEMP: Displays the current external temperature in °C

HOT WATER TANK/ BUFFER/ SOLAR

MAIN MENU → STATUS ADVICE → HOT WAT/BUFFER/SOLAR

Objective: Displays the relevant values for boiler, buffer and solar

HOT WAT/BUFFER/SOLAR					BOILER VALUE	F1	E
	ACT	MUST	MAX	MIN			
HOT WATER P	47	60	90	40	HC 1-2	F2	C
BUFFER-UP	75	35	-	-			
BUFFER-LO	51	75	105	-		F3	↑
FASTRUN		OPEN	CLOSED				
S-TEMP 1	95	-	120	-25		F4	↓
S-TEMP 2	40	60	70	-			
S-TEMP 3	65	-	80	-			
S-TEMP 4	<>	-	-	-			
S OUTPUT	1	2	3				
EXT. TEMP	- OIL		P				
24.10.03	READY					On Off	Menu
05:05:34							

● On/Off

● Fault

By pressing the button

- F1 : Changes to the "BOILER VALUES" menu
- F2 : Changes to the "HEATING CIRCUIT 1-2" menu
- F3 : No function
- F4 : No function

- ↑ : No function
- ↓ : No function

- E : No function
- C : No function
- Menu : Changes to the "STATUS ADVICE" menu
- OnOff : the system is switched on/off

- HOT WATER: Displays the current hot water tank temperature in °C and the condition of the boiler pump (condition Pump ON behind)
- BUFFER UP: Displays the current upper buffer temperature in °C
- BUFFER LO: Displays the current lower buffer temperature in °C
- FASTRUN: Displays the condition of the quick heating up (current condition is behind it)
- S-TEMP 1: Displays the current solar temperature 1 in °C
- S-TEMP 2: Displays the current solar temperature 2 in °C
- S-TEMP 3: Displays the current solar temperature 3 in °C
- S-TEMP 4: Displays the current solar temperature 4 in °C
- S OUTPUT: Displays the current solar outputs (current condition is behind it)
- EXT. TEMP: Displays the external temperature and condition of the additional pump

OPERATION MODE

MAIN MENU → OPERATION MODE

Objective: Selecting the type of operation you require

OPERATION MODE					
AUTOMATIC MODE	<input checked="" type="checkbox"/>			F1	E
SUMMER MODE	<input type="checkbox"/>			F2	C
CHIMNEY CLEAN FUNCTION	<input type="checkbox"/>			F3	↑
				F4	↓
				On Off	Menu
24.10.03	READY				
05:05:34					

● On/Off
● Fault

By pressing the button

F1 : No function

F2 : No function

F3 : No function

F4 : No function

↑ : the bar is pushed *up*.

↓ : the bar is pushed *down*.

E : if the type of mode behind the bar is selected and saved

C : No function

Menu : Changes to the "MAIN MENU" menu

OnOff : the system is switched on/off

Automatic mode:

This type of mode serves to enable automatic switching between summer and winter mode. This switching takes place via the so-called daytime average target temperature (see heating circuit adjustments)

Summertime mode:

This type of mode is used to switch manually between summer and winter mode. Only the hot water storage or buffer storage is loaded. The heating circuits are thus deactivated. Despite the deactivation of the heating circuits the frost protection monitoring remains active and generates supply where there are differences in the limit values (see heating circuit settings).

Chimney clean function:

The **CHIMNEY CLEAN** condition is available as a test mode for the chimney sweeper. The boiler is precisely operated using rated output and the chimney sweeper can carry out its test measurements. The boiler usually runs high and the chimney sweeper function is only activated instead of the CONTROL PHASE. This condition is left when deactivation occurs or when the boiler maximum temperature is exceeded or when the maximum chimney sweeping time is exceeded.

BOILER ADJUSTMENT

MAIN MENU → BOILER ADJUSTMENT

Objective: Display or setting of the boiler settings

BOILER ADJUSTMENT					
BOILER MAX	88 °C	+	F1	E	
RESIDUAL HEAT	40 °C				
EXTERNAL MUST	70 °C	-	F2	C	

BOILER ACT	75 °C		F3	↑	● On/Off
BOILER MUST	80 °C				
BOILER CAPACITY	100 %	BOILER VALUE	F4	↓	● Fault
LAMBDA ACTIVE	<input type="checkbox"/>				
24.10.03	CONTROL PHASE		On Off	Menu	
05:05:34					

By pressing the button

- F1 : the value behind the bar is *increased*.
- F2 : the value behind the bar is *decreased*.
- F3 : No function
- F4 : Changes to the "BOILER VALUES" menu
- ↑ : the bar is pushed *up*.
- ↓ : the bar is pushed *down*.
- E : No function
- C : No function
- Menu : Changes to the "STATUS ADVICE" menu
- OnOff : the system is switched on/off



- BOILER MAXIMUM:** Set value: Maximum permissible boiler temperature
- RESIDUAL HEAT TEMP:** Set value: Temperature which specifies how far the boiler may be "emptied" when recharging or from when the return flow bypass pump is switched on
- EXTERNAL MUST:** Set value: External target temperature
- BOILER ACTUAL** Display value: This is the target value of the boiler at that time
- BOILER MUST:** Display value: This temperature is calculated by the internal temperature manager. This guarantees that the equipment only generates the temperature which is required at that time.
- BOILER CAPACITY:** Display value: Current boiler capacity
- LAMBDA ACTIVE:** Display value: Lambda probe active (x) or inactive

HOT WATER TANK ADJUSTMENT

MAIN MENU → HOT WATER TANK ADJUSTMENT

Objective: Display or setting of the boiler settings

HOT WATER TANK ADJUST			LOAD TIME	F1	E	
MON	06:00 - 10:00	14:00 - 22:00				
TUE	06:00 - 10:00	14:00 - 22:00				
WED	06:00 - 10:00	14:00 - 22:00	EDIT VALUES	F2	C	
THU	06:00 - 10:00	14:00 - 22:00				
FRI	06:00 - 10:00	14:00 - 22:00				
SAT	06:00 - 10:00	14:00 - 22:00	START	F3	↑	● On/Off
SUN	06:00 - 10:00	14:00 - 22:00				
ACTUAL: 40 °C			BUFFE HOTWAT	F4	↓	● Fault
PRIORITY HC 1 2 3 4 5 6						
MIN: 35 °C						
				On Off	Menu	
24.10.03		READY				
05:05:34						

By pressing the button

- F1 : (LOADTIME) the boiler loading times can be edited
- F2 : (EDIT VALUES) the boiler parameters can be edited
- F3 : (START) one-off boiler loading takes place
- F4 : Changes to the "HOT WAT/BUFFER/SOLAR" menu

- ↑ : No function
- ↓ : No function

- E : No function
- C : No function
- Menu : Changes to the "MAIN MENU"
- OnOff : the system is switched on/off

START

Pressing this button activates the so-called quick start. That is, if you are outside the boiler loading time, for example, and you would like the boiler to heat up to the target temperature one time only, this can be done by pressing this button.

The "START" button is only displayed if the boiler temperature at that time is lower than the target temperature set. Boiler loading is activated by pressing the button. In the information lines you will find out whether this loading can be carried out by a buffer storage that may be available or whether the boiler must be started up.

EDITING THE BOILER LOADING TIMES (EDIT CLOCK)

MAIN MENU → HOT WATER TANK ADJUSTMENT → F1 (LOAD TIME)

Objective: Set or change the boiler loading times

HOT WATER TANK ADJUST		+	F1	E
MON	06:00 - 10:00 14:00 - 22:00			
TUE	06:00 - 10:00 14:00 - 22:00			
WED	06:00 - 10:00 14:00 - 22:00	-	F2	C
THU	06:00 - 10:00 14:00 - 22:00			
FRI	06:00 - 10:00 14:00 - 22:00			
SAT	06:00 - 10:00 14:00 - 22:00		F3	↑
SUN	06:00 - 10:00 14:00 - 22:00			
ACTUAL: 40 °C				
PRIORITY HC 1 2 3 4 5 6		COPY TIME	F4	↓
MIN: 35 °C MUST: 60 °C				
24.10.03	READY		On Off	Menu
05:05:34				

● On/Off

● Fault

By pressing the button

- F1 : (+) the loading time behind is *increased*
- F2 : (-) the loading time behind is *decreased*
- F3 : No function
- F4 : (COPY TIME) the current heating time is copied to all other days

- ↑ : the cursor is moved right and jumps at the next line value to the next lines
- ↓ : the cursor is moved to the first position of the next day

- E : leaves the editing of the loading times and saves the loading times.
- C : the values to be edited are returned to their previous settings
- Menu : leaves the editing of the loading times and saves the loading times.
- OnOff : switches the system on / off.

LOADING TIME

When button E is pressed you go to the settings window of the desired boiler loading time. The cursor jumps to the left upper corner (Monday, begin loading time 1). By pressing F1 (+) or F2 (-) you can change the pre-defined times. If you then wish to copy set times, press the F4 (COPY TIME) key. All days of the week are updated with the new times. However, the cursor must still be positioned in the same column.

The same applies to the 2nd boiler loading time. By pressing the UP ARROW and DOWN ARROW buttons you can move the cursor to the required position.

Should you have made an incorrect setting, simply press the Clear (C) button and the original value will be displayed again. This only works, however, if the cursor is still in the position which you have changed.

This menu can be exited by pressing the menu button.

EDITING THE BOILER VALUES (EDIT VALUES)

MAIN MENU → HOT WATER TANK ADJUSTMENT → F2 (EDIT VALUES)

Objective: Set or change the boiler values

HOT WATER TANK ADJUST			+	F1	E
MON	06:00 - 10:00	14:00 - 22:00	-	F2	C
TUE	06:00 - 10:00	14:00 - 22:00		F3	↑
WED	06:00 - 10:00	14:00 - 22:00		F4	↓
THU	06:00 - 10:00	14:00 - 22:00		On Off	Menu
FRI	06:00 - 10:00	14:00 - 22:00			
SAT	06:00 - 10:00	14:00 - 22:00			
SUN	06:00 - 10:00	14:00 - 22:00			
ACTUAL: 40 °C					
PRIORITY HC 1 2 3 4 5 6					
MIN: 35 °C					
MUST: 60 °C					
24.10.03		READY			
05:05:34					

● On/Off

● Fault

By pressing the button

- F1 : (+) the value behind it is *increased*
- F2 : (-) the value behind it is *decreased*
- F3 : No function
- F4 : No function

- ↑ : changes to the nearest *higher* value
- ↓ : changes to the nearest *lower* value

- E : leaves the editing of the values and saves the values.
- C : the values to be edited are returned to their previous settings
- Menu : leaves the editing of the values and saves the values.
- OnOff : switches the system on / off.

- ACTUAL : Display value of the current actual boiler temperature
- MINIMUM : Set value: Loading (if activated) takes place below this value
- PRIORITY : Set value: Priority over the individual heating circuits can be activated
I.e. the boiler has priority over the heating circuits set, if the one for this heating circuit is GREY behind. In the above example, the boiler has priority over heating circuit 1. The other heating circuits (if controlled by BioControl) continue to work in parallel. (Boiler is heated up by the heating circuits)
- MUST : Set value: Desired target value of the boiler

BUFFER ADJUSTMENT

MAIN MENU → BUFFER ADJUSTMENT

Objective: Display or setting of the buffer settings

BUFFER ADJUSTMENT		+	F1	E	
MUST LOWER	75 °C	+	F1	E	
BUFFER DIFF	3 °C				
BUFFER LAYERING	<input type="checkbox"/>	-	F2	C	

BUFFERTEMP UPP.	85 °C		F3	↑	● On/Off
BUFFERTEMP LOW.	80 °C		F4	↓	● Fault
		PUFFE HOTWA			
24.10.03	READY		On Off	Menu	
05:05:34					

By pressing the button

- F1 : (+) the value behind it is *increased*
- F2 : (-) the value behind it is *decreased*
- F3 : No function
- F4 : (*HOT WAT BUFF*) will be changed to the status advice
"HOTWAT/BUFFER/SOLAR"

- ↑ : changes to the nearest *higher* value
- ↓ : changes to the nearest *lower* value

- E : No function
- C : the values to be edited are returned to their previous settings
- Menu : leaves the buffer setting menu and saves the values
- OnOff : switches the system on / off.

- MUST LOWER: Set value: Target temperature for buffer
- BUFFER DIFFERENCE Set value: Difference between the boiler temperature and the actual lower buffer for controlling the return flow pump
- BUFFER LAYERING: Adjustment value: This adjustment parameter enables the return flowtemperature to be automatically increased as soon as the buffer lower temperature has reached the adjustment temperature of the return flow target temperature.

- BUFFERTEMP UPP. Display value: Upper buffer temperature
- BUFFERTEMP LOW. Display value: Lower buffer temperature

HEATING CIRCUIT ADJUSTMENT

MAIN MENU → HEATING CIRCUIT ADJUSTMENT

Objective: Display or setting of the heating circuit settings

HEATING CIRCUIT SETTING		HC 1-2	F1	E	
HEATING CIRCUIT 1					
HEATING CIRCUIT 2			F2	C	
HEATING CIRCUIT 3					
HEATING CIRCUIT 4			F3	↑	● On/Off
HEATING CIRCUIT 5					
HEATING CIRCUIT 6			F4	↓	● Fault
DAYTIME AVERAGE MUST 19,0 °C					
DAYTIME AVERAGE ACTUAL - 2,7 °C					
24.10.03	READY		On Off	Menu	
05:05:34					

By pressing the button

if the bar is on **DAYTIME AVERAGE MUST**

- F1 : (+) the daytime average target temperature is *increased*
- F2 : (-) the daytime average target temperature is *decreased*
- F3 : No function
- F4 : No function

- ↑ : changes to the nearest value *above* (heating circuit 6)
- ↓ : changes to the nearest value *below* (heating circuit 1)

- E : No function
- C : the values to be edited are returned to their previous settings
- Menu : in the main menu
- OnOff: switches the system on / off.

otherwise (bar on **HEATING CIRCUIT 1** or **HEATING CIRCUIT 2** or ... **HEATING CIRCUIT 6**)

- F1 : (HC 1-2) changes to the window "HEATING CIRCUIT 1-2"
- F2 : No function
- F3 : No function
- F4 : No function

- ↑ : changes to the nearest *higher* value
- ↓ : changes to the nearest *lower* value

- E : changes to the window behind
- C : No function
- Menu : in the main menu
- OnOff: the system is switched on/off

DAYTIME AVERAGE MUST TEMPERATURE:

The daytime average target temperature already mentioned works as an average value generator. This means that from when it is first switched on, an average temperature generator for the external temperature begins. This runs continuously in the background. Should the daytime average target temperature be exceeded, this is an indication for the control that it should be changed to the automatic summer mode. Here all heating circuits are deactivated and thus no heat demand can be made. This means that the higher the value set for the daytime average target temperature, consequently the later the switch over to summer mode. The actual daytime average value shows where the current average value of the external temperature is.

FROST PROTECTION MODE:

This mode is automatically activated when fixed values defined in the programme are not reached. This should prevent freezing of the unit in the customer's absence. If the unit goes into frost protection, then the return flow bypass pump is switched on.

HEATING MODE

MAIN MENU → HEATING CIRCUIT ADJUSTMENT → HEATING CIRCUIT 1.2.3..
→ ENTER (E)

Objective: Set or change the heat mode

HEATING MODE HC 1		+	F1	E	
HEATING TIME MODE	<input checked="" type="checkbox"/>				
DURABLE HEAT	<input type="checkbox"/>		F2	C	
DURABLE KNEELING	<input type="checkbox"/>	-			
FIX FLOW MUST	<input type="checkbox"/>		F3	↑	● On/Off
DISTAL ACTUATOR	<input type="checkbox"/>	HC MIXER			
			F4	↓	● Fault
		HC CURVE			
CORRECTION:	+2/ +4°C				
24.10.03	READY		On Off	Menu	
05:05:34					

By pressing the button

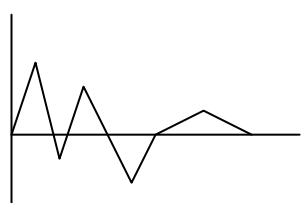
- F1 : (+) the room correction is *increased*
- F2 : (-) the room correction is *decreased*
- F3 : (HC MIX) changes to the "MIXER HC x" (CODE)
- F4 : (HC CURVE) changes to the "MIXER HC x" (CODE) window
- ↑ : changes to the nearest *higher* value
- ↓ : changes to the nearest *lower* value
- E : the heat mode behind it is activated
- C : No function
- Menu Changes to the "HEATING CIRCUIT ADJUSTMENT" menu
- OnOff the system is switched on/off

- HEATING TIME MODE: Heating corresponds to the set heating time
- DURABLE HEAT: Always heat to room target temperature or to the calculated temperature Advance flow target temperature.
- DURABLE KNEELING: Always heat to lowering target temperature or to the calculated advance flow target temperature.
- FIX FLOW MUST: During the set heating time a defined advance flow temperature is constantly maintained. This temperature is set in the PARAMETERS menu.
- DISTAL ACTUATOR : Mode corresponding to the remote control setting. Can only be activated if the remote control is connected.
- CORRECTION: The first value can be set between -10 and +10. This value multiplied with the room effect gives the effect on the advance flow temperature (second value). Only possible in heating mode – constant heat and constant reduction.

HC MIXER

MAIN MENU → HEATING CIRCUIT ADJUSTMENT → HEATING CIRCUIT 1.2.3.. → F3 (HC MIX)

Objective: Set or change the mixer settings

HC MIXER 1		+	F1	E
KP	1.00	-	F2	C
KD	1.00		F3	↑
HEAT PARA			F4	↓
HEAT MODE			On Off	Menu
				● On/Off
MIXER TIME 180 sec				● Fault
PUMP TRIGGER 23 °C				
24.10.03	READY			
05:05:34	TARGET 60, ACTUAL 51 °C			

By pressing the button

- F1 : (+) the value behind it is *increased*
- F2 : (-) the value behind it is *decreased*
- F3 : (HEATING PARAMETERS) is changed in the "PARAMETERS HC x"
- F4 : (HEAT MODE) changes to the "HEAT MODE HC x" (CODE) window
- ↑ : changes to the nearest *higher* value
- ↓ : changes to the nearest *lower* value
- E : No function
- C : the values to be edited are returned to their previous settings
- Menu: Changes to the "HEATING CIRCUIT ADJUSTMENT" menu
- OnOff the system is switched on/off

KP: P part of the control

KD: D part of the control

MIXER RUNNING TIME: Adjust specified mixer run time on the motor mixer

PUMP TRIGGER: Trigger for HC-pump

Here there is the option of adapting the mixer run time to the mixer motor located on site. For every mixer, the mixer run time should be located on the affixed nameplate. Using the CP value, the control behaviour of the mixer can also be adapted. A higher CP means that the result of a greater deviation from the pre-set target value is a correspondingly greater correction of the mixer condition. If this value is set too high, it may be the case that the control oscillates. This means that the mixer is always driven to ON or OFF, because based on the correction of the pre-set value it is exceeded or not reached.

HC PARAMETERS

MAIN MENU → HEAT CIRCUIT ADJUSTMENT → HEATING CIRCUIT 1.2.3..
 → F3 (HC MIX) → F3 (HEAT PARA)

Objective: Set or change the heating circuit parameters

HC 1 PARAMETERS					
ROOM MUST TEMPERATURE	22 °C	+	F1	E	
KNEELING TEMP	18 °C		F2	C	
FLOW FIX VALUE	65 °C	-	F3	↑	● On/Off
ROOM INFLUENCE	5		F4	↓	● Fault
KNEEL.INFLUENCE	5	HEATING TIME			
END. RUN TEMP	7 °C	HC MIXER			
24.10.03	READY		On Off	Menu	
05:05:34	TARGET 60, ACTUAL 51 °C				

By pressing the button

- F1 : (+) the value behind it is *increased*
- F2 : (-) the value behind it is *decreased*
- F3 : (HEATING TIME) is changed in the "HEATING TIMES HC x"
- F4 : (HC MIXER) changes to the "MIXER HC x" window

- ↑ : changes to the nearest *higher* value
- ↓ : changes to the nearest *lower* value

- E : No function
- C : the values to be edited are returned to their previous settings
- Menu: Changes to the "HEATING CIRCUIT ADJUSTMENT" menu
- OnOff: the system is switched on/off

ROOM MUST TEMPERATURE: Desired room temperature during the heating period.
This set value is only used in conjunction with the room remote control (BRK 1).
The difference between target room and lowering temperature combined with the lowering effect, is used for the parallel shifting when lowering.

Example:

Target room temperature: 22°C

Lowering temperature: 18°C

Lowering effect: 5

Difference between room target temperature – lowering temperature = 4K

This difference is multiplied by the lowering effect.

$4K \times 5 = 20K$

I.e. 20K are deducted from the calculated advance flow target temperature during the lowering time.

KNEELING TEMPERATURE: Desired room temperature during the lowering time (parallel shift of the heating curve during lowering)

FLOW FIXED VALUE: Constantly at maintained pre-set temperature during the set heating time. Fixed when in advance flow mode.

ROOM INFLUENCE: Factor for influencing the room temperature. This value can be set between 0 and 10. The higher the value selected, the more influence a difference in the room temperature has on the calculation of the advance flow target temperature.

Example:

Target room temperature: 22°C

Actual room temperature: 20°C

Room effect: 5

Difference between target room temperature – actual room temperature = 2K

This difference is multiplied by the lowering effect.

$2K \times 5 = 10K$

I.e. 10K is added to the advance flow temperature calculated

If the actual room temperature is higher than the target room temperature, the calculated value is deducted.

KNEELING INFLUENCE: Factor for influencing the room temperature. This value can be set between 0 and 10. The higher the value selected, the more influence the room temperature has on the calculation of the advance flow target temperature.

END.RUN TEMPERATURE: Limit value of the external temperature. Where this external temperature is not attained the pump runs constantly, in order to prevent freezing of the unit (adjustment value from –10 to +10)

HC HEATING TIMES

MAIN MENU → HEAT CIRCUIT ADJUSTMENT → HEATING CIRCUIT 1.2.3..
 → F3 (HC MIX) → F3 (HEAT PARA) → F3 (HEAT TIME)

Objective: Set or change the heating times

HEATING TIMES HC 1			HEAT TIME
MON	06:00 - 10:00	14:00 - 22:00	F1
TUE	06:00 - 10:00	14:00 - 22:00	F2
WED	06:00 - 10:00	14:00 - 22:00	F3
THU	06:00 - 10:00	14:00 - 22:00	F4
FRI	06:00 - 10:00	14:00 - 22:00	On Off
SAT	06:00 - 10:00	14:00 - 22:00	Menu
SUN	06:00 - 10:00	14:00 - 22:00	
BEYOND HEATTIME: KNEELING <input checked="" type="checkbox"/>			EDIT VALUES
LOCKING <input type="checkbox"/>			HEAT-CURVE
			HEAT PARAM
24.10.03	READY		
05:05:34	TARGET 60, ACTUAL 51 °C		

E

C

↑

↓

Menu

● On/Off

● Fault

By pressing the button

- F1 : (HEAT TIME) the heating times can be edited
- F2 : (EDIT VALUES) the LOWERING/LOCK can be edited
- F3 : (HEAT CURVE) is changed in the "HEAT CURVE HC x"
- F4 : (HEAT PARA) changes to the "HEATING PARAMETER" window

- ↑ : No function
- ↓ : No function

- E : No function
- C : No function
- Menu: Changes to the "HEATING CIRCUIT ADJUSTMENT" menu
- OnOff switches the system on / off.

Pressing the F1 key (HEAT TIME) takes you to the setting window for the desired times and days. The cursor jumps to the left upper corner (Monday, begin loading time 1). By pressing F1 (+) or F2 (-) you can change the pre-defined times. If you then wish to copy set times, press the F4 (COPY TIME) key. All days of the week are updated with the new times. However, the cursor must still be positioned in the same column.

EDITING OF THE HEATING TIMES (EDIT CLOCK)

MAIN MENU → HEATING CIRCUIT ADJUSTMENT → HEATING CIRCUIT 1.2.3..
 → F3 (HC MIX) → F3 (HEAT PARA) → F3 (HEAT TIME)
 → F1 (HEAT TIME)

Objective: Set or change the heating times

HEATING TIMES HC 1		+
MON	06:00 - 10:00 14:00 - 22:00	-
TUE	06:00 - 10:00 14:00 - 22:00	
WED	06:00 - 10:00 14:00 - 22:00	-
THU	06:00 - 10:00 14:00 - 22:00	
FRI	06:00 - 10:00 14:00 - 22:00	-
SAT	06:00 - 10:00 14:00 - 22:00	
SUN	06:00 - 10:00 14:00 - 22:00	-
BEYOND HEATTIME: KNEELING <input checked="" type="checkbox"/> COPY TIME		
LOCKING <input type="checkbox"/>		
24.10.03	READY	
05:05:34	TARGET 60, ACTUAL 51 °C	

F1

F2

F3

F4

On
Off

E

C

↑

↓

Menu

● On/Off

● Fault

By pressing the button

- F1 : (+) the loading time behind is *increased*
- F2 : (-) the loading time behind is *decreased*
- F3 : No function
- F4 : (COPY TIME) the current heating time is copied to all other days

- ↑ : the cursor is moved right and jumps at the next line value to the next lines
- ↓ : the cursor is moved to the first position of the next day

- E : leaves the editing of the heating times and saves the heating times.
- C : the values to be edited are returned to their previous settings
- Menu : leaves the editing of the heating times and saves the heating times.
- OnOff : the system is switched on/off

This menu gives the option of allocating different heating times for each day of the week to heating circuit 2. This can be done by pressing the button F1 (HEATING TIME).

When you press this button it takes you to the settings window of the desired heating time. The cursor jumps to the left upper corner (Monday, begin heating time 1). By pressing F1 (+) or F2 (-) you can change the pre-defined times. If you then wish to copy set times, press the F4 (COPY TIME) key. All days of the week are updated with the new times. However, the cursor must still be positioned in the same column.

EDITING KNEELING / LOCKING (EDIT VALUES)

MAIN MENU → HEATING CIRCUIT ADJUSTMENT → HEATING CIRCUIT 1.2.3..
 → F3 (HC MIX) → F3 (HEAT PARA) → F3 (HEAT TIME)
 → F2 (EDIT VALUES)

Objective: Setting or changing from KNEELING/LOCKING

HEATING TIMES HC 1					
MON	06:00 - 10:00	14:00 - 22:00		F1	E
TUE	06:00 - 10:00	14:00 - 22:00		F2	C
WED	06:00 - 10:00	14:00 - 22:00		F3	↑
THU	06:00 - 10:00	14:00 - 22:00		F4	↓
FRI	06:00 - 10:00	14:00 - 22:00		On Off	Menu
SAT	06:00 - 10:00	14:00 - 22:00			
SUN	06:00 - 10:00	14:00 - 22:00			
BEYOND HEATTIME:					
KNEELING		<input checked="" type="checkbox"/>			● On/Off
LOCKING		<input type="checkbox"/>			● Fault
24.10.03	READY				
05:05:34	TARGET 60, ACTUAL 51 °C				

By pressing the button

F1 : No function
 F2 : No function
 F3 : No function
 F4 : No function

↑ : changes to the nearest *higher* value
 ↓ : changes to the nearest *lower* value

E : leaves the editing of the values and saves the values.
 C : the values to be edited are returned to their previous settings
 Menu : leaves the editing of the values and saves the values.
 OnOff : the system is switched on/off

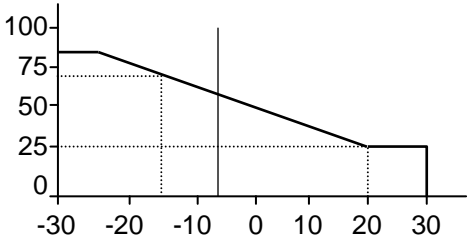
KNEELING: Outside the heating time the set lowering temperature is controlled.

LOCKING: Outside the heating time this heating circuit cannot place any energy requirement and is therefore deactivated for this period of time.

HC-CURVE

MAIN MENU → HEATING CIRCUIT ADJUSTMENT → HEATING CIRCUIT 1.2.3..
 → F3 (HC MIX) → F3 (HEAT PARA) → F3 (HEAT TIME)
 → F3 (HC CURVE)

Objective: Set or change the heat curve

HEATING CURVE HC 1		+	F1	E
-15°C	70°C FLOW			
+20°C	25°C FLOW	-	F2	C
		HC MODE	F3	↑
FL-MAX 80°C OFF 30°C		HEAT TIME	F4	↓
24.10.03	READY		On Off	Menu
05:05:34	TARGET 60, ACTUAL 51°C			

● On/Off

● Fault

By pressing the button

- F1 : (+) the value behind it is *increased*
- F2 : (-) the value behind it is *decreased*
- F3 : (HC MODE) is changed in the "HEAT MODE HC x" menu
- F4 : (HEATING TIME) changes to the "HC HEATING TIME x" window

- ↑ : changes to the nearest *higher* value
- ↓ : changes to the nearest *lower* value

- E : the value is saved
- C : the values to be edited are returned to their previous settings
- Menu : leaves the editing of the values and saves the values.
- OnOff : the system is switched on/off

Example:

- 15°C 70°C : at -15°C an advance flow temperature of 70°C should be attained
- +20°C 25°C : at +20°C an advance flow temperature of 25°C should be attained

- FL_MAX Maximum permissible advance flow temperature
(Although this value can be exceeded for control by 5°C!!!!)
- OFF: Is the value of the external temperature which when exceeded will deactivate the heating circuit.

This is not to be confused with the daytime average target temperature. Here only the current heating circuit is deactivated.

The vertical bar on the x-axis gives (horizontal) gives the current value of the external temperature. For example, this is around: -8°C. The y-axis (vertical) shows the advance flow temperature for the current external temperatures.

SERVICE ADJUSTMENT

MAIN MENU → SERVICE ADJUSTMENT

Objective: Setting the values pertinent to the unit

SERVICE ADJUSTMENT		BOILER VALUE	F1	E	
SYSTEM PARAMETERS					
AGGREGATE TEST			F2	C	
OPERATING HOURS				↑	● On/Off
FAULT INDICATION			F3		
DATE / TIME				↓	● Fault
PRESET VALUES			F4		
24.10.03	READY		On Off	Menu	
05:05:34					

By pressing the button

- F1 : Changes to the "BOILER VALUES" menu
- F2 : No function
- F3 : no function / date setting
- F4 : no function / clock time setting

- ↑ : the bar is pushed *up*.
- ↓ : the bar is pushed *down*.

- E : changes to the menu behind
- C : No function
- Menu : Changes to the "MAIN MENU" menu
- OnOff : the system is switched on/off



- SYSTEM PARAMETERS: Here you can adjust the system-specific values
- AGGREGATE TEST: Here all connected components can be tested individually
- OPERATING HOURS: Here the operating hours can be requested
- FAULT INDICATION: Here the last 32 faults arising can be saved on 4 pages.
- DATE / TIME: Here the date and clock time can be changed
- PRESET VALUES: Here the system can be set back to the standard values. In this menu the lambda probe can also be calibrated.

FAULT LIGHT:

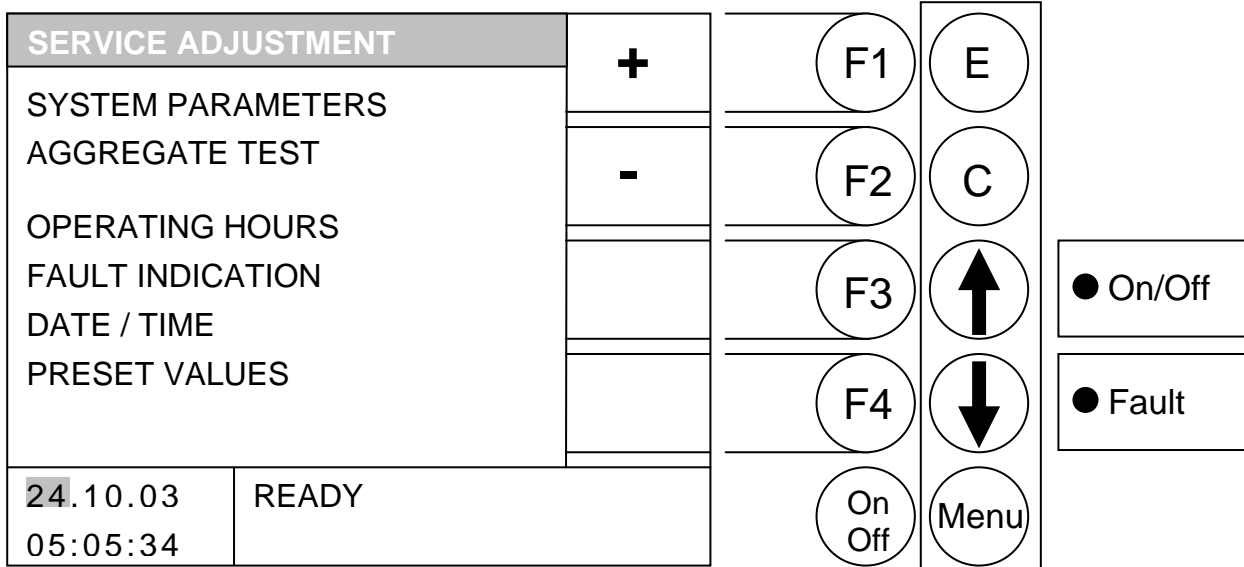
When this blinks it indicates one or more faults. These are shown at the bottom right of the display. Should several faults arise at the same time, these are displayed in the order they arose.

In the appendix under fault reporting and repairs, you can look up what each individual fault means. If you know which faults have arisen, then you have to repair these mechanically first of all (in case they stem from the mechanics). After this press the F3 BUTTON (CHECK) in the service adjustments and the fault is rectified. When several have been repaired, rectify the faults one by one.

ADJUSTMENT THE DATE AND CLOCK TIME

MAIN MENU → SERVICE ADJUSTMENT → DATE / TIME

Objective: Setting the date and time



Pre-selection:

By pressing the button

- F3 : the *date* can be edited
- F4 : the *time* can be edited

By pressing the button

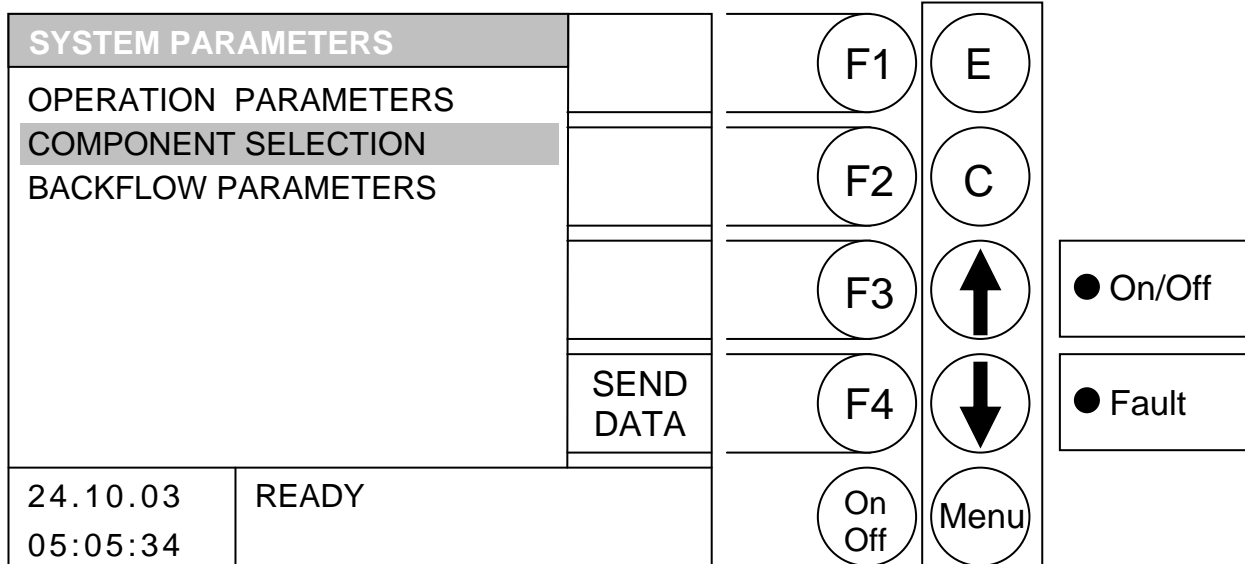
- F1 : (+) the date / time are *increased*.
- F2 : (-) the date / time are *decreased*.
- F3 : No function
- F4 : No function
- ↑ : No function
- ↓ : No function
- E : the next value (e.g. month / year) is edited or ended by saving.
- C : the date / time are edited or ended without being saved.
- Menu : Changes to the "MAIN MENU" menu
- OnOff : the date / time are edited or ended without being saved.

SYSTEM PARAMETERS:

(Code protected)

MAIN MENU → SERVICE ADJUSTMENT → SYSTEM PARAMETERS

Objective: Setting of values (by trained service engineers)



By pressing the button

- F1 : No function
- F2 : No function
- F3 : No function
- F4 : (SEND DATA) Operating data were send via serial interface

- ↑ : the bar is pushed *up*.
- ↓ : the bar is pushed *down*.

- E : changes to the menu behind
- C : No function
- Menu : Changes to the "MAIN MENU" menu
- OnOff : the system is switched on/off

- OPERATION PARAMETERS : Setting the combustion and flow parameters
- COMPONENT SELECTION : Selecting the components installed
- BACKFLOW PARAMETERS : Selection and setting of return flow bypass

OPERATION PARAMETERS 1:

MAIN MENU → SERVICE ADJUSTMENT → SYSTEM PARAMETERS
→ OPERATION PARAMETERS

Objective: Changing the system-specific parameters
Using F4 (PROC. PARA 2) will take you to the 2nd page of the operation parameters.

FLOW PARAMETERS 1		+	F1	E	
FLUE GAS NL	160°C				
FLUE GAS PL	100°C	-	F2	C	
FLUE GAS DIFF	10°C				
MIN FLUE GAS	90°C		F3	↑	● On/Off
FLUE GAS FACTOR	5				
O2 MUST	6.0		F4	↓	● Fault
PRIMAIR MIN	30 %	OP PARA2			
24.10.03	READY		On Off	Menu	
05:05:34					

Here you have the option of selecting the desired operation parameters and changing them using F1 (+) AND F2 (-) using the UP ARROW and DOWN ARROW keys. As soon as it changes to the next value the change is saved.

FLUE GAS NL

This parameter determines the flue target temperature for the nominal load.

FLUE GAS PL

This parameter determines the flue target temperature for the partial load.

FLUE DIFF

This parameter determines the flue excessive increase in the high running phase and when re-heating

MIN FLUE GAS

This parameter determines the minimum flue temperature which is required for leaving the burning phase.

FLUE GAS FACTOR

This factor determines how much the suction output should be reduced / increased when exceeding / falling short of the flue target temperature.

O2 MUST

This parameter allows the adjustment of the O2 target value, which should be achieved by the lambda control.

PRIMAIR MIN

This parameter determines the minimum primary air flap setting.

OPERATION PARAMETERS 2:

MAIN MENU → SERVICE ADJUSTMENT → SYSTEM PARAMETERS
→ OPERATION PARAMETERS

Objective: Changing the system-specific parameters

Using F4 (OP PARA 1) will take you to the 1st page of the operation parameters.

FLOW PARAMETERS 2		+	F1	E	
REHEATING TIME	15 min				
CHIM. TURN TIME	20 min	-	F2	C	
MAX. HEATUPT.	35 min				
MAX. RE-START	12 min				
OIL-HEATING-ACTIVE	<input type="checkbox"/>		F3	↑	● On/Off
PUMP DIFF.	5 °C				
PUMP TEMP.	40 °C				
BUFFER OVERT.	10 °C	OP PARA1	F4	↓	● Fault
SWITCHING VALUE	<input type="checkbox"/>				
24.10.03	READY		On Off	Menu	
05:05:34					

By pressing the button

- F1 : (+) the value behind it is *increased*
- F2 : (-) the value behind it is *decreased*
- F3 : No function
- F4 : Operation parameters 1

- ↑ : the bar is pushed *up*.
- ↓ : the bar is pushed *down*.

- E : changes to the menu behind
- C : No function
- Menu : Changes to the "MAIN MENU" menu
- OnOff : the system is switched on/off

RE-HEATING TIME

This parameter enables the setting of the re-heating time. The function button only appears in the main menu and only when the boiler is operating.

CHIMNEY TURN. TIME

This parameter enables the setting of the maximum chimney sweeping function. This serves to operate the boiler as long as possible in the nominal load for measurements.

This function can only be activated if the boiler is already in the high running phase. Activation can be carried out in the OPERATION MODE menu. During this time all consumers connected are set to their maximum temperature. After this function has ended by reaching the boiler maximum temperature or after the set time has run out, the unit automatically changes back to the previous type of operation.

MAX. HEATUPT.

This parameter determines the maximum heating time. Within this time the flue temperature of the unit must have increased above the HEATING FROM MIN.

MAXIMUM RE-START

This parameter determines the maximum time for a new start-up attempt. Should the flue temperature fall below an internal threshold during operation, the unit tries to start up again in this time. If this does not work it switches to HEATING OFF.

OIL-HEATING ACT

Activation of an additional heat source.

PUMP DIFF. (OPTION)

This parameter determines the temperature difference between the additional boiler and the buffer memory top probe and is therefore the on and off switch condition for the additional boiler pump.

PUMP TEMP (OPTION)

This parameter determines the lowest temperature for the additional boiler from when the pump is switched on, i.e. PUMP DIFF as well as PUMP TEMP must be fulfilled so that the pump can run.

PUMP EXCESSIVE INCREASE (OPTION)

This parameter determines by how many degrees the buffer memory top sensor should be increased above the calculated target temperature. This is where the output for the external control is switched. There is no intervention in the internal control of the additional boiler, i.e. the target temperature of the additional boiler must be selected so that the target temperature plus the buffer increase can be attained.

This function serves to process the switching of the sensor (in accordance to the diagram from HERZ). Thereby -during the the oil-heating working progress- the buffer storage is bypassed through a switching valve. Thus the external sensor is used as reference sensor instead of the buffer memory top sensor.

The diagram from HERZ applies exclusively as a basis for the functioning of this parameter. HERZ naturally does not assume any functional guarantee for other drawings.

This menu can be exited by pressing the menu button.

COMPONENT SELECTION 1:

MAIN MENU → SERVICE ADJUSTMENT → SYSTEM PARAMETERS
→ COMPONENT SELECTION

Objective: Selecting the components installed

COMPONENT SELECTION 1					
HEATING CIRCUIT 1	<input checked="" type="checkbox"/>	+	F1	E	
HEATING CIRCUIT 2	<input type="checkbox"/>		F2	C	
HEATING CIRCUIT 3	<input type="checkbox"/>	-	F3	↑	● On/Off
HEATING CIRCUIT 4	<input type="checkbox"/>		F4	↓	● Fault
HEATING CIRCUIT 5	<input type="checkbox"/>				
HEATING CIRCUIT 6	<input type="checkbox"/>				
SOLAR	<input type="checkbox"/>	COMP			
BUFFER	<input checked="" type="checkbox"/>	SEL 2			
24.10.03	READY		On Off	Menu	
05:05:34					

By pressing the button

- F1 : the value behind the bar is *selected*.
- F2 : the value behind the bar is *deselected*.
- F3 : No function
- F4 : Changes to the "COMPONENT SELECTION 2" menu
- ↑↓ : the bar is pushed *up*.
- ↑↓ : the bar is pushed *down*.
- E : No function
- C : No function
- Menu : Changes to the "SYSTEM PARAMETERS" menu
- OnOff : the system is switched on/off

- HEATING CIRCUIT 1: Activates the first heating circuit
- HEATING CIRCUIT 2: Activates the second heating circuit
- HEATING CIRCUIT 3: Activates the third heating circuit
- HEATING CIRCUIT 4: Activates the fourth heating circuit
- HEATING CIRCUIT 5: Activates the fifth heating circuit
- HEATING CIRCUIT 6: Activates the sixth heating circuit
- SOLAR: Activates the solar module
- BUFFER: Activates the buffer

Heating circuits 1 and 2 are to be connected to the clamps

All other heating circuits and solar devices are to be connected to the particular extension cards

COMPONENT SELECTION 2:

MAIN MENU → SERVICE ADJUSTMENT → SYSTEM PARAMETERS
 → COMPONENT SELECTION → F4 BUTTON (COMP SEL 2)

Objective: Selecting the components installed

COMPONENT SELECTION 2					
HOT WATER TANK	<input type="checkbox"/>	+	F1	E	
LAMBDA PROBE	<input checked="" type="checkbox"/>		F2	C	
ROT. SPEED CONTROL	<input type="checkbox"/>	-	F3	↑	● On/Off
CH-CL. MONITORING	<input type="checkbox"/>		F4	↓	● Fault
		COMP SEL 1	On Off	Menu	
24.10.03	05:05:34	READY			

By pressing the button

- F1 : the value behind the bar is *selected*.
- F2 : the value behind the bar is *deselected*.
- F3 : No function
- F4 : Changes to the "COMPONENT SELECTION 1" menu

- ↑ : the bar is pushed *up*.
- ↓ : the bar is pushed *down*.

- E : No function
- C : No function
- Menu : Changes to the "SYSTEM PARAMETERS" menu
- OnOff : the system is switched on/off

- HEAT WATER TANK: Activation of the heat water tank
- LAMBDA PROBE: Activation of the lambda control
- ROT. SPEED CONTROL: Activation of the suction speed control
- CH-CL. MONITORING: Activation of the Heat exchanger cleaning

BACKFLOW TYPE:

MAIN MENU → SERVICE ADJUSTMENT → SYSTEM PARAMETERS
 → BACKFLOW PARAMETERS

Objective: Selecting the backflow bypass type

BACKFLOW TYPE					
MOTOR MIXER	<input checked="" type="checkbox"/>			F1	E
THERMAL 55/61°C	<input type="checkbox"/>			F2	C
FASTRUN HEATING	<input type="checkbox"/>			F3	↑
				F4	↓
		BF TYPE		On Off	Menu
24.10.03	05:05:34	READY			

● On/Off
● Fault

By pressing the button

- F1 : No function
- F2 : No function
- F3 : No function
- F4 : Changes to the "BACKFLOW PARAMETERS" menu

- ↑ : the bar is pushed *up*.
- ↓ : the bar is pushed *down*.

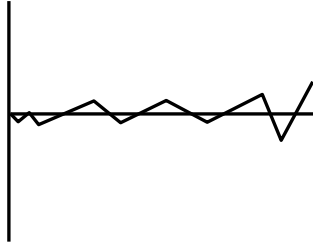
- E : Selecting the type
- C : No function
- Menu : Changes to the "SYSTEM PARAMETERS" menu
- OnOff : the system is switched on/off

MOTOR MIXER:	Selection of return flow bypass with motor mixer
THERMAL 55/61°C:	Selection of return flow bypass with thermal valve
FASTRUN HEATING:	Activation of the rapid heating (faster heating of the buffer with additional valve)

BACKFLOW PARAMETERS:

MAIN MENU → SERVICE ADJUSTMENT → SYSTEM PARAMETERS
 → BACKFLOW PARAMETERS → F4 (BF-PARA)

Objective: Selecting the backflow bypass type

BACKFLOW PARAMETERS				
BF ACTUAL: 63°C	KP 1.00	+	F1	E
	KD 1.00		F2	C
	TTOT 12s	-	F3	↑
MIXER TIME	180 sec		F4	↓
BACKFLOW MUST	60 °C	BF TYPE	On Off	Menu
24.10.03	READY			
05:05:34				

● On/Off
● Fault

By pressing the button

- F1 : the value behind the bar is *increased*.
- F2 : the value behind the bar is *decreased*.
- F3 : No function
- F4 : Changes to the "BACKFLOW TYPE" menu

- ↑ : the bar is pushed *up*.
- ↓ : the bar is pushed *down*.

- E : No function
- C : No function
- Menu : Changes to the "SYSTEM PARAMETERS" menu
- OnOff : the system is switched on/off

- ACTUAL BACKFLOW : Displays the current backflow temperature
- KP: Setting value of the control (can only be altered by authorised staff)
- KD: Setting value of the control (can only be altered by authorised staff)
- TTOT: Setting value of the system break (can only be altered by authorised staff)
- MIXER TIME: Set the mixer run time of the backflow mixer here
- BACKFLOW MUST: Adjustment of backflow temperature

OUTPUTS 1:

MAIN MENU → SERVICE ADJUSTMENT → AGGREGATE TEST

Objective: Regulation of the outputs and components test

OUTPUTS 1		+	F1	E
ID-FAN	0 %			
SECONDARY AIR	0 %		F2	C
PRIMARY AIR	0 %	-		
CH- CLEANING	<input type="checkbox"/>		F3	↑
CH	<input type="checkbox"/>	OUTPUT3		
STL CUT-OFF	<input type="checkbox"/>		F4	↓
DOOR SWITCH	<input type="checkbox"/>	OUTPUT 2		
ROTARY SPEED	0		On Off	Menu
24.10.03	READY			
05:05:34				

● On/Off

● Fault

By pressing the button

- F1 : the value behind the bar is *increased*.
- F2 : the value behind the bar is *decreased*.
- F3 : Changes to the "OUTPUT 3" menu
- F4 : Changes to the "OUTPUT 2" menu

- ↑ : the bar is pushed *up*.
- ↓ : the bar is pushed *down*.

- E : No function
- C : No function
- Menu : Changes to the "SERVICE ADJUSTMENT" menu
- OnOff : the system is switched on/off

IMPORTANT: Can only be changed in the Unit Off operating condition. In the running burner the buttons F1,F2 and ↑ and ↓ have no function.

ID-FAN:	Suction output
SEC AIR:	Secondary air output
PRIMARY AIR:	Primary air output
CH-CLEANING:	Heat exchanger cleaning output
CH-CL. CONTROL	Heat exchanger cleaning control input
STL CUT-OFF:	STL switch-off input
DOOR SWITCH:	Door switch input
ROTARY SPEED:	Suction speed display

OUTPUTS 2:

MAIN MENU → SERVICE ADJUSTMENT → AGGREGATE TEST

Objective: Checking of the outputs and components test

OUTPUTS 2		TEST			
BACKFLOW PUMP	<input checked="" type="checkbox"/>			F1	E
BF MIXER OPEN <input type="checkbox"/> CLOSED <input type="checkbox"/>	<input type="checkbox"/>			F2	C
HOTWATER TANK PUMP	<input type="checkbox"/>				
ADDITIONAL PUMP	<input type="checkbox"/>				
FASTRUN HEAT.OPEN <input type="checkbox"/> CLOSED <input type="checkbox"/>	<input type="checkbox"/>	OUTPUT 1		F3	↑
ENABLE EXT. BOILER	<input checked="" type="checkbox"/>				
LAMBDA HEATING	<input type="checkbox"/>				
ALARM	<input type="checkbox"/>	OUTPUT 3		F4	↓
24.10.03		READY		On Off	Menu
05:05:34					

● On/Off

● Fault

By pressing the button

Pressing the F1 button takes you to editing mode. Only now is it possible to change the outlets. When leaving the aggregate test the outputs are then put back once more to automatic mode.

- F1 : the value behind the bar is *increased*.
- F2 : the value behind the bar is *decreased*.
- F3 : Changes to the "OUTPUT 1" menu
- F4 : Changes to the "OUTPUT 3" menu
- ↑ : the bar is pushed *up*.
- ↓ : the bar is pushed *down*.
- E : No function
- C : No function
- Menu : Changes to the "SERVICE ADJUSTMENT" menu
- OnOff : the system is switched on/off

IMPORTANT: Changes can only be made in operating condition after pressing the F1 button. Apart from that the F2 and ↑ and ↓ buttons have no function.

BF PUMP	BACKFLOW pump
BF MIXER OPEN SHUT	Rapid heating on / off
HOTWATER TANK PUMP	Hot water tank pump
ADDITIONAL PUMP	Additional pump
FASTRUN HEATING	Fastrun heating on / off
ENABLE EXT. BOILER	External approval (e.g. for oil-fired burner)
LAMBDA HEATING	Lambda heating output
ALARM	Alarm output

OUTPUTS 3:

MAIN MENU → SERVICE ADJUSTMENT → AGGREGATE TEST
 → F4 BUTTON (OUTPUT 2) → F4 BUTTON (OUTPUT 3)

Objective: Checking of the outputs and components test

OUTPUTS 3			+	F1	E
MIXER		PUMP			
OPEN	CLOSED				
HC1	<input type="checkbox"/>	<input type="checkbox"/>			
HC2	<input type="checkbox"/>	<input type="checkbox"/>			
HC3	<input type="checkbox"/>	<input type="checkbox"/>			
HC4	<input type="checkbox"/>	<input type="checkbox"/>			
HC5	<input type="checkbox"/>	<input type="checkbox"/>			
HC6	<input type="checkbox"/>	<input type="checkbox"/>			
SOLAR 1	<input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>		
			OUTPUT S 2	F2	C
			OUTPUTS 1	F3	↑
				F4	↓
				On Off	● On/Off
				Menu	● Fault
24.10.03		READY			
05:05:34					

By pressing the button

Pressing the F1 button takes you to editing mode. Only now is it possible to change the outlets. When leaving the aggregate test the outputs are then put back once more to automatic mode.

- F1 : the value behind the bar is *switched on*.
- F2 : the value behind the bar is *switched off*.
- F3 : Changes to the "OUTPUT 2" menu
- F4 : Changes to the "OUTPUT 1" menu
- ↑ : the bar is pushed *up*.
- ↓ : the bar is pushed *down*.
- E : No function
- C : No function
- Menu : Changes to the "SERVICE ADJUSTMENT" menu
- On/Off : the system is switched on/off

IMPORTANT: Changes can only be made in operating condition after pressing the F1 button. Apart from that the F2 and ↑ and ↓ buttons have no function.

MIXER OPEN	Heating circuit mixer open
MIXER CLOSED	Heating circuit mixer closed
PUMP	Heating circuit pump on/off

The mixers are locked on each side, i.e. mixer on and mixer off cannot be activated at the same time.

Heating circuits that are not available cannot be switched.

OPERATING HOURS:

MAIN MENU → SERVICE ADJUSTMENT → OPERATING HOURS

Objective: Displays for operating hours of the capacity stages

OPERATING HOURS				
STATE	TIME[h]		F1	E
SCORCH P.	6.8		F2	C
RUN UP P.	57.3		F3	↑
CONTROL P.	35.6		F4	↓
RE-START	2.3			
TOTAL	131.2			
BACKUP BO.	0.0			
SOLAR	0.0			
24.10.03	READY		On Off	Menu
05:05:34				

● On/Off

● Fault

By pressing the button

F1 : No function
 F2 : No function
 F3 : No function
 F4 : No function

↑ : No function
 ↓ : No function

E : No function
 C : No function
 Menu : Changes to the "SERVICE ADJUSTMENT" menu
 OnOff : the system is switched on/off

STATE
 SCORCH P. Operating hours in the burning condition
 RUN UP P. Operating hours in the high running condition
 CONTROL P. Operating hours in the controls condition
 RE-START Operating hours in the re-start condition
 TOTAL Total operating hours
 BACK-UP BO. Operating hours of the additional source (oil burner)
 SOLAR Operating hours of the solar collector pump

FAULT INDICATION:

MAIN MENU → SERVIC ADJUSTMENT → FAULT INDICATION

Objective: Display of the last 32 fault reports

FAULT INDICATION 1			PAGE 1	F1	E
DATE	TIME	FAULT	PAGE 1	F1	E
12.08.	20:09	301	PAGE 2	F2	C
03.08.	10:23	303	PAGE 2	F2	C
06.07.	12:32	200	PAGE 3	F3	↑
30.06.	17:41	100	PAGE 3	F3	↑
15.06.	08:03	100	PAGE 4	F4	↓
15.06.	08:02	312	PAGE 4	F4	↓
15.06.	08:01	100	PAGE 4	F4	↓
07.06.	20:56	302	PAGE 4	F4	↓
24.10.03	READY			On Off	Menu
05:05:34				On Off	Menu

● On/Off

● Fault

By pressing the button

- F1 : it changes to page 1 of the fault reporting (faults 1-8)
- F2 : it changes to page 2 of the fault reporting (faults 9-16)
- F3 : it changes to page 3 of the fault reporting (faults 17-24)
- F4 : it changes to page 4 of the fault reporting (faults 25-32)

- ↑ : No function
- ↓ : No function

- E : No function
- C : No function
- Menu : changes to the "SERVICE ADJUSTMENT" menu
- On/Off: the system is switched on/off

The last 32 faults arising are presented through fault codes and saved. A list of the faults and their meaning can be found in the appendix of the operation manual.

PRESET VALUES:

MAIN MENU → SERVICE ADJUSTMENT → PRESET VALUES

Objective: Setting the values back to the factory settings or lambda calibration

STANDARD VALUES				
RE-SET			F1	E
GENERAL			F2	C
BOILER			F3	↑
TIMES			F4	↓
OPERATION PARAMETERS				
OPERATING HOURS				
LAMBDA CALIBRATION				
24.10.03	EQUIPMENT OFF		On Off	Menu
05:05:34				

● On/Off

● Fault

By pressing the button

F1 : No function
 F2 : No function
 F3 : No function
 F4 : No function

↑ : No function
 ↓ : No function

E : Start re-setting
 C : No function
 Menu : changes to the "SERVICE ADJUSTMENT" menu
 On/Off : the system is switched on/off

RE-SET

GENERAL	Re-setting all parameters
BOILER	Re-setting the boiler parameters
TIMES	Re-setting all time settings (heating times, boiler load times, etc.)
OPERATION PARAMETERS	Re-setting all operation parameters (flue PL, flue NL, re-heating time, etc.)
OPERATING HOURS ONLY:	Re-setting the operating times
LAMBDA CALIBRATION	Starting the lambda calibration

SOLAR ADJUSTMENT

A detailed description can be found in the documentation for the solar control

MAIN MENU → SOLAR ADJUSTMENT

Objective: Display or adjustment of the solar settings

SOLAR ADJUSTMENT				+	F1	E
CHOOSE PROG.	4					
TANK MUST1	50 °C					
DIFFERENCE1	5 °C					
TANK MAX1	75 °C					
TANK MUST2	95 °C					
DIFFERENCE2	5 °C					
TANK MAX2	85 °C					
S OUTPUT	1 2 3					
SOLARTEMP [°C]	1: <>					
	2: <> 3: <> 4: <>					
24.10.03	HEATING OFF					
05:05:34						

-

F2

F3

F4

On
Off

E

C

↑

↓

Menu

● On/Off

● Fault

By pressing the button:

- F1 : (+) the value behind it is *increased*
- F2 : (-) the value behind it is *decreased*
- F3 : No function
- F4 : No function
- ↑↓ : the bar is pushed *up*.
- ↓↑ : the bar is pushed *down*.
- E : The program selection editing is exited and the selections are saved
- C : the values to be edited are returned to their previous settings
- Menu : changes to the "MAIN MENU"
- On/Off: The equipment is switched on / off

CHOOSE PROG:	Program selection
TANK MUST1:	Storage target value of storage 1
DIFFERENCE1:	Difference between collector and storage 1
TANK MAX1:	Maximum storage value of storage 1
TANK MUST2:	Storage target value of storage 2
DIFFERENCE2:	Difference between collector and storage 2
TANK MAX2:	Maximum storage value of storage 2
S OUTPUT:	S-output (display value)
SOLAR TEMP:	Solar temperature (display value)

FAULT REPORTS AND THEIR CORRECTION



You should always take particular note of the safety instructions!

For all faults arising the fault must first be rectified and then re-set by switching on again. Should several faults arise at the same time, these are displayed in the order they arose.

Fault reporting on the display	What is the possible cause?	Suggestions for rectifying
F:STL <i>Fault 101</i>	Mains voltage faulty Safety temperature limiter (STL) has gone off	Let the system cool off and leave the STL.
F:SUCTION SPEED <i>Fault 102</i>	Suction blower speed monitoring fault	Check suction and speed feedback
F: LIGHTING UP <i>Fault 103</i>	At lighting up the boiler has not reached the flue temperature threshold in the prescribed time <ul style="list-style-type: none"> ● Too coarse material used ● Too moist wood used ● Burner plate holes blocked 	Use kindling Use dry wood Clean burner plate holes
F: RE-HEATING <i>Fault 104</i>	When re-heating the boiler has not reached the flue temperature threshold in the prescribed time <ul style="list-style-type: none"> ● Too coarse material used ● Too moist wood used ● Burner plate holes blocked 	Use kindling Use dry wood Clean burner plate holes
F: LAMBDA PROBE <i>Fault 105</i>	Lambda probe is defective or out of line	Renew lambda probe and/or check clamping.
- <i>Fault 109</i>	Boiler temperature above boiler maximum (90°C) <ul style="list-style-type: none"> ● Boiler loaded with too much wood ● Return flow pump or return flow mixer defective ● Buffer storage construction too small 	<ul style="list-style-type: none"> ● Put in less wood ● Renew return flow pump or return flow mixer ● Increase buffer volumes
F:HEC <i>Fault 110</i>	<ul style="list-style-type: none"> ● Fault with HEC monitoring ● End switch is still in the same position ● End switch not reached 	<ul style="list-style-type: none"> ● Set the end switch ● Check the HEC motor or end switch
F:LAMBDA CALIB <i>Fault 200</i>	Fault in lambda calibration <ul style="list-style-type: none"> ● Lambda value is outside the defined range. 	<ul style="list-style-type: none"> ● Carry out calibration again or renew the lambda probe.
F: BOILER TEMP <i>Fault 300</i>	Broken sensor for boiler temperature	<ul style="list-style-type: none"> ● Replace the boiler sensor

F: BOILER TEMP <i>Fault 301</i>	Broken sensor for boiler temperature	<ul style="list-style-type: none"> ● Replace the boiler temperature sensor
F: BUFFER_TOP <i>Fault 302</i>	Broken sensor for top buffer temperature	<ul style="list-style-type: none"> ● Top buffer temperature – replace sensor
F: BUFFER_LOWER <i>Fault 303</i>	Broken sensor for lower buffer temperature	<ul style="list-style-type: none"> ● Lower buffer temperature – renew sensor
F: RET TEMP <i>Fault 304</i>	Broken sensor for return flow temperature	<ul style="list-style-type: none"> ● Replace return flow temperature sensor
F:HC 1 RETURN <i>Fault 307</i>	Broken sensor for return flow temperature, heating circuit 1	<ul style="list-style-type: none"> ● Replace the return flow temperature sensor, HC 1
F:HC 1 RETURN <i>Fault 308</i>	Broken sensor for return flow temperature, heating circuit 2	<ul style="list-style-type: none"> ● Replace the return flow temperature sensor, HC 2
F:HC 1 ADVANCE <i>Fault 309</i>	Broken sensor for advance flow temperature, heating circuit 1	<ul style="list-style-type: none"> ● Replace the advance flow temperature sensor, HC 1
F:HC 1 ADVANCE <i>Fault 310</i>	Broken sensor for advance flow temperature, heating circuit 2	<ul style="list-style-type: none"> ● Replace the advance flow temperature sensor, HC 2
F: EXTERN TEMP <i>Fault 312</i>	Broken sensor for external temperature	<ul style="list-style-type: none"> ● Replace external temperature sensor
F:HC 1 SENS BRK <i>Fault 316</i>	Broken sensor for actual room temperature, heating circuit 1 <ul style="list-style-type: none"> ● Remote adjuster defective ● Remote adjuster cable defective or unclamped 	<ul style="list-style-type: none"> ● Replace its remote adjuster ● Remote adjuster cable defective or unclamped
F:HC2 SENS BRK <i>Fault 317</i>	Broken sensor for actual room temperature, heating circuit 2 <ul style="list-style-type: none"> ● As for fault 316 	<ul style="list-style-type: none"> ● As for fault 316
F: FLUE TEMP <i>Fault 318</i>	Broken sensor for flue temperature, PT1000	<ul style="list-style-type: none"> ● Replace flue temperature probe
F:BACKFLOW-PARA <i>Fault 324</i>	Return flow target temperature could not be reached during operation	<ul style="list-style-type: none"> ● Check return flow bypass
F:HC3 SENS BRK <i>Fault 330</i>	Broken sensor for actual room temperature, heating circuit 3 <ul style="list-style-type: none"> ● As for fault 316 	<ul style="list-style-type: none"> ● As for fault 316
F:HC3 ADVANCE <i>Fault 332</i>	Broken sensor for advance flow temperature, heating circuit 3	<ul style="list-style-type: none"> ● Replace the advance flow temperature sensor, HC 3
F:HC 3 RETURN FLOW <i>Fault 333</i>	Broken sensor for return flow temperature, heating circuit 3	<ul style="list-style-type: none"> ● Replace the return flow temperature, HC 3
F:HC4 SENS BRK <i>Fault 334</i>	Broken sensor for actual room temperature, heating circuit 4 <ul style="list-style-type: none"> ● As for fault 316 	<ul style="list-style-type: none"> ● As for fault 316
F:HC 4 ADVANCE <i>Fault 336</i>	Broken sensor for advance flow temperature, heating circuit 4	<ul style="list-style-type: none"> ● Replace the advance flow temperature sensor, HC 4
F:HC 4 RETURN <i>Fault 337</i>	Broken sensor for return flow temperature, heating circuit 4	<ul style="list-style-type: none"> ● Replace the return flow temperature, HC 4
F:HC 5 SENS BRK <i>Fault 338</i>	Broken sensor for actual room temperature, heating circuit 5	<ul style="list-style-type: none"> ● As for fault 316

	<ul style="list-style-type: none"> As for fault 316 	
F:HC5 ADVANCE <i>Fault 340</i>	Broken sensor for advance flow temperature, heating circuit 5	<ul style="list-style-type: none"> Replace the advance flow temperature sensor, HC 5
F:HC 5 RETURN <i>Fault 341</i>	Broken sensor for return flow temperature, heating circuit 5	<ul style="list-style-type: none"> Replace the return flow temperature, HC 5
F:HC 6 SENS BRK <i>Fault 342</i>	Broken sensor for room temperature, heating circuit 6	<ul style="list-style-type: none"> As for fault 316
F:HC 6 ADVANCE <i>Fault 344</i>	Broken sensor for advance flow temperature, heating circuit 6	<ul style="list-style-type: none"> Replace the advance flow temperature sensor, HC 6
F:HC 6 RETURN <i>Fault 345</i>	Broken sensor for return flow temperature, heating circuit 6	<ul style="list-style-type: none"> Replace the return flow temperature, HC 6
F:SOLAR TEMP 1 <i>Fault 346</i>	Analogue input 1 solar sensor broken	<ul style="list-style-type: none"> Renew solar 1 sensor
F:SOLAR TEMP 2 <i>Fault 347</i>	Analogue input 2 solar sensor broken	<ul style="list-style-type: none"> Renew solar 2 sensor
F:SOLAR TEMP 3 <i>Fault 348</i>	Analogue input 3 solar sensor broken	<ul style="list-style-type: none"> Renew solar 3 sensor
F:SOLAR TEMP 4 <i>Fault 349</i>	Analogue input 4 solar sensor broken	<ul style="list-style-type: none"> Renew solar 4 sensor
F:SOLAR TEMP 5 <i>Fault 350</i>	Analogue input 5 solar sensor broken	<ul style="list-style-type: none"> Renew solar 5 sensor
F: EXCESS TEMP <i>Fault 400</i>	<p>Excess temperature Boiler temperature above 92°C</p> <ul style="list-style-type: none"> Flow parameters set at too high a capacity Boiler loaded with too much wood Boiler maximum set too high Defective return flow pump or return flow mixer Buffer storage designed too small 	<ul style="list-style-type: none"> Correct the fuel values Place in less wood Boiler maximum set too high Replace return flow pump or return flow mixer Increase buffer volume
FROST PROTECTION <i>Fault 402</i>	Frost protection mode	<ul style="list-style-type: none"> Information only – no error
RF BLOCK PROTECTION <i>Fault 404</i>	Return flow blocking protection mode	<ul style="list-style-type: none"> Information only – no error
HC BLOCK PROTECTION <i>Fault 406</i>	Heating circuit blocking protection mode	<ul style="list-style-type: none"> Information only – no error
BO BLOCK PROTECTION <i>Fault 408</i>	Boiler blocking protection mode	<ul style="list-style-type: none"> Information only – no error
A: ANTIO-LEGIIONNAIRES <i>Fault 410</i>	Boiler temperature under frost protection temperature	<ul style="list-style-type: none"> Information only – no error
F: EXC BOILER MAX <i>Fault 412</i>	<p>Excess temperature Boiler temperature above boiler maximum</p> <ul style="list-style-type: none"> Flow parameters set at too high a capacity 	<ul style="list-style-type: none"> Correct the fuel values Place in less wood

	<ul style="list-style-type: none"> ● Boiler loaded with too much wood ● Boiler maximum set too high ● Defective return flow pump or return flow mixer 	<ul style="list-style-type: none"> ● Boiler maximum set too high ● Replace return flow pump or return flow mixer ● Increase buffer volumes
CHIMNEY SWEEPING MODE 414	Chimney sweeping is carried out	<ul style="list-style-type: none"> ● Information only – no error
SOLAR FROST PROTECTION 416	Frost protection solar system is operated	<ul style="list-style-type: none"> ● Information only – no error
SOLAR RE-COOL 418	Solar system re-cooling function is carried out	<ul style="list-style-type: none"> ● Information only – no error
SOLAR OVERHEAT 420	Solar system overheating protection is carried out	<ul style="list-style-type: none"> ● Information only – no error
SOLAR BLOCK PROTECTION 422	Solar system blocking protection is carried out	<ul style="list-style-type: none"> ● Information only – no error
F:AUTOREBOOT Fault 500-571	Auto re-boot - error	<ul style="list-style-type: none"> ● Please pass on to the HERZ servicing department

Display without fault reporting

Fault reporting on the display	What is the possible cause?	
ACTIVATE HEC	activate Heat exchanger cleaning	Display only
BUFFER FULL	Buffer storage loaded	
BUFFER ½ FULL	Buffer storage half full	
CALIBRATION OK	Lambda calibration successful	

Repairing faults without the display (maintenance)

Type of fault	Possible causes	Repair
Flue temperature is not reached or is too high	<ul style="list-style-type: none"> • Damp wood • Chimney draw too strong • Re-switching surfaces heavily coated / sooted 	<ul style="list-style-type: none"> • Use the recommended fuel • Install draw limiter • Clean the boiler
Condensation water in the fly ash room	<ul style="list-style-type: none"> • Wood with too high water content • Return flow temperature too low 	<ul style="list-style-type: none"> • Use air-dried fuel • Check the return flow temperature
Ventilator remains standing after the "lighting up bridging"	<ul style="list-style-type: none"> • Required flue temperature not reached • Holes in the burning plate blocked • Defective flue sensor 	<ul style="list-style-type: none"> • Light up or re-heat "correctly" • Free up the holes • Replace the flue sensor
Fuel does not slide back	<ul style="list-style-type: none"> • Logs too bulky or too long 	<ul style="list-style-type: none"> • Break up or shorter logs
Boiler pressure drops gradually	<ul style="list-style-type: none"> • Holes in the burning plate blocked • Ash in the combustion area and the flame area • Fly ash chamber full • Re-switching surfaces heavily coated / sooted • Ash behind the primary air sheets 	<ul style="list-style-type: none"> • Free up the holes • De-ash the boiler and clean the fly ash room • Clean the boiler • Take out the primary air sheets and replace the primary air sheets
Fuel not burning correctly -{}-	<ul style="list-style-type: none"> • Mains switch not on • Start button not pressed • Safety temperature limiter has failed • Safety device on the switchboard is defective • Suction ventilator defective 	<ul style="list-style-type: none"> • Switch on at mains • Press start button • Let the boiler cool off and confirm the safety temperature limiter • Change safety device • Replace suction ventilator
Desired operating temperature not reached	<ul style="list-style-type: none"> • Lack of fresh air in the boiler room • Too poor or too damp fuel • Boiler dimensions too small • Radiation losses too high in the heating unit • Logs too large 	<ul style="list-style-type: none"> • Introduce sufficient ventilation • Use the appropriate fuels • Install larger boiler • Insulate all pipelines • Split them smaller
Ventilator only runs when filling shaft door opened	<ul style="list-style-type: none"> • Boiler has switched off 	<ul style="list-style-type: none"> • Let the boiler cool off

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Declaration of conformity

Under the EC machinery guidelines, 98/37/EC, Appendix II A

We hereby declare that the machinery / equipment detailed below conforms to the basic health and safety requirements of the EC guidelines.

Type of machine: **HERZ firestar**

Type: **HERZ firestar 15**
HERZ firestar 19
HERZ firestar 20
HERZ firestar 30
HERZ firestar 40

Machine type: **Log boiler**

Machine / equipment no.:

Regulations to which the machine conforms:

Machine Safety Directive: BGBl. No. 306/1994; 31/1995 and 781/1996 and also EU Directive on machines 98/37/EC; 91/368/EEC; 93/44/EEC and 93/68/EEC

Low Voltage Act 1995, NspGV 1995, BGBl. No. 51/1995 and thus the EU Directive on low voltage 73/23/EEC and 93/68/EEC

Electromagnetic Compatibility Directive 1995, BGBl. No. 52/1995 and 4/1996 and thus the EU Directives on electromagnetic compatibility 89/336/EEC; 91/263/EEC and 93/68/EEC

Technical Directives on preventative fire protection (TRVB) H118

The following standards were deployed in the interpretation and construction of the equipment:

EN 292 and EN 303-5



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Sebersdorf, June 2007

Dr. Gerhard Glinzerer – Managing Director

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