# HARGASSNER

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# INSTRUCTION MANUAL

No.22

PELLET BOILERS

Type Classic 25, 31, 35, 40, 49, 60 Lambda

with

LAMBDA - HATRONIC from EPROM V 4.2 b

**Fuel Extraction systems RAS, RAD, RAPS, GWT**


**HARGASSNER - HEIZTECHNIK: "Time-tested performance.'**

A SYSTEM COMBINING THE COMFORT OF OIL HEATING WITH UNMATCHED EFFICIENCY

# Introduction

# Preface

Dear customer!

We are glad that you have chosen one of our innovative high quality products and would like to assure you that you've thereby purchased one of the most reliable heating system available. Please note however that even for the best product appropriate installation, commissioning and maintenance are required to allow for best possible performance. The included hydraulic-, connection- and installation schemes will facilitate all of the above.
Please make sure to follow the maintenance guidelines of the instruction manual to assure a cost-effective and long life cycle of your heating system. Doing so will help to avoid high repair costs and long down times by sustaining the system's reliability over many years.

## Intended application

The heating system Classic 25-60 is a modern pellet fueled boiler with a nominal output of 25 - 60 kW. The plant is designed to serve as a central system for supplying hot heating water. The fuel is delivered by one of our numerous innovative fuel extraction systems.

## Provided documents

The following accompanying documents are provided for Classic 25-60 pellet boiler:

- Instruction manual
- Assembly manual (GWTS,RAS,RAPS,RAD)
- Control booklet
- Packing plan

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# Installation guidelines

## 1. Electrical installation:

- The electrical installation must be carried out by a specialist (authorized by the VDE or VOE) and according to the enclosed plan.
- The power must be supplied by a **230VAC/16A** polarity proof connector plug (in accordance with **machinery safety regulations - MSV)**. Furthermore the main switch must be situated in accordance to the buildung code and equipped with a pre-fuse having a max. 16A.

**Caution :** - Power connectors **L** and **N** must be in proper phase. (see connection scheme
- Suction hoses have to be earthed. (see sticker)

## 2. Chimney dimensioning :

- The chimney dimensioning is based on **calculations** (for flue gas parameters see the table)
- For the **initial layout** thermally insulated chimneys according to DIN 18160 T1 (thermal resistance group 1) or appropriate, authorized and moisture resistant flue gas systems must be use

| PLANT | TYPE | Output | Flue gas temp. | $CO^2$ | Mass flow | Chimney draught plant | Max. chimney draught | Firetube diameter |
|---|---|---|---|---|---|---|---|---|
| | | KW | °C | % | kg / sec | Pa | Pa | m |
| HARGASSNER | Classic 25 | 25,00 | 150 | 14 | 0,0153 | 5 | 10 | 0,130 |
| HARGASSNER | Classic 31 | 31,00 | 150 | 14 | 0,0189 | 5 | 10 | 0,130 |
| HARGASSNER | Classic 35 | 35,00 | 150 | 14 | 0,0195 | 5 | 10 | 0,150 |
| HARGASSNER | Classic 40 | 42,00 | 150 | 14 | 0,0199 | 5 | 10 | 0,150 |
| HARGASSNER | Classic 49 | 49,00 | 150 | 14 | 0,0247 | 5 | 10 | 0,150 |
| HARGASSNER | Classic 60 | 58,00 | 150 | 14 | 0,0302 | 5 | 10 | 0,150 |

## 3. Fire tube design:

The fire tube should be as short as possible, tightly sealed and ascend towards the chimney. Moreover cleaning lids have to be available and longer tubes should be thermally insulated.

⚠ **Caution:**

A draught controller with blowback flap must be integrated inside the fire tube or chimney (pressure set point 0,1 mbar).

## 4. Installation and set up instructions:

- Hargassner HSV boilers meet the standards of class 3 systems according to **ÖNORM EN 303-5** as well as the demands of the **15a BVG agreement**. (tested by BLT Wieselburg)
- **When the boiler is being installed**, safety codes of local fire protection and building inspection departments must be considered as well as general standards and safety regulations for central heating systems. Moreover a sufficient fresh air supply according to local guidelines (respectively a minimum of 200$cm^2$) has to be provided.
- The fire protection guideline applied in Austria is **TRVB H118 supplemental sheet 029**. The heating systems are subsequently tested in accordance to this guideline (test report no. 12679). Due to this high standard, there is **no need for a TMS** - temperature monitoring system in the fuel storage room of these heating systems.
- Due to its classification as a "fast shutdown" system (tested by BLT Wieselburg), and in accordance with ÖNORM B 8131 and DIN 4751, it is not necessary **to install a thermal discharge safety device**
- If the heating system is run without a thermal buffer storage or a long distance heating pump (see hydraulic scheme) a **bypass pump** for return temperature augmentation is needed. If a buffer storage is present, a **return mixer** or **thermal valve** (see hydraulic scheme) must be used.
- The hydraulic connection must be installed as shown in the enclosed scheme.

# Installation guidelines

## 5. Safety Guidelines:

The heating system Classic 25-60 is designed and manufactured to meet the latest safety and technology standards. Improper operation of the heating system caused by deferred maintenance, incorrect use or poor fuel quality could still lead to personal and material damage.
That is why the heating system Classic 25-60 must only be used for its intended application (see Introduction) and after safety requirements have been checked.

For safety reasons, the electrical connection must be cut before any kind of maintenance work is started, before any sort of covering and plating of electrical and rotating parts is removed, and before entering the fuel extraction area (rotating parts)!
In addition to that, the system must be shut down using the main switch whenever a fatal error occurs during operation. Make sure to inform a specialist and have the error fixed as soon as possible.
Also mind the fire risk caused by glowing ash when cleaning the boiler.

**Caution:** Risk of burns ! Internal parts of the boiler could be hot (>50°C)

Do not open the door of the combustion chamber during operation. Only perform cleaning in a cooled down state of the boiler and note that the ash box might still be hot.

**Caution:** Risk of injury by rotating parts !**!! Unplug the power supply !**

Entering the fuel storage room is strictly forbidden during operation. Assure that the storage room cannot be entered unauthorized.

**Caution:** Danger caused by voltage !**!! Unplug the power supply !**

Cut the main power supply before removing any covering of electrical parts (fans, drives, etc.).

**Caution:** Danger caused by flue gas !

Deficient maintenance and cleaning might cause flue gas to leak from the boiler. Shut down the system right away using the main switch when this happens. Thoroughly aerate the heating room and perform maintenance and cleaning of the boiler as described in the respective section of the instruction manual or inform the service department.

**Caution:** Risk of fire !

Safety codes of local fire protection and building inspection departments must be followed. The fire risk will be increased by deficient maintenance and cleaning ! (Maintenace and cleaning intervals must be kept, see the respective section of the instruction manual and the control booklet).
Allow the ash box to cool down before cleaning the boiler.

## 6. Pellets

In accordance with **ÖNORM M 7135** pellets are made of compacted saw dust and shavings from untreated wood.

| Heating value | Bulk density | Water content | Ash content | Dia-meter | Length | Dust content | Required storage volume |
|---|---|---|---|---|---|---|---|
| 4,8 kWh/kg | 650 kg/m³ | ca.7% | 0,50% | 6mm | 20-40mm | max.10% | 0,9 m³/kW nom.power |

**Important quality criteria :**

- lowest possible dust content
- hard and shiny surface
- untreated wood, free of additives etc.

**Caution: Make sure that pellets you buy or receive meet the quality standards as specified in ÖNORM M 7135 or DIN-Plus.**

## 7. Storage Room Requirements:

- absence of humidity
- minimum dimensions of 2 x 3m (depending on the heat output)
- injection and extraction couplings for air injection of pellets
- a deflection mat covering the wall that is opposite the injection coupling
- **Caution:** The boiler must be shut down while pellets are being loaded (the mode switch is set to "Off".).

# Inbetriebnahme

As soon as the boiler has been installed appropriately and all safety systems have been checked, commissioning can be performed using the checklist shown below.

**Commissioning:**

1. Test the function of all electrical devices. Further information regarding this step can be found in chapter: "manual operation"!

2. With the mode switch set to "Manual", start the automatic pellet delivery by pushing the + button (display No.7 in case of suction unit (RAS), display No.7a in case of a direct auger (RAD)). The system will deliver pellets to the intermediate bin until it is switched off by the level indicator.

3. Remove the upper heat exchanger lid to gain insight on the grate. Now use the + button while display no. 4 is shown in Manual operation mode to deliver pellets until they appear on the grate. When completed, reapply the heat exchanger lid.

4. With the mode switch either set to "Auto", "HWS" or "Off", you may enter the menu for commissioning settings by simultaneously pushing the + and - buttons. Adjust the settings as described in the corresponding chapter "Commissioning settings".

5. Now turn the mode switch to "Auto" or "HWS". The system will automatically start up and run according to the chosen mode. Note that the ignition will be delayed for approx. 3 min.

## CAUTION:

**Commissioning must be performed by a technician with commissioning certificate. Do not forget to return the completed commissioning checklist to company Hargassner within 30 days after commissioning.**

**Note that failing to do so voids all warranty claims!**

# Maintenance and cleaning

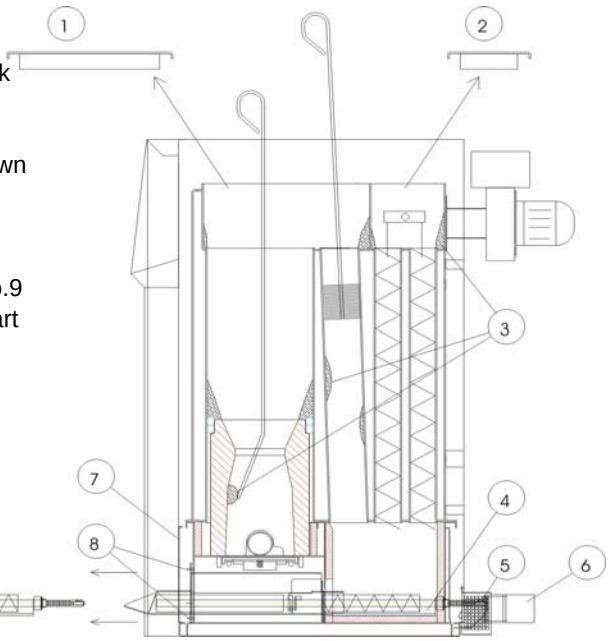
***Caution: Safety notice!***

For safety reasons, the power supply must be cut before any kind of maintenance work is started, before any sort of covering and plating of electrical and rotating parts is removed, and before entering the fuel extraction area (rotating parts)! Mind protection clothing as the boiler or respective parts of the boiler may still be hot!

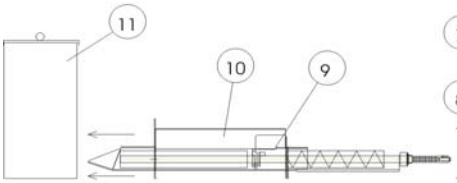
Your boiler is equipped with automatic systems for ash removal and boiler cleaning. All you have to do is to empty the ash box at regular intervals. The control display will let you know whenever the ash box is almost full. If you forget to remove the ash, the boiler will be switched off after a specified time and the message "over-current ash removal motor" will be displayed. After emptying the ash box, the error can be cleared by pushing "Enter".

1. Both the boiler and the combustion chamber must be checked for ash deposition (see illustration) at least once per heating season and cleaned if necessary. Therefore remove both upper heat exchanger lids shown as no.1 and no.2 and clean the heat exchanger and the combustion chamber using the provided brush and poker, removing all disposed ash, shown as no.3.
2. If you can not fix the error "over-current ash removal motor" by emptying the ash box, try the following: remove the ash box no.11 and unscrew the ash removal motor from the back side of the boiler (Caution: completely remove screw no.5 from the auger). Unscrew the lower front casing no.7 and proceed with unscrewing and removing the four screws shown as no.8. Now pull out the ash removal device no.10 and remove any disposed ash or other sort of debris.

   Attention: When done, refill the small container shown as no.9 with ash to ensure a tight seal between the rear and front part of the boiler.

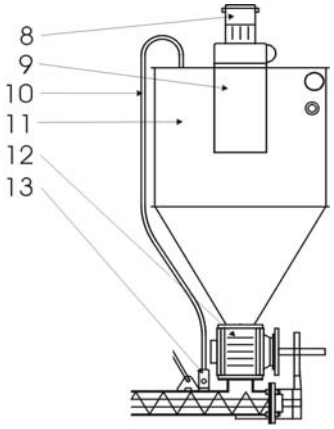



Lastly, clean the lower part of the boiler, shown as no.4, and reassemble the parts in reversed order.




3. Check the fire tube for ash disposal twice per heating season and clean if necessary.
4. Even under normal operating conditions the formation of cracks in the fireclay concrete of the combustion chamber will occur. These cracks are caused by tension and lead to expansion joints. In addition, the high combustion temperature sometimes causes particles to be detached from the surface of the secondary combustion chamber. Please note however, that both of these processes are normal and do not affect the function of the boiler. For this reason neither of them is subject to warranty.

## Cleaning the pellets suction turbine: (if present)




**Remove the suction turbine no.8 and clean out any dust clogging the grid no.9 at least once a year, depending on the pellets' dust content.**
**A noisy or sparking turbine usually indicates that the fan wheel is dirty. In this case the turbine must be removed, dismantled and cleaned. After the cleaning, the problem should then be solved.**

If you find any brown disposal of tar covering either the fan wheel or grid, possible reasons include:

- suction valve no. 13 is malfunctioning
- hose no. 10 for the suction valve is not connected
- the rotary feeder no.12 is leaky

For the above malfunctions, the defective component(s) should be replaced or our service department should be contacted.

# Maintenance contract

To allow for best possible performance of your boiler, it is necessary to perform comprehensive maintenance once a year. An appropriate yearly maintenance is guaranteed by closing a:


## Maintenance Contract:

If you decide to close this contract with us you will benefit from:
**EXTENDED WARRANTY, SAFETY, CONSERVATION OF VALUE and REDUCED HEATING COSTS**

### Your benefits in detail:

- Warranty is extended to **three years** (also covering electric parts).
- Yearly maintenance performed by specialists which will extend the life time of your heating system far beyond the warranty time.
- monthly inspection of all safety systems in accordance with the fire protection department's guideline TRVB H118, supplemental sheet 29, is necessary unless **yearly inspection is performed by the manufacturer**.
- **Safe operation** during the entire heating season.
- optimized combustion and selective cleaning lead to optimized combustion efficiency and thereby **reduce heating costs**.

### Services contained in the contract:

- control and cleaning of the automated boiler cleaning system and the fire tube
- cleaning of the combustion chamber and the primary and secondary airduct
- cleaning of the ignition unit and the fan
- cleaning of the pellet suction turbine and the turbine's grid (if there is one)
- maintenance and lubrication of all drive units
- inspection and adjustment of the pusher grate
- inspection of all safety systems such as the rotary airlock with vacuum valve
- inspection and recalibration of the lambda sensor (if necessary)
- testing for leaks
- if necessary, optimization of control parameters according to special needs of the customer or to used fuel
- inspection of worn parts
- operation test of the boiler followed by adjustments to reach the maximum efficiency using flue gas measureme

Further information and the possibility to conclude a maintenance contract will be provided at commissioning. If not, please order a copy of the maintenance contract from our local representative.

# Control Panel

## DISPLAY


## KEYBOARD

| | |
|---|---|
| ↑ | Button is used to scroll the display up |
| ↓ | Button is used to scroll the display dow |
| + | Button is used to scroll up a setting or raise the value of a parameter such as time, temperature etc. In manual mode: motors are rotating in forward direction, mixing motors are opened, pump is switched on, etc. |
| - | Button is used to scroll down a setting or lower the value of a parameter such as time, temperature etc. In manual mode: motor are rotating in backward direction, mixing motors are closed, etc. |
| Standard anzeige | Button is used to show the default display. |
| Störung Enter Bestätigen | Button is used to confirm all parameters after adjustment and to acknowledge errors after troubleshooting. |
| ← | Button is used to move the cursor left (when setting time and date) |
| → | Button is used to move the cursor right (when setting time and date) |
| | Button is used to enable and disable "Manual" mode. |
| TÜV | Button is used to check the safety thermostat. |

## MODE SWITCH

### Automatic mode

**(for heating circuits and HWS)**

The boiler controls heating and domestic hot water demands according to the preset time program and outdoor temperature.

### HWS (Hot water storage)

The boiler only controls domestic hot water storage according to the preset time program.

### Off

Heating is shut down, frost protection remains active.

### *Manual mode*

This setting allows for the performance of tests for all electric functions and to manually operate all drives in the case of cleaning, troubleshooting or maintenance. (See pages 10 and 11)

## Adjustment of the display contrast

To increase the display contrast, simultaneously push the + button and the button below the down arrow button. Simultaneously pushing the - button and the button below the down arrow button conversely results in a decrease in contrast. Holding the buttons while increasing the contrast will result in switching to minimum contrast, once the maximum contrast has been reached and exceeded. The same applies for holding the buttons to decrease the contrast. After the minimum setting has been reached, the display will jump to maximum setting. This is to assure that pressing and holding any of the two buttons, + or -, will always make the display readable.

# Costumer settings

## Extended info level

```
Hours run
Controller        0,00 h
```
Displays the control's operation time.

```
Hours run
Ascheaustragung   0,00 h
```
Displays the operating hours of the ash removal system.

```
Counter
Cleaning system        0
```
Displays the number of automatic cleaning cycles.

```
Counter
Grate cycles           0
```
Total number of grate cycles (two per deashing cycles) i.e. number of deashing cycles equals half of this number.

```
Hours run
Extract auger or Suction
motor             0,00 h
```
Displays the operating hours of the suction turbine / extraction auger.

```
Hours run
Ignition          0,00 h
```
Displays operation hours of the ignition.

```
Hours run
Stoker auger      0,00 h
```
Displays operation hours of the stoker auger.

```
Hours run
Heating          0,00 h
```
Displays total heating time since commissioning. This includes ignition, firing, glow bed retaining mode and ash removal.

```
Stoker auger      0   mA
Grate motor     0,0  A
Cleaning motor  0,0  A
Extract auger   0,0  A
```
Motor currents for all drives are shown here. The first line either shows the stoker or extraction motor, depending on which of the two is currently running.

```
Cleaning system on
No. De-ash cycles
Act.           0 x
Set            4 x
```
Displays the preset number (Set) of de-ashing cycles that are performed until the cleaning system is turned on, and the actual number of de-ashing cycles that have been performed since the last cleaning cycle (Act). After each de-ashing cycle, this value raises by 1.

```
De-ash Period
Act.            0 min
Set           180 min
temp. stretch: 120 min
```
Displays the preset firing time (Set) after which de-ashing is performed. However de-ashing will only be performed when firing is stopped (glow bed retaining or OFF mode) or after the preset stretch has expired eg.: 180+120=300min. Act shows the interval time since the last deashing cycle.

```
Autom. Pellets
Filling at
run time        50 min
access from     200 min
```
The Stoker auger's run time before an automatic suction cycle is activated is shown here.

↑ push for 2 seconds

## Info level

```
  Pellets Classic 25-60
   237291     SMS V4.2b
 Mo, 21.01.2008 16:39:26
```
Displays the serial number together with the current date and time.

```
Dist. Circ
Dist. Circ Pump1 off
```
Displays the status of the long distance circuit. (if present)

```
EXT. HC              OFF
Ext-Setp.             0°
Pump (Boiler)       off
Pump (HC-Mod1)      off
Pump (HC-Mod2)      off
```
Displays the status of the external heating circuit. (if present)

```
return mixer  <  >
Act. Return-temp.  64°
Set Return-temp.   58°
Return pump        off
```
Displays set-point for the return temperature augmentation. (If a return mixer is installed and activated). The bottom line shows which of the pumps is assigned to perform return mixing. (return pump, buffer pump or FL pump 1)

```
HWS     53°  Setp. 0°
Transp.  0% Air    0%
return 64°  P.  50%
C02  12.6/11%F90 K85
```
Displays current boiler temperatures together with some additional parameters.

```
HWS LOADING 1      OFF
HWS actual temp    52°
HWS Setpoint       60°
Pump               off
```
Displays the hot water storage program currently running.

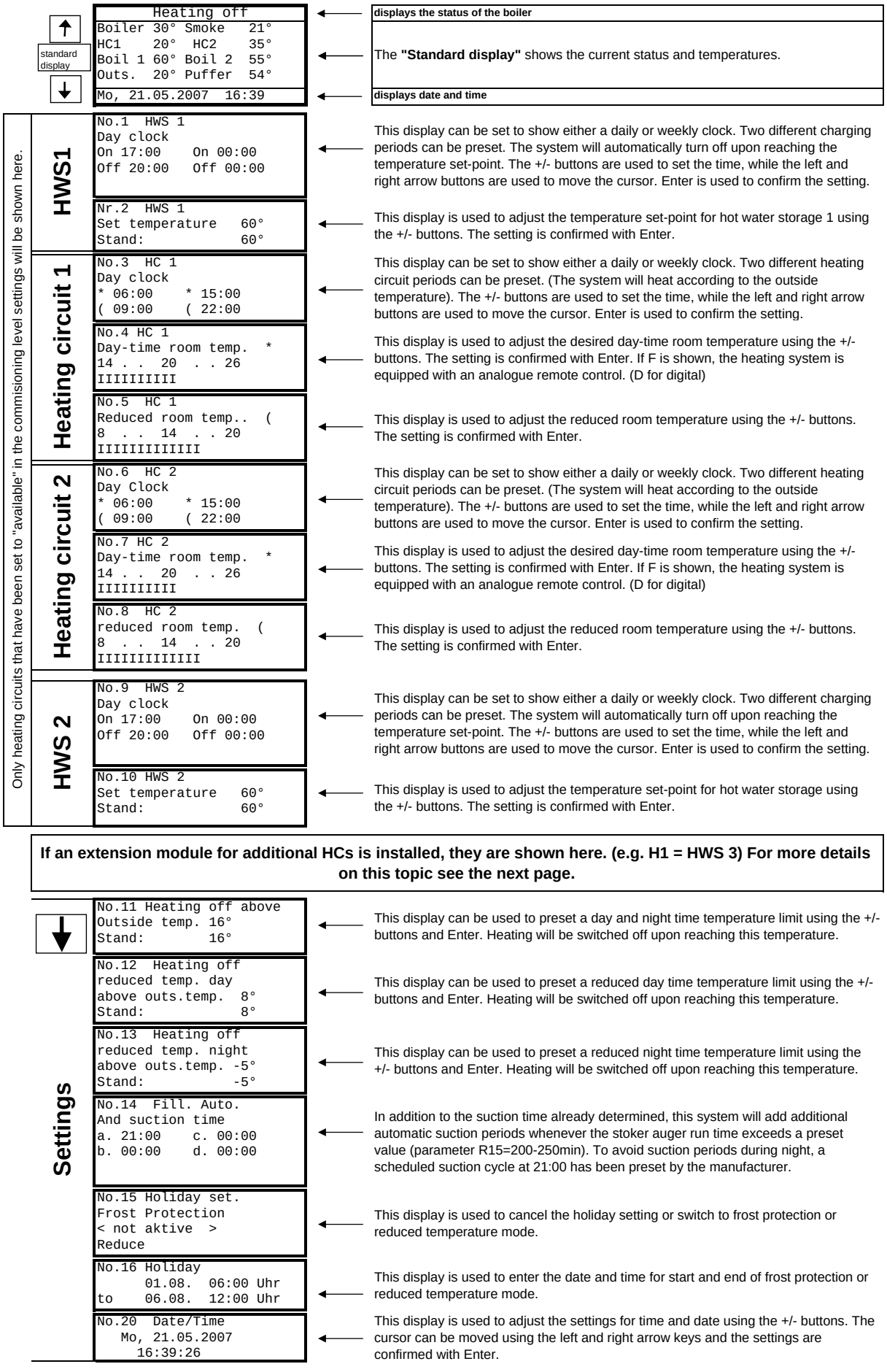
```
HC1  OFF     HC2  OFF
Act.  53°    Act.  35°
Setp.  0°   Setp.   0°
Pump off    Pump off
```
Displays the status of heating circuits (HC) 1 and 2. "B" indicates the flow set-point reduction (while the hot water storage is being charged), "A" indicates the delay when switching from heating to reduced temperature mode. ">" indicates that the mixer is open, and "<" indicates that the mixer is closed.

```
ACC loading       OFF
Top 39°   Below   54°
ACC setp.          0°
ACC pump         off
```
Displays the buffer storage's current status. (if present)

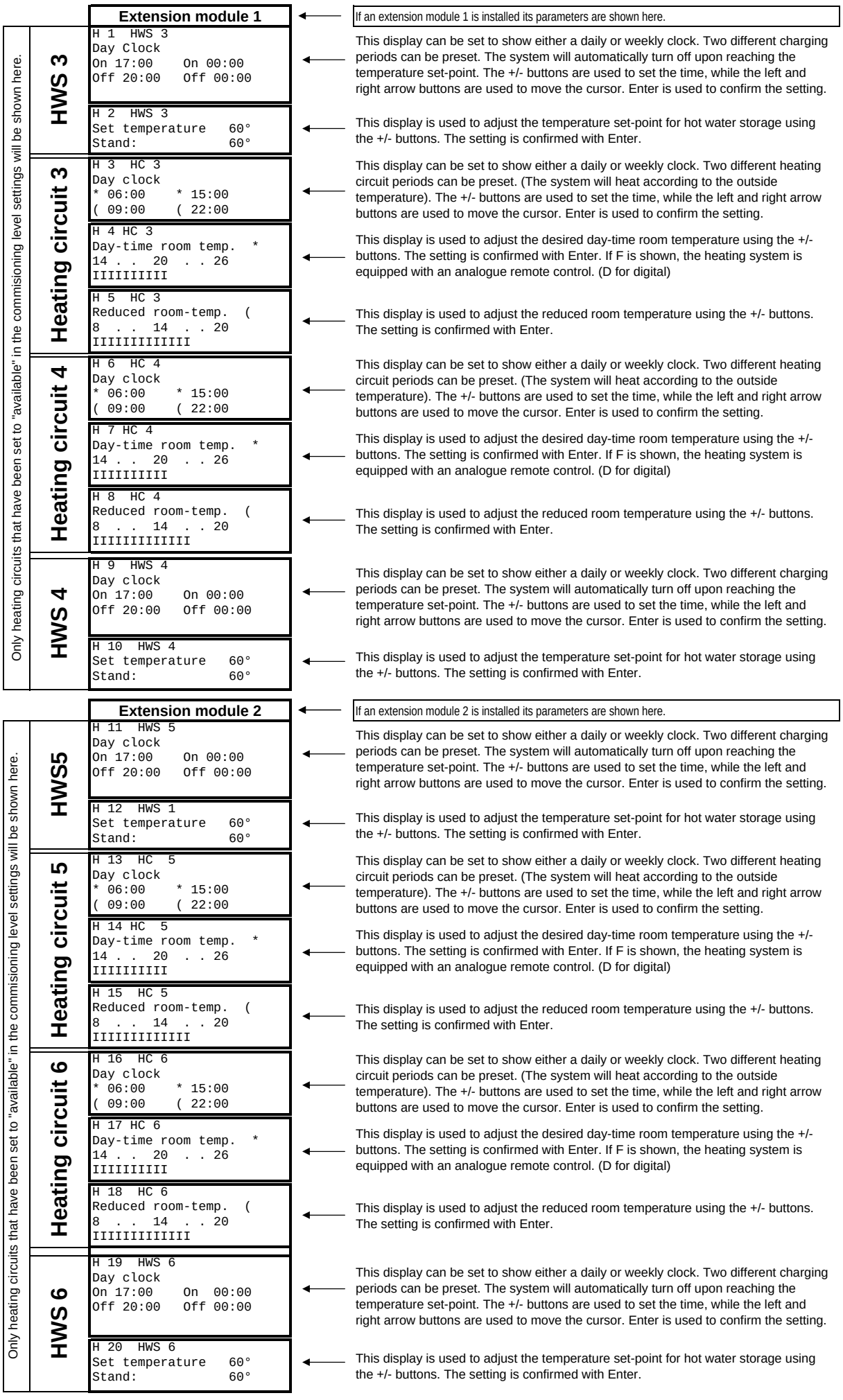
```
ALTERN. HEAT OP.  OFF
Alt. heat temp.   22°
HC valve          OFF
```
Displays the status of an alternative heating source. (if present)

```
     HEATING OFF
HWS 1          off
HWS 2          off
Heat circ 1    off
Heat circ 2    off
OT aug.        15°
```
Displays the current status of the boiler, hot water storages and heating circuits. (Alternative heating source, buffer storage, if they are present) and the average outdoor temperature. A blinking D next to a heating circuits means that a digital remote control is activated, while F stands for an analogue remote control.

# Costumer settings



# Costumer settings



# Manual operation

**This setting fascilitates the performance of tests of all electrical functions and to manually control all drives in case of cleaning, troubleshooting or maintenance!**

**Use the up and down arrow buttons to adjust settings!**
**All functions will only be performed as long as the + or - buttons are pressed.**

| | |
|---|---|
| **Manual Operation** | **this line will show manual operation.** |
| No.1 Manual 0,0 A<br>Grate<br>1x open/Clo. + Key | After cleaning the boiler perform de-ashing using the pusher grate. Pressing the + button will lead to one pushing cycle of the grate whereby the ash will be pushed into the ash box. |
| No.2 Manual 0,0 A<br>Grate<br>Open + Key<br>Closed - Key | Display for testing the function of the pusher grate. Manually move the grate into opened and closed position using the + and - keys. |
| No.3 Manual 0,0 A<br>Cleaning system<br><br>Start + Key | Used to test the function of and manually operate the cleaning system.<br>**Caution:** When the + button is released, the cleaning motor will proceed to it's final position! |
| No.3a Manual 0 mA<br>De-ash auger<br>Forward + Key<br>Back - Key | Used to test the function and rotating direction of the de-ash auger motor.<br>Manually turn the auger in forward and backward direction using +/-.<br>**Caution:** Backwards operation will only be possible for a short time! |
| No.4 Manual 0 mA<br>Stoker auger<br>Forward + Key<br>Back - Key | Used to test the function and rotating direction of the stoker auger motor.<br>Manually turn the auger in forward and backward direction using +/-.<br>Used for filling the auger, the grate will open to avoid overload.<br>**Caution:** Backwards operation will only be possible for a short time! |
| No.5 Manual mode<br>Suction motor<br>Filling level: empty<br>on + Key | Used to test the function of the pellet suction turbine. (if present) |
| No.6 Manual 0,0 A<br>Extract auger<br>Forward + Key<br>Back - Key | Used to test the function and rotating direction of the extraction auger motor.<br>Manually turn the auger in forward and backward direction using +/- if stuck or jammed by debris<br>**Caution:** Backwards operation will only be possible for a short time! |
| No.7 Manual ,0 A<br>Extract auger +Suction<br>Filling level: empty<br>on + Key | Used to refill the intermediate bin after full restart.<br>**Caution:** The level indicator will turn off the auger automatically. To manually turn it off press the - key. Be aware of the suction turbine's lag! (if suction turbine present) |
| No.7a Manual 0,0 A<br>direct auger fill.<br>Filling level<br>empt/full on<br>+ Key | Used to refill the extract auger manually after a full restart.<br>**Caution:** The level indicator will turn off the auger automatically! To manually turn it off press the - key. (if there is a direct auger) |
| No.8 Manual<br>Ignition<br>Heat.+Fan + Key<br>Ign fan only. - Key | Used to test the function of the ignition fan and heating element.<br>If the fan doesn't start upon pressing the - key, check the connection of the fan following the connection scheme. (Connections might be interchanged) |
| No.9 Manual mode<br>Exhaust gas fan<br>On + Key | Used to test the function of the exhaust gas fan. |

# Manual operation

**This setting fascilitates the performance of tests of all electrical functions and to manually control all drives in case of cleaning, troubleshooting or maintenance!**

**Use the up and down arrow buttons to adjust settings!**
**All functions will only be performed as long as the + or - buttons are pressed.**

| | |
|---|---|
| No.10 Manual<br>HWS pump1(ACC Valve)<br>on + Key | Used to test the function or manually operate hot water storage pump 1. If the heating system is equipped with a thermal buffer storage and intergrated hot water storage, the buffer valve is also connected to this oulet. (See heating circuit scheme) |
| No.11 Manual<br>HWS pump 2/<br>Ext./Dist.Heat.pump<br>On + Key | Used to test the function or manually operate hot water storage pump 2. Optionally, an external pump or district heating pump can be connected or tested here. (See heating circuit scheme) |
| No.12 Manual mode<br>HC pump 1<br>On + Key | Used to test the function or manually operate heating circuit pump 1. |
| No.13 Manual mode<br>Mixing valve 1<br>Open + Key<br>Closed - Key | Used to test if mixing valve 1 opens when the + button is pressed and closes when the - button is pressed. |
| No.14 Manual mode<br>HC pump 2<br>On + Key | Used to test the function or manually operate heating circuit pump 2. |
| No.15 Manual mode<br>Mixing valve 2<br>Open + Key<br>Closed - Key | Used to test if mixing valve 2 opens when the + button is pressed and closes when the - button is pressed. |

**Extension module 1** ← Can only be tested if heating circuit module 1 is installed!

| | |
|---|---|
| No.16 manual mode<br>HWS pump 3<br>On + Key | Used to test the function or manually operate hot water storage pump 3.<br>**Caution:** This outlet is connected with extension module 1. If this module is not connected, the message "extension module 1 not connected/defective" will be displayed. |
| No.17 manual mode<br>HWS pump 4<br>On + Key | Used to test the function or manually operate hot water storage pump 4.<br>**Caution:** This outlet is connected with extension module 1. If this module is not connected, the message "extension module 1 not connected/defective" will be displayed. |
| No.18 manual mode<br>HC pump 3<br>On + Key | Used to test the function or manually operate heating circuit pump 3.<br>**Caution:** This outlet is connected with extension module 1. If this module is not connected, the message "extension module 1 not connected/defective" will be displayed. |
| No.19 Manual mode<br>Mixing valve 3<br>Open + Key<br>Closed - Key | Used to test if mixing valve 3 opens when the + button is pressed and closes when the - button is pressed.<br>**Caution:** This outlet is connected with extension module 1. If this module is not connected, the message "extension module 1 not connected/defective" will be displayed. |
| No.20 Manual mode<br>HC pump 4<br>On + Key | Used to test the function or manually operate heating circuit pump 4.<br>**Caution:** This outlet is connected with extension module 1. If this module is not connected, the message "extension module 1 not connected/defective" will be displayed. |
| No.21 Manual mode<br>Mixing valve 4<br>Open + Key<br>Closed - Key | Used to test if mixing valve 4 opens when the + button is pressed and closes when the - button is pressed.<br>**Caution:** This outlet is connected with extension module 1. If this module is not connected, the message "extension module 1 not connected/defective" will be displayed. |

# Manual operation

**This setting fascilitates the performance of tests of all electrical functions and to manually control all drives in case of cleaning, troubleshooting or maintenance!**

**Use the up and down arrow buttons to adjust settings!**
**All functions will only be performed as long as the + or - buttons are pressed.**

**Extension module 2** ← Can only be tested if heating circuit module 2 is installed!

| | |
|---|---|
| No.22 Manual mode<br>HWS pump 5<br>On + Key | Used to test the function or manually operate hot water storage pump 5.<br>**Caution:** This outlet is connected with extension module 2. If this module is not connected, the message "extension module 2 not connected/defect" will be displayed. |
| No.23 Manual mode<br>HWS pump 6<br>On + Key | Used to test the function or manually operate hot water storage pump 6.<br>**Caution:** This outlet is connected with extension module 2. If this module is not connected, the message "extension module 2 not connected/defective" will be displayed. |
| No.24 Manual mode<br>HC pump 5<br>On + Key | Used to test the function or manually operate heating circuit pump 5.<br>**Caution:** This outlet is connected with extension module 2. If such an additional module is not installed, the message "extension module 2 not connected/defective" will be displayed. |
| No.25 Manual mode<br>Mixing valve 5<br>Open + Key<br>Closed - Key | Used to test if mixing valve 5 opens when the + button is pressed and closes when the - button is pressed.<br>**Caution:** This outlet is connected with extension module 2. If such an additional module is not installed, the message "extension module 2 not connected/defective" will be displayed. |
| No.26 manual mode<br>HC pump 6<br>On + Key | Used to test the function or manually operate heating circuit pump 6.<br>**Caution:** This outlet is connected with extension module 2. If this module is not connected, the message "extension module 2 not connected/defective" will be displayed. |
| No.27 Manual mode<br>Mixing valve 6<br>Open + Key<br>Closed - Key | Used to test if mixing valve 6 opens when the + button is pressed and closes when the - button is pressed.<br>**Caution:** This outlet is connected with extension module 2. If this module is not connected, the message "extension module 2 not connected/defective" will be displayed. |
| No.28 Manual mode<br>Return shunt pump<br>or ACC pump<br>On + Key | Used to test the function and manually operate the return shunt pump or buffer storage pump. |
| No.29 Manual mode<br>HC valve<br>ON + Key | Used to test the function or to manually operate the heating circuit valve for switching from boiler to buffer storage or from boiler to an alternative heat source. |
| No.30 Manual mode<br>Fault light /<br>Ext./Dist.Heat.pump<br>On + Key | Used to test the function or manually operate the fault light. An external or long distance heating pump can be connected and tested here as well. (See heating circuit scheme) |
| No.31 Manual mode<br>Return mixer<br>Open + Key<br>Closed - Key | Used to test if the return mixer opens when the + button is pressed and closes when the - button is pressed. Caution: the mixer is "closed", when the boiler circuit is closed and "open", when the return is open. While heating, the return temperature will rise when the mixer is closed, and fall when the mixer is open. |

# Manual operation

**This setting fascilitates the performance of tests of all electrical functions and to manually control all drives in case of cleaning, troubleshooting or maintenance!**

**Use the up and down arrow buttons to adjust settings!**
**All functions will only be performed as long as the + or - buttons are pressed.**

| | |
|---|---|
| No.34 Manual mode<br>Lambda Sen. 0.0mV<br>Boiler cold<br>Test start + Key | Used to test the function of the lambda sensor. When the + button is pushed, the displayed current should reach a value of around -10mV within approximately 5 minutes. Values between -5 and -15 mV are within the acceptable range. Iif the values are outside this range, a malfunction or incorrect connection of the sensor will indicated. In the case of a calibrated sensor the correction value will be displayed. **Caution:** the boiler needs to be cold (exhaust temp. < 50°C) |
| No.40 Manual mode<br>Boiler sensor 64°<br>Exh.gas sensor 148°<br>Outside sensor -4° | Used to test the function of the temperature sensors by comparing the displayed values to actual temperatures. Display: blank indicates the sensor is not connected<br>Display: - - - indicates the sensor sensor is short circuited |
| No.41 Manual mode<br>ACC/alt.heat 54°<br>Return sensor 58°<br>HWS2 or ACC2<br>or Exh.temp sens.<br>OFF | Used to test the function of the temperature sensors and the exhaust temperature sensor by comparing the displayed to actual temperature.<br>Display: blank indicates the sensor is not connected<br>Display: - - - indicates the sensor is sensor short circuited<br>The bottom line either shows the temperature of HWS 2, Buffer 2 or the exhaust temperature sensor, while On indicates closed and Off indicates open. |
| No.43 Manual mode<br>HWS sensor 1 52°<br>HWS sensor 2 48° | Used to test the function of the temperature sensors by comparing the displayed values to actual values.<br>Display: blank indicates the sensor is not connected<br>Display: - - - indicates the sensor is sensor short circuited |
| No.44 Manual mode<br>HC1 sensor 53°<br>HC2 sensor 35° | |
| No.45 Manual mode<br>Remote cont. 1<br>Remote cont. 2 18° | Used to test the function of the remote control system. In the case of a digital remote control, the status (Off, Night (Moon), Auto or Day (Sun)) is shown. In the case of an analogue remote control with room sensor, the displayed temperature can be compared to the actual temperature<br>Function check of an analogue remote control w/o room sensor Display: 21° indicates being set to a fixed resistance valuet<br>Display: blank indicates the sensor is not connected<br>Display: - - - indicates the sensor sensor is short circuited<br>Caution: if the FR25 remote control is used, the mode switch has to be set to "clock". |

**Extension module 1** ← Can only be shown if extension module 1 is installed!

| | |
|---|---|
| No.46 Manual mode<br>HWS sensor 3 52°<br>HWS sensor 4 48° | Used to test the function of the temperature sensors by comparing the displayed and actual temperatures.<br>Display: blank indicates the sensor is not connected<br>Display: - - - indicates the sensor sensor is short circuited |
| No.47 manual mode<br>HC3 senosr 53°<br>HC4 sensor 35° | |
| No.48 Manual mode<br>Remote cont. 3 22°<br>Remote cont. 4 18° | see description no. 45 about testing the remote control's function |

**Extension module 2** ← Can only be shown if extension module 2 is installed!

| | |
|---|---|
| No.49 Manual mode<br>HWS sensor 5 52°<br>HWS sensor 6 48° | Used to test the function of the temperature sensors by comparing the displayed and actual temperatures.<br>Display: blank indicates sensor is not connected<br>Display: - - - indicates sensor sensor is short circuited |
| No.50 manual mode<br>HC5 sensor 53°<br>HC6 sensor 35° | |
| No.51 Manual mode<br>Remote cont. 5 22°<br>Remote cont. 6 18° | see description no. 45 about testing the remote control's function |

# Comissioning settings

**Commissioning settings: simultaneously press the [+] and [-] buttons for 3 sec.**

| | |
|---|---|
| Commissioning level<br>Param. Acc. to<br>Heating schematic<br>and instruction manual<br>from No 11<br>↓ to the Parameters | You've now accessed the commissioning level setting.<br>Before commissioning the boiler, all values have to be approved by a certified installer and adjusted in agreement to the according heating scheme. To do so use the down arrow button to change the parameter display, then adjust values using the + and - buttons and confirm with Enter. |
| No.A1 HC 1<br>not available<br>pump only<br>< with mixer motor ><br>on motherboard | 3 available settings:<br>Heating circuit not available<br>Heating circuit with pump only<br>Heating circuit with pump and mixer<br>Parameters A2 -A9 are not shown, if the "not available" option has been chosen. |
| No.A2 HC 1<br><br>Inclination 1.60<br>Stand: 1.60 | Adjustment range: 0,2...3,5<br><br>Describes the relation between the change of flow temperature and the change of outside temperature. (see heating characteristics).<br>Recommended settings:<br>Floor heating 0,3...1,0<br>Radiation heating 1,2..2,0<br>Convection heating 1,5...2,0<br><br>The adjustment should only be carried out in small steps and over a long time period. |
| No.A3 HC 1<br>Flow temperature<br>Minimum 30°<br>Stand: 30° | Adjustment Range: 1...80°C<br><br>Lower limit for the flow temperature of heating circuit 1.During heating or reduced temperature periods the flow temperature won't fall below this limit. |
| No.A4 HC 1<br>Flow Temperature<br>Maximum 70°<br>Stand: 70° | Adjustment Range: 1...95°C<br><br>Upper limit for the flow temperature of heating circuit 1. During heating or reduced temperature periods the flow temperature won't exceed this limit.<br><br>**Be cautious when using floor heating systems!**<br>To avoid overheating, a special electro-mechanical thermostat, capable of cutting the power supply of the according heat circuit pump has to be installed! |
| No.A5 HC 1<br><br>Run-time mixer 90s<br>Stand: 90s | Adjustment Range: 10...300s<br><br>The actual mixer run-time - that is, the period between the closed and opened state - has to be adjusted here. (check the type plate) |
| No.A6 Remote HC1<br>FR30 remote contr.<br>< not available ><br>FR25 without r. sen.<br>FR25 room sensor | 4 available settings<br>- digital remote control FR30<br>- heating circuit without remote control<br>- heating circuit with remote control FR25 but without a room temperature sensor (therefore no temperature adjustment - use clamps 1 and 3 for wiring)<br>- heating circuit with remote control FR25 and a room temperature sensor (automatic temperature adjustment - use clamps 1 and 2 for wiring) |

# Comissioning settings

**Commissioning settings: simultaneously press the [+] and [-] buttons for 3 sec.**

| | |
|---|---|
| No.A7 HC 1<br><No dist.pump><br>with dist. Heat. 1 | You may specify here, if there is a long distance heating pump. However, the long distance heating pump will only work if one of it's associated pumps is running. |
| at solar ACC<br>No.A8 HC 1<br><br><Summer heating off><br>Summer heating on<br>at switch HWS | Activate the (summer time) solar heating mode for the respective heating circuit. The heating circuit will be switched on (in accordance with a specified time scheme), as soon as the buffer storage's temperature exceeds a certain level.<br>Caution: This will only work, if a solar buffer storage is present and the mode switch is set to "HWS". |
| Floor dry-out funct.<br>No.A9 HC 1<br><br><Floor dry-out off><br>Floor dry-out on<br>Switch HWS/Auto | Activate the floor dry-out heating mode using this option. After this option is set to "Floor dry-out on" a number of additional options (A9a-A9f) can be adjusted. When done, set the mode switch to "Auto" or "HWS" to start the program.<br>parameters A9a - A9f are not shown when this option is set to "off" |
| No.A9a HC 1<br>Flow setp.start/stop<br>20°<br>Stand: 20 ° | Adjustment range: 10-30°C<br><br>Start- and end temperature for the floor dry-out program. |
| No.A9b HC 1<br>Flow setp. increase<br>5°<br>Stand: 5° | Adjustment range: 1-10°C<br><br>Temperature rise after the period specified in A9c has expired. |
| No.A9c Incr./Reduce<br>< Every day ><br>after 2 days<br>after 3 days<br>after 4 days<br>after 5 days | The flow temperature will be raised by the amount specified in A9b after the period chosen here has expired. While cooling down, the temperature will be decreased by the amount specified in A9f during this period. |
| No.A9d HC 1<br>Flow set point max.<br>45°<br>Stand: 45° | Adjustment range: 25-60°C<br><br>Upper limit for the flow temperature. |
| No.A9e HC 1<br>Flow set point max.<br>Hold time 1T<br>Stand: 1day | Adjustment Range: 0-20 days.<br><br>Specify the period during which the maximum flow temperature specified in A9e will be held. |
| No.A9f HC 1<br>Flow setp.reduct.<br>10°<br>Stand: 10° | Adjustment range: 1-10°C<br><br>Temperature reduction after the period specified in A9c has expired. |

# Comissioning settings

**Commissioning settings: simultaneously press the [+] and [-] buttons for 3 sec.**

```
No.A11  HC 2
<not available >
  Pump only
 with mixer motor

on motherboard
```

3 available settings:
Heating circuit not available
Heating circuit with pump only
Heating circuit with pump and mixer

Parameters A2 -A9 are not shown, if the "not available" option has been chosen.

```
No.A12  HC 2

Inclination    1.60
Stand:         1.60
```

Adjustment range: 0,2...3,5

Describes the relation between the change of flow tempreature and the change of outside temperature. (see heating characteristics).
Recommended adjustment:

| | |
|---|---|
| Floor heating | 0,3..1,0 |
| Radiation heating | 1,2..2,0 |
| Convection heating | 1,5.. 2,0 |

The adjustment should only be carried out in small steps and over a long time period.

```
No.A13  HC 2
Flow Temperature
Minimum          30°
Stand:           30°
```

Adjustment Range: 1...80°C

Lower limit for the flow temperature of heating circuit 1. During heating or reduced temperature periods the flow temperature won't fall below this limit.

```
No.A14  HC 2
Flow Temperature
Maximum          70°
Stand:           70°
```

Adjustment Range: 1...95°C

Upper limit for the flow temperature of heating circuit 1. During heating or reduced temperature periods the flow temperature won't exceed this limit.

**Be cautious when using floor heating systems!**
To avoid overheating, a special electro-mechanical thermostat, capable of cutting the power supply of the according heat circuit pump has to be installed!

```
No.A15  HC 2

Run-time mixer   90s
Stand:           90s
```

Adjustment Range: 10...300s

The actual mixer run-time - that is the period between closed and opened state - has to be adjusted here. (check the type plate)

```
No.A16  rem. cont. HC2
FR30 digi. rem. cont.
< not available  >
FR25 w/o room sens.
FR25 with room sens.
```

4 available settings
- digital remote control FR30
- heating circuit without remote control
- heating circuit with remote control FR25 but without a room temperature sensor (therefore no temperature adjustment - use clamps 1 and 3 for wiring)
- heating circuit with remote control FR25 and a room temperature sensor (automatical temperature adjustment - use clamps 1 and 2 for wiring)

```
No.A17 HC 2
 <No dist. pump>
  With dist.Heat. 1
```

You may specify here, if there is a long distance heating pump. However, the distance heating pump will only work if one of it's associated pumps is running.

# Comissioning settings

**Commissioning settings: simultaneously press the [+] and [-] buttons for 3 sec.**

| | |
|---|---|
| at solar ACC<br>No.A18 HC 2<br><Summer heating off><br>Summer heating on<br>at switch HWS | see HC1 |
| Floor dry-out funct.<br>No.A19 HC 2<br><Floor dry-out off><br>Floor dry-out on<br>Switch HWS/Auto | see HC1 |
| No.A21 HC 3<br><not available ><br>Pump only<br>with mixer motor<br>on Extens.module 1 | see HC1<br><br>This option is only available, if extension module 1 has been installed. (if not, an error message will tell you that a heating circuit module is not available)<br>Parameters A22 -A29 are not shown, if the "not available" option has been chosen. |
| No.A31 HC 4<br><not available ><br>pump only<br>with mixer motor<br>On Extens.module 1 | see HC1<br><br>This option is only available, if extension module 1 has been installed. (if not, an error message will tell you that a heating circuit module is not available)<br>Parameters A32 -A39 are not shown, if the "not available" option has been chosen. |
| No.A41 HC 5<br><not available ><br>Pump only<br>with mixer motor<br>on Extens.module 2 | see HC1<br><br>This option is only available, if extension module 2 has been installed. (if not, an error message will tell you that a heating circuit module is not available)<br>Parameters A42 -A49 are not shown, if the "not available" option has been chosen. |
| No.A51 HC 6<br><not available ><br>Pump only<br>with mixer motor<br>on Extens.module 2 | see HC1<br><br>This option is only available, if extension module 2 has been installed. (if not, an error message will tell you that a heating circuit module is not available)<br>Parameters B52 -B59 are not shown, if the "not available" option has been chosen. |
| No.B1 HWS Tank 1<br><available ><br>not available<br>on motherboard | Set this option to not available, if hot water storage 1 is not installed. Control for hot water storage 1 will be locked.<br>Parameters B2 - B7 are not shown, if the "not available" option has been chosen |
| No.B2 HWS tank 1<br>HWS temp. Switch<br>different 6° Stand:<br>6° | Adjustment range: 1...40°<br>Start of charging: When the temperature falls below the specified value (minus tolerance level). End of charging: As soon as the temperature reaches the set limit (customer setting). However charging will only take place during specified periods (customer setting) |
| No.B3 HWS tank 1<br>HWS temp. Minimum<br>40° Stand:<br>40° | Adjustment range: 1...80°<br><br>If - during the time specified in B9 - the temperature falls below this level, the hot water storage tank will be charged, regardless of the according time program. |

# Comissioning settings

**Commissioning settings: simultaneously press the [+] and [-] buttons for 3 sec.**

| | |
|---|---|
| Legionella prot. B1<br>No.B4 HWS tank 1<br><Leg. protect. off><br>Leg. protect. on | Activation of legionella protection.<br><br>See options B5 and B6. |
| Legionella prot. B1<br>No.B5 HWS tank 1<br>Legion. protect.<br>Set-Temperature 70°<br>Stand: 70° | Adjustment range: 10-75°C<br><br>A date and time for running the legionella protection heating program (T=70°C as set in B5) may be specified with parameter B6. Make sure to choose the heating period matching the charging times.<br><br>**Caution:** Make sure not to set the temperature level too high, so as to avoid long heating periods and risk of burning if warm water is let out. |
| Legionella prot. B1<br>No.B6 Start-End B1<br>Mo -- -- -- -- -- --<br>a. 17:00 c.00:00<br>b. 00:00 d.00:00 | |
| No.B7 HWS tank 1<br><No dist. pump><br>With dist.Heat. 1 | You may specify here, if there is a long distance heating pump. However, the distance heating pump will only work if one of it's associated pumps is running. |
| No.B11 HWS tank 2<br>available<br>< not available ><br>External pump<br>Dist. pump<br><br>on motherboard | The default setting for this option is "not available" for systems without a second hot water storage tank. If instead of a second tank an external pump or long distance heating pump is installed, this has to be specified here. Parameters B11 or C7 are available for the external pump or long distance heating pump, depending on which of the outlets is not in use.<br><br>Parameters B12 - B17 are not shown, if the "not available" option has been chosen |
| No.B21 HWS tank 3<br>available<br>< not available ><br>on Extens.module 1 | see HWS tank 1<br><br>This option is only available, if heating circuit module 1 has been installed. (if not, a fault will tell you that an extension module is not available)<br>Parameters B22 - B27 are not shown, if the "not available" option has been chosen |
| No.B31 HWS tank 4<br>available<br>< not available ><br>on Extens.module 1 | see HWS tank 1<br><br>This option is only available, if heating circuit module 1 has been installed (if not, a fault will tell you that an extension module is not available)<br>Parameters B32 - B37 are not shown, if the "not available" option has been chosen |
| No.B41 HWS tank 5<br>available<br>< not available ><br>on Extens.module 2 | see HWS tank 1<br><br>This option is only available, if heating circuit module 2 has been installed (if not, a fault will tell you that an extension module is not available)<br>Parameters B42 - B47 are not shown, if the "not available" option has been chosen |
| No.B51 HWS tank 6<br>available<br>< not available ><br>on Extens. Module 2 o | see HWS tank 1<br><br>This option is only available, if heating circuit module 2 has been installed (if not, a fault will tell you that an extension module is not available)<br>Parameters B52 - B57 are not shown, if the "not available" option has been chosen |
| No.B90 Access all<br>HWS temp.minimum<br>On 06:00<br>Off 22:00 | If during this time the temperature of the hot water storage falls below a specified level (default=40°C), it will be charged to that level, regardeless of the preset time program. |

# Comissioning settings

**Commissioning settings: simultaneously press the [+] and [-] buttons for 3 sec.**

```
No.C1 Pump select.
<Return shunt pump>
  not available
  ACC pump+1sens.
  ACC pump+2 sens.
```

3 available settings in accordance with the **HEATING SCHEME**

Return shunt pump: If the system is equipped with a pump between the flow and the return.

Not available: Meaning another return system is installed.

ACC pump + 1sens.: Necessary in case of a system according to buffer scheme HP3 including a buffer discharging control.

ACC pump + 2sens.: Necessary in case of a system according to buffer scheme HP4 including a buffer discharging and charging control.

```
No.C1a Return mixer
< not available >
 Return mixer+LD-P.1
 Return mixer+ACCPump
 Ret. mixer+Ret. Pump
```

The return mixer can be assigned to one of the pumps using this option (see heating scheme)

| | |
|---|---|
| <not available> | : a different return mixer system |
| Return mixer+LD-P.1 | : return mixer with a long distance pump |
| Return mixer+ACCPump | : return mixer with an ACC pump |
| RL-Mischer+RL-Pumpe | : return mixer with a return pump |

```
Nr.C1b Return mixer
Run-time mixer   90s
stand            90s
```

Adjustment Range: 10...300s

The actual mixer run-time - that is the period between closed and opened state - has to be adjusted here.

```
No.C2 ACC./alt.Heat
< not available >
  ACC + HWS integrated
  ACC+HWS external
  Alt. Heat solid
  Alt. Heat oil/gas
```

4 available settings in accordance with the HEATING SCHEME

Set to **not available** if neither a thermal buffer storage nor external heating are being used. (default)

set to **ACC + HWS** integrated if a buffer storage with an integrated hot water storage is installed. (internal heating coil or external heat exchanger)

set to **ACC+ HWS** external if a buffer storage with a separated hot water storage is installed. (set to ACC+HWS-int. if the buffer and hot water storage are connected with a differential control)

set to **Alt heat solid** if the alternative heat source is a solid fuel boiler.

set to **Alt heat gas/oil** if the alternative heat source is an oil/gas boiler.

```
No.C4 ACC loading
ACC
Set temperature  60°
Stand:           60°
```

Only shown if C1 is set to ACC pump + 2 sens.
Adjustment range: 20-80°C
In case of an ACC with 2 sensors, the buffer will always be charged to temperature set here. In this case C4=60°C, i.e. the lower temperature limit represented by sensor 2.

```
No.C5 ACC. Oblig.
Charging / Day clock
On  00:00  On  00:00
Off 00:00  Off 00:00
```

Used to specify a constrained charging period, during which the temperature specified in C4 will be held. Can be used to cover spike demands, for example in the morning. (e.g. 04:00 - 10:00).

```
No.C6  Boiler
ext. Heating Circuit
Set-Temperature   60°
Stand:            60 °
```

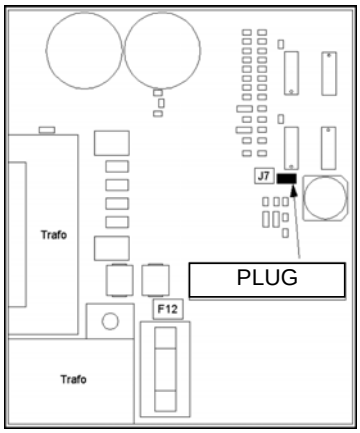
Adjusting range: 1°...84°
Set-point boiler temperature during times when the external heating circuit is active.

# Comissioning settings

**Commissioning settings: simultaneously press the [+] and [-] buttons for 3 sec.**

```
No.C7
 <Fault light      >
  External Pump
  Dist. Circ.pump 1
```

sketch plug :




By default this outlet is assigned to the fault light. Parameters B11 (HWS 2) or C7 (Fault light) are available for an external or long distance heating pump, depending on which is not in use

**1.Fault Light:** Is lit when any sort of error occurs.

**2.External HC Pump:**
(Remove plug J7 from the board, see scheme)
Using the port for "external heating circuit", the boiler will be heated until the temperature specified in C6 (default=60°C) is reached.
The pump for the external heating circuit will switch on when the boiler temperature matches the release value (L5), which is 50°C by default.

**3.Long distance heating pump:**
(Remove plug J7 from the board, see scheme)
The distance heating pump will operate when one of the heating circuit or HWS pumps assigned to "long distance circuit" are running.

**An "EXTERNAL HC" can be used without assigning a pump for it.**
To do so connect clamps 19 and 21 to the external contact point. When initially connected, the external HC display will come up automatically.

```
No.C8 external HC
 <no dist. pump>
  with dist.Heat. 1
```

Shows if the long distance heating pump is assigned to the external heating circuit.
The pump will only operate however, if one of the assigned pumps is running.

```
No.D1  Operat. mode
Direkt auger RAD
<single pt. suction>
direct auger
point suction
auger + Reservoir
```

**Used to choose between different modes of pellet loading**
= intermediate bin loaded manually
= intermediate bin loaded by extraction auger and suction turbine
= plant loaded by a direct extraction auger
= intermediate bin loaded using punctual suction
= intermediate bin directly loaded by the extraction auger

```
No.D2  Frost Protect.
Pump on below
Outside Temp.     1°
Stand:            1°
```

Value range: -30°...+20°
If the outside temperature falls below this value, all HC pumps will be started and and heating circuits with a mixer will be adjusted to the temperature specified in E2.

```
No.D3  Frost protect.
Flow-
Set-Temperature    7°
Stand:             7°
```

Value range: 1°...30°
If the mode switch is set to Off or HWS and either the flow temperature (in case of a heating circuit or mixer) or boiler temperature under-run this value by 3°C, the frost protection program will start automatically.

```
No.D4
  without Lambda
< with Lambda      >
```

Choose if the boiler will be operated with or without a lambda sensor. (This can be useful if the lambda sensor is defective)

```
No.D5  Changeover
Daytime temp.reduct.
On  06:00
Off 22:00
```

Specifies the times when changeover from day time to reduced temperature mode will be performed.

# Comissioning settings

**Commissioning settings: simultaneously press the [+] and [-] buttons for 3 sec.**

| | |
|---|---|
| No.D6 Access<br>De-ash/clean<br>On 06:00<br>Off 22:30 | Used to specify during which time de-ashing and automatic cleaning will be performed. (to avoid irritation by noise) |
| No.D7 HC 1-6 Summer<br>shutdown delay time<br>120min stand: 120min | Value range: 0...240 min<br>Summer shutdown: Heating will be shut down, if the outside temperature under-runs the corresponding value (Nr.11) for the duration specified here. Delay time = time before the temperature reduction phase starts. |
| No.D8 summer time<br>no switch over<br><autom.switchover> | Choose if summer time switchover should be performed automatically. |
| No.D9 Day/week time<br><day clock ><br>weekly clock<br>HC+HWS week clock | Choose whether a day clock or weekly clock are shown in the customer level interface. Use + and - to choose an option and confirm the setting with Enter.<br>**Day clock:** HCs and HWS set to day clock<br>**Weekly clock:** HCs set to weekly clock, HWS to daily<br>**HC+HWS week clock:** Both circuits set to weekly clock |
| No.D10<br>Number of blocks<br>Weekly clock 2<br>Stand: 2 | Value range 1...7<br>Choose how many different blocks for the weekly clock can be specified by the customer.<br>z.B.. HC1 using 2 blocks :<br>3a.Heating Circuit 1 — 3b. Heating Circuit 1<br>MO TU WE TH FR SA -- — --- --- --- --- --- --- SU<br>* 06:00 * 15:00 — * 06:00 * 00:00<br>) 09:00 ) 22:00 — ) 22:00 ) 00:00<br>Block a will be active monday to saturday from 6:00 to 9:00 and 15:00 to 22:00 while block b will be active on sundays from 6:00 to 22:00. The left and right keys are used to browse through the weekdays. Weekdays can be enabled with + and disabled with -. To choose between times, again use the left and right keys and perform adjustment of the values using + and -. Confirm settings with Enter. |
| No.E1 Language<br>< german ><br>french<br>italian<br>english<br>spanish | Specify your language here. |

**Finish by pressing the Standard button when adjusting all settings is done.**

# Description of Comissioning settings

## DESCRIPTION OF CONTROLS

### CHARGING OF THE HWS TANK

Charging of the hot water storage (HWS) will only be active when the mode switch is set to HWS or Auto and the respective HWS has been set to "available" in the commissioning level settings. Furthermore there is a distinction between normal charging during the specified period and minimum charging. During normal mode, charging will be controlled and started when the set temperature (default = 60°C) taking into account a certain tolerance range (zB. : 60-6=54°C) is being under-run. It makes sense to charge the HWS only once a day, eg. to choose a charging time in the morning or evening. If it turns out that a single charging cycle does not cover the hot water demand, additional cycles should be added. The minimum charging will however avoid that no warm water is available by starting HWS charging when the minimum temperature set-point (default = 40°C) is being under-run. Moreover, charging will be started in chimney sweep mode and will be inactive during

### LEGIONELLA PROTECTION

If the legionella protection program is active, day and temperature levels for every HWS can be defined separately, using the paramater "legionella protection". By default legionella protection at a temperature of 70°C will be performed on mondays at 17:00. Make sure not to set the temperature level too high, to avoid long heating periods and risk of burning if warm water leaks from the HWS.

### HEATING CIRCUIT CONTROL

Heating circuit control will only be active in "Auto" mode when the respective heating circuit has been set to "available" in the commissioning level settings. Several different modes (heating, reduced temperature, off) will be run depending on the outside temperature, the necessity of frost protection and the time programs specified in the commissioning settings. In addition to that all, heating circuits will be active in chimney sweep mode and will be inactive during holiday periods.

# Description of Comissioning settings

**Heating:** In this mode the flow temperature will be calculated based on the oustide temperature, desired room temperature in heating mode and inclination (see flow temperature calculation). The boiler will perform heating until the calculated temperature has been reached. In case of a heating circuit with a mixer the set-point will be raised by a certain amount. (default=10°C)

**Reduced Temperature:** In this mode the flow temperature will be calculated based on the outside temperature, desired room temperature in reduced temperatur mode and inclination.

**Changeover from heating to reduced temperature:** In this mode the flow temperature will be gradually reduced from heating mode to reduced temperature mode.

**Outside temperature shutdown:** There are three different modes for outside temperature shutdown, depending on the active heating program and the time.

During heating mode, heating will be stopped, when the averaged outside temperature exceeds the set-point specified as no. 11=16°C.

During daytime reduced temperature mode, heating will be stopped when the averaged outside temperature exceeds the set-point specified as no. 12=8°C.

During nightime reduced temperature mode, heating will be stopped when the averaged outside temperature exceeds the set-point specified as no. 13=-5°C. aus. Summer shutdown:

Even if the averaged outside temperature falls below the set-point for summer shutdown, heating will only be restarted, if the limit is under-run for a specified time (D7=120min)

## DAYTIME ROOM TEMPERATURE

(Customer settings No.4,7, H4, H7, H14,H17 ) This display is used to adjust the desired day time room temperature between 14 and 26°C. The centre position means a set-point of 20°C. To allow for a consistent room temperature - regardless of the outside temperature conditions - an accurate adjustment of the heating characteristics and appropriate dimensioning of the heating system in accordance with the underlying heat demand calculation are needed.This set-point is valid for directly controlled heating circuits and additional mixed circuits. Adjustments of this set-point should only be carried out in small steps and after an interval of 2-3 hours.

Default setpoint = 20°C

# Description of Comissioning settings

## REDUCED TEMPERATURE SET-POINT

(Customer settings no.5, 8, H5, H8, H15 and H18) These displays can be used to adjust the desired room temperature during reduced temperature mode. Values may range between 8 and 20°C. To allow for a consistent room temperature - regardless of the outside temperature conditions - an accurate adjustment of the heating characteristics and appropriate dimensioning of the heating system in accordance with the underlying heat demand calculation are needed. The reduced temperature set-point is valid for directly controlled circuits as well as additional mixed circuits. It is important that adjustments of this value are performed stepwise and over along period.

## EXCESS HEAT FUNCTION

When heating circuits are inactive, the boiler will be shutdown, while pumps and mixers will continue to operate to ensure that excess heat will be utilized until the limit set as M2=40°C is being under-run.

## HOT WATER STORAGE PRIMACY

During HWS charging the HWS will be prioritised, resulting in a reduction of the heating circuit's temperature set-point. When charging is finished, the heating circuit's temperature set-point will be reset to its previous value.
This however only applies for mixed circuits. In the case of a pumped circuit, the pump will simply be inactive during charging.

## HOLIDAY SHUTDOWN

Available settings for holiday shutdown (no.15) are "inactive", "frost protection" and "reduced temperature". If holiday shutdown is enabled and the specified date and time (no.16) are reached, all heating circuits will operate according to the chosen program ("frost protection" or "reduced temperature") during the set period.

## HEATING CIRCUITS AND OVER-TEMPERATURE

If the boiler temperature exceeds the safety limit specified as (M1=90°C), all heating circuits will be activated and operated in accordance with an outside temperature (M1a) of -10°C. This temporary mode of operation is necessary to remove the excess heat from the boiler. As a result the blinking text "safety control" will be shown in the topmost line of the display.

# Description of Comissioning settings

## FROST PROTECTION FUNCTION

The frost protection function will be enabled when the outside temperature falls below the limit specified in D2=1°C. As a result, heating circuit pumps will be switched on. If the boiler or flow temperature fall below the limit D3=7°C, the boiler will be activated.

## BLOCKING PROTECTION

To prevent blocking, heating circuits pumps will be activated and mixers will be opened for one minute on monday at 12:00.

## FLOOR DRY-OUT

The procedure will be discribed for Heating circuit 1 (Note that other HCs correspond to different parameters).

To initially start the dry-out program, the corresponding parameter A9 (Floor dry-out on/off) must be set to "ON". Then the initial and terminal temperature set-point for the flow temperature has to be specified as parameter A9a (flow setp.start/stop=20°C). After the period specified in A9c (Incr./Reduce=daily) has expired, the flow temperature will be raised by the amount A9b (Flow setp. increase=5°C). When the maximum temperature as set in A9d (Flow set point max.) has been reached, the temperature will be held for the period specified in A9e (Flow set point max. stop time). After that, the flow temperature will be reduced by the amount specified in A9f (Flow setp.reduct.=10°C) according to the period specified in A9c (Incr./Reduce=daily) until the temperature A9a (flow setp.start/stop=20°C) is reached. The heating circuit will then take up normal operation and automatically set A9a to "Off".

## REMOTE CONTROL FR 25

**with room sensor**

Connect using clamps 1 and 2

In addition to the actual sensor this remote control is equipped with a a rotation disk that allows fine adjustment of the room temperature set-point by +/- 2-3°C. The mode switch can be used to choose between the functions "permanent day time mode", "permanent reduced temperature mode" or "automatic".

**Caution:** The remote control type has to be specified in the commissioning level settings.

# Description of Comissioning settings

**Site of installation**

Note that the site of installation must be carefully chosen. It's important that the remote control is not directly exposed to sunlight nor in an area affected by breeze. Furthermore the control should not be close to a fireplace or radiator to ensure that the temperature measured by the sensor is representative of the actual room temperature. It makes sense to install the remote control in the room that is used most commonly (like the living or dinning room). However the room must not contain additional heating devices (like a tile stove). If there is a radiator with a thermostat valve, it must be adjusted to a higher temperature than the set-point in the control, to avoid an influence on the room sensor. (Such an influence could lead to temperature changes in the flow and ultimately to other rooms being warmer or colder than expected) However radiators in all other rooms except the one where the remote is installed should have a thermostat valve.

## REMOTE CONTROL FR 25

**without room sensor**

Connect using clamps 1 and 3

In addition to the actual sensor this remote control is equipped with a a rotation disk that allows fine adjustment of the room temperature setpoint by +/- 2-3°C. The mode switch can be used to choose between the functions "permanent day time mode", "permanent reduced temperature mode" or "automatic".

Caution: The remote control type has to be specified in the commissioning settings.

**Site of installation**

If clamps 1 and 3 are used, the room sensor is inactive. Therefore the remote control can be installed in any room. Radiators should be equipped with thermostat valves.

**Remote control fixing:**

The remote control should be fixed on the same level as lightswitchs are. To do so remove the front button, loosen the screw and take off the casing.

**Fault light:**

The remote control is fitted with a red LED that can be connected with the boiler. It will then show any error or alert that may occur.

**Connection:**

2-pin cable (2 x 0,75) with fault light LED
4-pin cable (4 x 0,75) without fault light LED
(Clamps: 4=plus und 5=minus)

# Description of Comissioning settings

## DIGITAL REMOTE CONTROL FR30

The digital remote control can be used for remote control from a neighbouring building or installed directly in the living space. (there is no room sensor). A maximum of one FR 30 can be used per boiler, while there can be up to two FR 30s per heating circuit module. (Connected with the CAN-Bus) The handling is in accordance with the boiler's control and the same options for programming heating circuits, manual testing and assigning the mode switch to a heating circuit are available.

**Mode switch:**
"HEATING" means permanent day time operation
"REDUCED TEMPERATURE" means permanent reduced temperature mode
"AUTO" means operation following the time program
"OFF" means that the heating circuit is shut down
(the frost protections is active nevertheless)

**Caution:** The remote control type has to be specified in the commissioning settings.

**Site of installation:**
The remote control can be installed in the heating room (neighbouring building containing the heating circuit module) or directly inside the living space (there is no room sensor).

## EXTENSION MODULES 1 AND 2

To extend both the heating and boiler circuits, up to two extension modules can be connected. The modules are connected to the boiler's board using BUS cables (CAN-BUS). The extension module's adress switch has to be set to 1, which is the default setting. (extension module 1 = HC 3+4 and boiler circuit 3+4)

# Description of Comissioning settings

## BUFFER CONTROL

**Solar buffer control HP1 with integrated hot water storage:**

The buffer tank is only heated by the solar collector and not by the boiler. First of all it is checked if the solar buffer contains enough heat to cover the flow's assesed demand. If that is the case, the HC valve is brought to the A - AB position (buffer operation), until the temperature falls below the HC set-point. As soon as this happens, the boiler is restarted and the HC valve is reset to the B - AB position (boiler operation). The temperature of the HWS is checked during charging periods and heating is applied by the boiler if needed. During HWS charging cycles, the HWS charging pump will also bring the buffer valve to the A - AB position. The buffer tank is only charged in the area of the HWS, while the remaining area is reserved for the solar heating system.

**Parameter setting:** C2 set to " Buffer HWS int. "

**Solar buffer control HP2 with external boiler**

The thermal buffer storage is only loaded by the solar collector. First of all it is checked if the solar buffer contains enough heat to cover the flow's assesed demand. If that is the case, the HC valve is brought to the A - AB position (buffer operation), until the temperature falls below the HC set-point. As soon as this happens the boiler is started again and the HC valve is reset to the B - AB position (boiler operation). The temperature of the HWS is checked during HWS charging time and heating is applied if needed. A differential regulation is needed to allow for HWS charging from the solar buffer.

**Solar buffer regulation HP3 with integrated or external boiler**

The thermal buffer storage is heated by a solar collector and a boiler. The heating circuits will drain heat from the buffer until the buffer temperature falls below the heating circuit temerature limit. As a result heating will be turned on and the buffer storage will be charged. In the case of an external boiler a differential regulation will be needed to allow for boiler loading from the solar buffer.

**Parameter setting:** set to

C2 set to " Buffer HWS int." and no.C1 auf "ACCpump+1sens."

C2 set to " Buffer HWS ext." and no.C1 auf "ACCpump+1sens."

# Description of Comissioning settings

**Solar buffer control HP4 with integrated or external boiler**

The boiler will charge the thermal buffer storage until the temperature set-point specified in no. C4 = 60°C is reached (sensor 2). Upon reaching this limit the pellet boiler will shut down and excess heat mode will be activated. The heating circuits will drain heat from the buffer until the specified temperature limit is under-run (sensor 1). The plant will be restarted and the buffer storage will be recharged. In addition the HWS temperature will be checked and charging cycles will be applied if necessary. A differential regulation is needed to allow charging of an external boiler using the buffer storage. Charging the HWS will also lead to the buffer storage being loaded up to the limit specified by sensor 2.

**Constrained charging:**

Can be used to cover spike demands or selectively charge the thermal storage. Parameter no.C5 is used to specify an interval (this could be 06:00-10:00) during which constrained charging will be performed. Charging will be performed up to the limit specified by sensor 2. (no.C4=60°C)

**Parameters:** set to

No.C2 set to " Buffer HWS int. " & no. C1 auf " ACCpump
No.C2 set to " Buffer HWS ext. " & no. C1 auf " ACCpump

## Summer time bathroom heating

(with a solar solar buffer tank)

This program allows to heat bathrooms (by the means of floor heating or radiators) solely with heat from the solar buffer. To allow this, the mode switch must be set to "HWS" and the corresponding heating circuit's parameter "Summer time bath heating" must be set to "ON".

## EXTERNAL HEATING SOURCE SOLID FUEL OR OIL/GAS

**Solid fuel:** Check whether the external heating source has reached it's temperature set-point (O10=60°C). If that is the case, the HC valve will be brought to the A - AB position (external heating mode) while the pellet boiler is shut down. In external heating mode, the mode switch position "Auto" will activate all heating circuits as well as the HWS circuit, while "HWS" will only activate the HWS circuit. As soon as the external heating circuit's temperature underruns the set-point temperature minus tolerance range No.O11=2°C (60-2 = 58°C), the pellet boiler will be restarted after the period specified in No.O12=15min has expired. According to that, the HC valve is brought back to the B - AB position (boiler operation). The mixer control will react based upon the averaged outside temperature, unless a safety temperature level (M1=83°C) is being over-run. In that case the outside temperature will be temporarily set to M1a=-10°C.

# Description of Comissioning settings

**Oil/gas:** Generally speaking the procedure corresponds with what has been said for solid fuels whereby the control will however work in accordance with the usual timed and outside temperature shutdown programs.

**Flue gas temerature monitor:** Should both boilers be connected to the same chimney, the pellet boiler will be shut down by the external boiler's flue gas temperature monitoring system (connected to clamps 86 and 87). The HC valve will however remain in the B-AB position (pellet boiler) until the external source takes over. The rest of the

## EXTERNAL HEATING CIRCUIT

Clamps 19 and 21 have to be connected with the external contact point (potential-free), if an additional external heating circuit is needed. Upon first connection the customer setting display for external heating circuits will be automatically brought up. If an external pump is needed, it can either be assigned using the comsissioning level parameter B11 (if HWS 2 or a distance heating pump are not needed) or C7 (if a fault light is not needed).

The boiler's temperature set-point - while the external heating circuit is active - can be set in commissioning level setting C6 (default=60°C). If an external pump is assigned and this value has been adjusted, it is necessary to also adjust the external pump's release temperature parameter L19 (service-settings, default=64°C). This value should be approximately 5-10°C lower than the boiler's temperature set-point.

# Installateur-Einstellungen

## EXTERNAL SENSOR

The external sensor should be installed at about one third of the total building height (however at least 2 meters above the ground) and on the coldest side of the building (north or north-east side). Note that any source of heat (from a chimney, direct sunlight, etc.) could lead to wrong temperature values and must therefore be thoroughly avoided. Also make sure that the cable outlet is directed towards the ground to prevent water from intruding into the sensor. Use a 2-wired cable for the electrical installation. (for the minimum diameter see the connection scheme)

## BOILER-, HOT WATER TANK SENSOR

**FLOW-, BUFFER-, EXT. HEATING- SENSOR**
**(depending on the heating scheme)**

All of the sensors are immersion sensors, connected with cast on cables. An immersion sleeve is available for the hot water tank-, buffer- and ext. heating sensors. The flow sensor should be placed 50 after the circulation pump. The sensor can be tightly attached using the included brass casing and tightening strap. Before attaching the casing, apply the included heat-conductive paste to the contact point. Furthermore, make sure to avoid buckling of the sensor cables. If the cables are too short, you can extend them (for minimum diameters see the connection scheme).

**Resistance values**

| **Boiler sensor**<br>**Hot water storage sensor**<br>**Flow sensor**<br>**Return sensor** | | Remote Control FR25 |
|---|---|---|
| in °C | in Ohm | resistances measured in Automatic mode (clock symbol) with the switch in middle position should be in the range of 3340 - 3650 Ohm. (independent from the room temperature) |
| -20 | 922 | |
| -10 | 960 | |
| 0 | 1000 | |
| 10 | 1039 | |
| 15 | 1058 | |
| 20 | 1077 | |
| 25 | 1097 | |
| 30 | 1116 | |
| 35 | 1136 | |
| 40 | 1155 | |
| 45 | 1174 | |
| 50 | 1193 | |
| 55 | 1213 | |
| 60 | 1232 | |
| 65 | 1252 | |
| 70 | 1270 | |
| 75 | 1290 | |
| 80 | 1309 | |
| 85 | 1328 | |
| 90 | 1347 | |
| 95 | 1366 | |
| 100 | 1385 | |

## CHIMNEY SWEEP BUTTON

This is a button that allows the chimney sweeper to manually turn on and shut down the boiler when performing an emission check.

Operating with this button disables all the other programs. Heating will be performed with full load and assuming a very low outside temperature while the heating circuits distribute as much heat as possible. To allow this, control- and thermostat valves have to be opened manually. This function will automatically terminate after 2 hours.

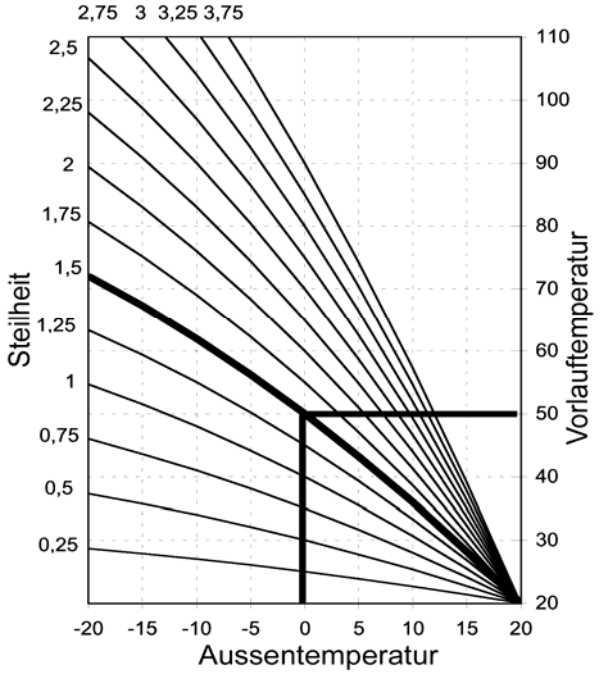
## SAFETY THERMOSTAT CHECK

All heating circuit and boiler pumps are inactive during this check. Press the TÜV-button until the safety thermostat is being cut out.

# Comissioning settings

## Heating characteristics
### (Inclination)

The proportion between a change of flow temperature and a change of outside temperature is given by the heating characteristics and can be separately adjusted for every heating circuit. The curves in the left chart are based on the assumption of a room temperature set-point of 20°C (and assume that the remote control's switch is in middle position). For different room temperature set-points the curves can be shifted in parallel.




For example:
An assumed HC with the following characteristics:
Inclination: 1,5
Room temperature setpoint: 20°C
Outside temperature: 0°C
Boiler is in heating mode
Applying the characteristics for this example leads to a flow temperature of 50°C.

Adjustments of the heating characteristics must only be carried out in small steps and over a long period.

An accurate adjustment of the heating characteristics will lead to a constant room temperature (at the set-point level) that is unaffected by the outside temperature.

**Reduced temperature mode:**
During reduced temperature operation the HC pump will remain active in accordance with the scheduled program. The flow temperature will be assessed using reduced heating chracteristics (which correspond to the lowered temperature level). However, the minimal flow temperature set-point will not be undercut.

**Economy mode:**
If the outdoor temperature exceeds the set-point values specified in no.12 and no.13 during reduced temperature operation, all heating circuits will automatically be shut down. Reduced temperature mode is subdivided in day time and night time mode and both phases can be specified separately.
1. A time for the change from day time to night time has to be specified in D5.
2. Outside temperature levels for automatic shutdown can be separately specified for day and night. Shutdown will be performed when the temperature level (no.11) is reached.

**Remote control FR25 not installed**
The desired room temperature can be specified separately for each HC in the customer settings.

**Remote control FR25 installed**
There are two modes of operation:

<u>With a room sensor</u>
The actual room temperature will be automatically adjusted to match the set-point. In addition the temperature can be manually adjusted by 2-3°C using the rotation disk on the remote control.

<u>Without a room sensor</u>
This mode must be chosen if the room contains an additional heat source (such as a tiled stove). Again the temperature can be manually adjusted by 2-3°C using the rotation disk on the remote control.

# Trouble-shooting description

**Disconnect the polarity proof connector plug befor solving Trouble shooting**

| Report no. | Origin | Reason/Problem | Solution (when done solving the problem push the Enter button) |
|---|---|---|---|
| Display is blank | and none of the green lights on the I/O board are lit | Fuse F16 is broken or connection (clamps1,3) could be interrupted; level indicator or STB defective. | Change fuse F16 (see the according scheme) or check the connection at clamps 1 and 3; check level indicator and STB connections! |
| - " - | and green light H3 is not lit (while H4-H6 are) | Fuse F10 or control panel are broken | Change fuse F16 (see the according scheme), check the ribbon cable that connects the board and the control panel, contact the service department if those measures can't remove the problem. |
| - " - | and green light H3 is glowing | Ribbon cable isn't correctly connected or control panel is broken. | Check the ribbon cable or replace the cable or the control panel; |
| - " - | 2 black bars that are displayed | EPROM is missing or plugged in incorrectly, control panel is broken | Plug in an EPROM at the backside of the control panel (according to the scheme on the guard plate) ; replace EPROM if it was plugged in incorrectly or replace the control panel; |
| - - - - | Display light not lit | Display light is broken | Contact the service department, replace the control panel; |
| - - - - | Fault light doesn't work | Fuse F17 destroyed by short circuit or fault light not connected | fix the short circuit; correctly connect D40 or fault light; |
| 001 | Safety thermostat (STB) | Over temperature at boiler or STB connection jammed | Cool down the boiler below 90°C; remove STB protection cap and press the button, else have STB connection checked by an electrician; (short term emergency operation is possible, see "operation without hardware test" at the end of error description) |
| 002 | Overcurrent stoker auger | Combustion chamber jam-packed, stoker auger clogged with slag or debris jamming rotary gate valve | While mode switch is set to "Manual"<br>- open the pusher grate (no.2) and where required, remove jammed debris or slag;<br>- check stoker auger, if the motor doesn't work correctly there most likely is debris stuck in the rotary gate valve; unscrew lid and remove pellets and debris;<br>-contact the service department if the motor still doesn't work properly; |
| 003 | Overcurrent extraction auger | Extraction auger motor not connected properly or defective (Capacitor);<br>Extraction auger jammed (water or humidity in the storage room); Level indicator defective or not adjusted properly;<br>Debris stuck in the extract auger;<br><br>If there is a pellet suction turbine, a jammed or defect turbine may be the origin of the problem. | Unscrew the extraction auger's maintainance lid and remove jammed pellets, check the storage room for water leaks or humidity; try to run the motor in both directions while the mode switch is set to "Manual"; Check the auger's direction of rotation by pressing the + and - buttons. If no jammed parts can be found, check or replace the motor and capacitor;<br>While the mode switch is in "Manual" position and either display no.7 or no. 7a is shown, check the level indicator and it's orange diode as follows:<br>- if the display shows "empty" and the level indicator diode is lit while the intermediate bin is jammed, replace the level indicator;<br>If there is a suction turbine, perform the following steps while in "Manual" mode:<br>- briefly rotate extract auger (no.6) backwards, remove both hoses, remove jammed material and empty the hoses;<br>- start the suction turbine (no.5) and check it for free pass, where required clean the turbine;<br>Contact the service department if you find brown deposits. |
| 004 | Thermal protection extraction auger | Extraction auger rough-running, jam-packed or jammed by debris; auger motor (capacitor) defective. | Treat like error no. 003; indication for this fault if the motor has been rough-running for a while orerror no. 003 occurs repeatedly. |
| 005 | Pusher grate rough-running | Pusher grate rough-running | Empty ash box - then press Enter. Run ash removal by pushing the + button while display no.3 is shown in "Manual mode". Then use the + and - buttons to check if the pusher grate is working properly while display no.2 is shown in "Manual mode" (the current must not excceed 1,2A), otherwise contact the service department; |
| 006 | Overcurrent pusher grate | Pusher grate jammed | see no. 005 |
| 007 | Pusher grate won't open | Neither the open end position nor the closed end position have been correctly reached. | In "Manual" operation mode check if the pusher grate can be fully opened/closed using the +/- buttons;  If it can't, contact the service department; |
| 008 | Pusher grate won't close | The closed end position hasn't been reached correctly (while the open end position has). | see no. 007 |
| 009 | Overcurrent cleaning device | Cleaning device is rough-running | In "Manual" operation mode, check if the cleaning device is rough running. If the current is close to or above 5A contact the service department; |
| 0010 | Flue gas sensor connected incorrectly | Reverse polarity (can only happen when commissioning the boiler) or I/O board defective. | Have connection polarity checked by an electrician, else replace the sensor or the I/O board; |
| 0011 | Flue gas sensor interrupted | Sensor not connected or connection interrupted. | Connect sensor or replace connection; check clamps and make sure that plugs 74 and 75 are connected firmly, else replace sensor or I/O board; |

**After correction of defects, Press ENTER !**

# Trouble-shooting description

**Disconnect the polarity proof connector plug befor solving Trouble shooting**

| Report no. | Origin | Reason/Problem | Solution (when done solving the problem push the Enter button) |
|---|---|---|---|
| 0012 | Boiler sensor short circuited | Sensor or connection short circuited. | Have sensor and connection checked by an electrician (see resistance values in chapter commissioning settings); replace the sensor with another sensor, if there's a different error replace the sensor. If the same erroris shown, replace the I/O board; |
| 0013 | Boiler sensor interrupted | Sensor not connected or connection interrupted. | Connect sensor, or change connection/check clamps, make sure that clamps 72-73 are connected firmly; replace the sensor with another sensor, if there's a different error replace the sensor. If the same fault is shown, replace the I/O board; |
| 0014 | HWS tank sensor short circuited | Sensor or connection short circuited. | see no. 0012; this error can be bypassed by pressing Enter, however it will remain on the display to remind the customer that it needs to fixed; |
| 0015 | HWS tank sensor interrupted | Sensor not connected or connection interrupted. | see no. 0012; this fault can be by passed by pressing Enter, however it will remain on the display to remind the customer that it needs to fixed; |
| 0016 | Outside sensor short circuited | Sensor or connection short circuited. | see no. 0012 and no. 0014 |
| 0017 | Outside sensor interrupted | Sensor not connected or connection interrupted. | see no. 0013 and no. 0015 |
| 0018 | Flow sensor HC1 short circuited | Sensor or connection short circuited. | see no. 0012 and no. 0014 |
| 0019 | Flow sensor HC1 interrupted | Sensor not connected or connection interrupted. | see no. 0013 and no. 0015 |
| 0020 | Flow sensor HC2 short circuited | Sensor or connection short circuited. | see no. 0012 and no. 0014 |
| 0021 | Flow sensor HC2 interrupted | Sensor not connected or connection interrupted. | see no. 0013 and no. 0015 |
| 0022 | Remote control HC1 short circuited | Remote control or connection short circuited. | see no. 0012 and no. 0014 |
| 0023 | Remote control HC1 interrupted | Remote control not connected or connection interrupted. | see no. 0013 and no. 0015 |
| 0024 | Remote control HC2 short circuited | Remote control or connection short circuited. | see no. 0012 and no. 0014 |
| 0025 | Remote control HC2 interrupted | Remote control not connected or connection interrupted. | see no. 0013 and no. 0015 |
| 0026 | Ignition time over-run | The flue gas temperature rise didn't exceed the set-point value specified in P11 during the period specified in P5 (in the the service department level settings); Reason may be that there is insufficient fuel supply, the ignition is defective, th flue gas sensor isn't situated in the flue gas tube or that the combustion chamber contains too much ash or slag. | While in "Manual" operation mode check if:<br>- the stoker auger (no.4) is running smoothly and delivering pellets<br>- the ignition device (no.7) is working properly<br>- the pusher grate (no.2) can be opened and closed completely<br>- the combustion chamber is clogged with slag<br>- the flue gas sensor is installed correctly |
| 0027 | Flue gas temperature under-run | While firing, the flue gas temperature under-runs the temperature specified in K8 during the period specified in K7 in the the service department level settings Reasons may be that there is too little or no fuel at all, that there is too much ash or that the burning chamber is clogged with slag. | While in "Manual" operation mode check if:<br>- the stoker auger (no.4) is running smoothly and delivering pellets<br>- the pusher grate (no.2) can be opened and closed completely<br>- the combustion chamber is clogged with slag<br>- the flue gas sensor is installed correctly |
| 0028 | Allowed CO2 stop time overrun | contact error of the lambda sensor, lambda sensor or I/O board defective. | Lambda sensor is dirty, clean the lambda sensor and check its function in "Manual" operation mode (no.34); have clamps and plugs checked by an electrician, otherwise replace the lambda sensor; the boiler can be run without a lambda sensor (commissioning settings, D4) until the sensor has been replaced; |
| 0029 | Combustion malfunction | Combustion failed due to missing fuel supply; ignition doesn't work. | Firing can't be started; See combustion malfunction no. 0029 at the end of the error description; |
| 0030 | Batteries empty, change batteries | Batteries powering date/time memory are close to being empty. | Change batteries during operation to avoid loss of the date and time setting; When changing batteries while the boiler is shut down, you have to redo the time/date settings. Other settings, however, won't be lost; |
| 0031 | Lambda sensor defective | Contact error of the lambda sensor, lambda sensor or I/O board defective. | see no. 0028; this error can only occur in "Manual" mode after checking (no.34) or calibrating (no.60) the sensor; |
| 0032 | Maximum time for filling over-run | Pellet delivery not working properly. | Check pellet transport from the storage room; make sure that the storage room contains enough pellets, else remove the extraction auger's maintenance lid and check if the auger is delivering pellets; check if bridging occured inside the storage room; |
| 0033 | Cleaning device not in rest position | The cleaning device's motor doesn't return to its rest position; the motor could be connected incorrectly or the I/O board could be defective. | Connect the motor correctly (plugs 29-32) or check the connection between the motor and the I/O board; contact the service department personell if you ca fix the problem on your own or replace the motor or I/O board; |

**After correction of defects, Press ENTER !**

# Trouble-shooting description

**Disconnect the polarity proof connector plug befor solving Trouble shooting**

| Report no. | Origin | Reason/Problem | **Solution** (when done solving the problem push the Enter button) |
|---|---|---|---|
| 0034 | Buffer sensor 1 / Ext. Heat sensor short circuited | Sensor or connection short circuited. | see no. 0012 and no. 0014 |
| 0035 | Buffer sensor 1 / Ext. Heat sensor shortinterrupted | Sensor not connected or connection interrupted. | see no. 0013 and no. 0015 |
| 0036 | Buffer sensor 2 short circuited | Sensor or connection short circuited. | see no. 0012 and no. 0014 |
| 0037 | Buffer sensor 2 interrupted | Sensor not connected or connection interrupted. | see no. 0013 and no. 0015 |
| 0038 | Over current pusher grate | Pusher grate rough-running | In "Manual" operation mode check if the pusher grate is rough-running by pressing the + and - keys; Contact the service department if the current exceeds 0,9A; |
| 0039 | HWS tank sensor 2 short circuited | Sensor or connection short circuited. | see no. 0012 and no. 0014 |
| 0040 | HWS tank sensor 2 interrupted | Sensor not connected or connection interrupted. | see no. 0013 and no. 0015 |
| 0041 | Over current ash removal motor warning | Ash box almost full or ash removal auger rough-running | Empty ash box and check if the ash removal motor is rough-running; ("Manual" operation mode, no. 3a) |
| 0042 | Over current ash removal motor | Ash box jam-packed or ash removal auger jammed by debris. | Empty ash box and check if the ash removal motor is rough-running. ("Manual" operation mode, no. 3a) If that is the case, remove and clean the ash remo motor and the ash removal area; when unsuccessful, contact the service department; |
| 0043 | Ash removal motor not connected | Ash removal motor not connected or motor or I/O board defective. | Make sure the ash removal motor is connected correctly and that the plugs are firmly connected; If that doesn't fix the error, contact the service departmen replace the motor or I/O board; (short term emergency operation is possible, see "operation without hardware test" at the end of fault description) |
| 0044 | Ash box lid open | Ash box was opened when the ash removal motor started. | Check whether the ash box and its lid are positioned properly or have the end switch lid (cables and clamps) checked by an electrician; Call the service department or change I/O board if all of the above fails; (short term emergency operation is possible, see "no hardware test" at the end of error description) |
| 0045 | Return temperature not reached | The return's minimum limit has been undercut for more than 60 minutes. The return mixer might be defective or too small. The first and second time this error occurs there will be a warning. If it occurs a third time, the boiler will be shut down. | Check the position of the return sensor (see heating scheme); replace the return pump or replace it with a larger pump. Check the function of the return mixer (if there is one); Contact a fitter; CAUTION: This problem might affect the life cycle of your boiler! |
| 0046 | Return sensor short circuited | Sensor or connection short circuited. | see no. 0012 and 0014 |
| 0047 | Return sensor interrupted | Sensor not connected or connection interrupted. | see no. 0013 and 0015 |
| 0062 | GSM-module interrupted | Ribbon cable or GSM-connection or power supply interrupted. | Check the ribbon and GSM- cable and replace where required; Check the power supply (230VAC) or replace the GSM module; |
| 0063 | GSM-module, internal error | Internal connection between the GSM-control module and GSM-sending module defective. | Check connection or replace the GSM module; |
| 0064 | GSM-module, SIM card missing | The sending module doesn't contain a SIM card or the PIN query hasn't been removed. | Insert a SIM card or disable the PIN query; |
| 0065 | GSM-module, no signal | The GSM-module couldn't send a text message because the SIM card's credit is depleted or a connection to the the service department provider could not be established. | Recharge your SIM card or have it unlocked by the service provider; use a mobile phone from the same service provider to test if you can get a signal. Also try repositioning or extending the antenna; |
| 0066 | GSM-Modul, wrong software version | The Eprom-software of the GSM module and the boiler control unit don't match | Replace the GSM-module or update the software accordingly; |
| 0067 | Incorrect parameters | Internal error in the parameter memory. | Check parameters, and make adjustments where necessary; change the boiler control unit if the error persists despite the changes; |
| 0100 | Data transmission EM 1 | No connection with extension module 1. | Set the extension module's adress switch to "1"; check HC's connection and bus wiring as well as fuse F23 (see board scheme); replace extension module 1; |
| 0101 | ADC-Fault in EM 1 | Extension module 1 thermometry defect. | Replace extension module 1; |
| 0102 | Zero-point error ext. module 1 | Control of outlets in extension module 1 defect | Replace extension module 1; |

## After correction of defects, Press ENTER !

# Trouble-shooting description

**Disconnect the polarity proof connector plug befor solving Trouble shooting**

| Report no. | Origin | Reason/Problem | Solution (when done solving the problem push the Enter button) |
|---|---|---|---|
| 0103 | HWS tank sensor 3 short circuited | Sensor or connection short circuited. | see no.0020 - 0031 |
| 0104 | HWS tank sensor 3 interrupted | Sensor not connected or connection interrupted. | see no.0020 - 0031 |
| 0105 | HWS tank sensor 4 short circuited | Sensor or connection short circuited. | see no.0020 - 0031 |
| 0106 | HWS tank sensor 4 interrupted | Sensor not connected or connection interrupted. | see no.0020 - 0031 |
| 0107 | Flow sensor 3 short circuited | Sensor or connection short circuited. | see no.0020 - 0031 |
| 0108 | Flow sensor 3 interrupted | Sensor not connected or connection interrupted. | see no.0020 - 0031 |
| 0109 | Flow sensor 4 short circuited | Sensor or connection short circuited. | see no.0020 - 0031 |
| 0110 | Flow sensor 4 interrupted | Sensor not connected or connection interrupted. | see no.0020 - 0031 |
| 0111 | Remote control HC3 short circuited | Remote control or connection short circuited. | see no.0020 - 0031 |
| 0112 | Remote control HC3 interrupted | Remote control not connected or connection interrupted. | see no.0020 - 0031 |
| 0113 | Remote control HC4 short circuited | Remote control or connection short circuited. | see no.0020 - 0031 |
| 0114 | Remote control HC4 interrupted | Remote control not connected or connection interrupted. | see no.0020 - 0031 |
| 0120 | Data transmission EM 2 | No connection with extension module 2. | Set the extension module's adress switch to "2"; check HC's connection and bus wiring as well as fuse F23 (see board scheme); replace extension module 2; |
| 0121 | ADC-error in EM 2 | Extension module 2 thermometry defect | Replace extension module 2; |
| 0122 | Zero-point error ext. module 2 | Control of outlets in extension module 1 defect | Replace extension module 2; |
| 0123 | HWS tank sensor 5 short circuited | Sensor or connection short circuited. | see no.0020 - 0031 |
| 0124 | HWS tank sensor 5 interrupted | Sensor not connected or connection interrupted. | see no.0020 - 0031 |
| 0125 | HWS tank sensor 6 short circuited | Sensor or connection short circuited. | see no.0020 - 0031 |
| 0126 | HWS tank sensor 6 interrupted | Sensor not connected or connection interrupted. | see no.0020 - 0031 |
| 0127 | Flow sensor 5 short circuited | Sensor or connection short circuited. | see no.0020 - 0031 |
| 0128 | Flow sensor 5 interrupted | Sensor not connected or connection interrupted. | see no.0020 - 0031 |
| 0129 | Flow sensor 6 short circuited | Sensor or connection short circuited. | see no.0020 - 0031 |
| 0130 | Flow sensor 6 interrupted | Sensor not connected or connection interrupted. | see no.0020 - 0031 |
| 0131 | Remote control HC5 short circuited | Remote control or connection short circuited. | see no.0020 - 0031 |
| 0132 | Remote control HC5 interrupted | Remote control not connected or connection interrupted. | see no.0020 - 0031 |
| 0133 | Remote control HC6 short circuited | Remote control or connection short circuited. | see no.0020 - 0031 |
| 0134 | Remote control HC6 interrupted | Remote control not connected or connection interrupted. | see no.0020 - 0031 |
| 0200 | Wrong software version | Software verswions of the boiler control unit and digital remote control don't | Update the boiler control's and remote control's sofware accordingly; (matching EPROM softwares) |
| 0201 | Boiler module not assigned or CAN interrupted | No connection with the boiler. | Boiler control unit not assigned; check power supply and BUS wiring or replace the remote control; |
| 0202 | Interfering BUS-configuration of two control modules | Two or more remote controls assigned to the same heating circuit. | Correct parameter Z2 of the digital remote control; |
| 0211 | Digital remote control 1 not connected | No connection with HC1's digital remote control | Check parameter Z2 and the BUS wiring; check fuse F23 (see board scheme); replace the digital remote; |
| 0212 | Digital remote control 2 not connected | No connection with HC2's digital remote control | Check parameter Z2 and the BUS wiring; check fuse F23 (see board scheme); replace the digital remote; |
| 0213 | Digital remote control 3 not connected | No connection with HC3's digital remote control | Check parameter Z2 and the BUS wiring; check fuse F23 (see board scheme); replace the digital remote; |
| 0214 | Digital remote control 4 not connected | No connection with HC4's digital remote control | Check parameter Z2 and the BUS wiring; check fuse F23 (see board scheme); replace the digital remote; |
| 0215 | Digital remote control 5 not connected | No connection with HC5's digital remote control | Check parameter Z2 and the BUS wiring; check fuse F23 (see board scheme); replace the digital remote; |
| 0216 | Digital remote control 6 not connected | No connection with HC6's digital remote control | Check parameter Z2 and the BUS wiring; check fuse F23 (see board scheme); replace the digital remote; |

**After correction of defects, Press ENTER !**

# Trouble-shooting description

**Disconnect the polarity proof connector plug befor solving Trouble shooting**

| Report no. | Origin | Reason/Problem | Solution (when done solving the problem push the Enter button) |
|---|---|---|---|
| 4010..4017 | Extraction auger motor | Extraction auger motor control defective | Contact the service department; replace I/O board (short term emergency operation is possible, see "operation without hardware test" at the end of error description) |
| 4020..4027 | Extraction auger motor | Extracion auger motor not connected or connection interrupted; if there is no extract auger, check the corresponding parameter D1 and readjust accordingly; motor or I/O board defective. | Fix the extraction auger's connection, check plugs no. 4 and 7 (clamp 7 must be connected) as well as the wiring; Readjust parameter D1 in the commisioning level settings accordingly; contact the service department or replace the motor or I/O board if the above procedure doesn't fix the problem; (short term emergency operation is possible, see "operation without hardware test" at the end of error description) |
| 4030..4037 | Extraction auger motor | Extraction auger motor short circuited | Fix the short circuit. Change fuse F15 (see board scheme) and check plugs no. 4 and 7 as well as the wiring; Contact the service department or an electrician or replace the motor or I/O board if the above procedure doesn't fix the problem; |
| 4110..4117 | Suction turbine | Suction turbine control defective | Contact the service department; replace I/O board (short term emergency operation is possible, see "operation without hardware test" at the end of error description) |
| 4120..4127 | Suction turbine | Suction turbine not connected or connection interrupted; if there is no suction turbine, check the corresponding parameter F1 and readjust accordingly; motor or I/O board defective. | Fix the suction turbine's connection, check plugs no. 11 - 13 as well as the wiring; readjust parameter D1 in the commisioning level settings accordingly; contact the service department or replace the I/O board if the above procedure doesn't fix the problem; (short term emergency operation is possible, see "operation without hardware test" at the end of error description) |
| 4130..4137 | Suction turbine | Suction turbine short circuited. | Fix the short circuit. Change fuse F21 (see board scheme) and check all plugs and clamps as well as the wiring; Contact the service department or an electrician or replace the I/O board if the above procedure doesn't fix the problem; (short term emergency operation is possible, see "operation without hardware test" at the end of error description) |
| 4210..4217 | Heating circuit control | Heating circuit-, boiler-, buffer- or circulation pump or mixer affected by separa source voltage or I/O board defective. | Check clamps 35 - 61 for separate source voltage or defective components; Contact the service department or an electrician or change the I/O board. (short term emergency operation is possible, see "operation without hardware test" at the end of error description) |
| 4220..4227 | Heating circuit control | HC pump 1, HC pump 2, HC 1 mixer, HC 2 mixer, boiler-, buffer- or circulatuion pump short circuited. | Fix the short circuit, check fuse F13 (see board scheme) and the wiring. Contact the service department or an electrician or change the I/O board if the problem persists; |
| 4310..4317 | Stoker auger | Stoker auger motor control defective. | Contact the service department or change the I/O board; (short term emergency operation is possible, see "operation without hardware test" at the end of error description) |
| 4320..4327 | Stoker auger | Stoker auger not connected; motor or I/O board defective. | Check the motor's connection (clamps no. 22-25) and wiring; Contact the service department or replace the motor or I/O board if the problem persists; (short term emergency operation is possible, see "operation without hardware test" at the end of error description) |
| 4330..4337 | Stoker auger | Stoker auger motor short circuited. | Fix the short circuit, check fuse F18 (see board scheme) and clamps 22-25 as well as the wiring; Contact the service department or an electrician or replace the motor or I/O board if the problem persist; (short term emergency operation is possible, see "operation without hardware test" at the end of error description) |
| 4410..4417 | Draught fan | Draught fan control defective. | Contact the service department or change the I/O board; (short term emergency operation is possible, see "operation without hardware test" at the end oferror description) |
| 4420..4427 | Draught fan | Draught fan not connected or connection interrupted; fan or I/O board defective. | Check the fan's connection (clamps no. 8-10) and wiring; Contact the service department or an electrician or replace the fan or I/O board if the problem persists; (short term emergency operation is possible, see "operation without hardware test" at the end of error description) |
| 4430..4437 | Draught fan | Draught fan or I/O board short circuited. | Fix the short circuit, check fuse F20 (see board scheme) and clamps 8-10 as well as the wiring; Contact the service department or an electrician or replace the fan or I/O board if the problem persist; (short term emergency operation is possible, see "operation without hardware test" at the end of error description) |
| 4510..4517 | HC valve / ext. pump | HC valve/ext. pump control defective. | Contact the service department or change the I/O board; (short term emergency operation is possible, see "operation without hardware test" at the end of error description) |
| 4520..4527 | HC valve / ext. pump | HC valve/ext. pump control not connected or defective. | Check the clamps (80-82) and wiring for both components. Contact the service department or an electrician or replace thecomponents or I/O board if the problem persists. (short term emergency operation is possible, see "operation without hardware test" at the end of error description) |

**After correction of defects, Press ENTER !**

# Trouble-shooting description

**Disconnect the polarity proof connector plug befor solving Trouble shooting**

| Report no. | Origin | Reason/Problem | Solution (when done solving the problem push the Enter button) |
|---|---|---|---|
| 4530..4537 | HC valve / ext. pump | HC valve/ext. pump short circuited. | Fix the short circuit, check fuse F14 (see board scheme) and clamps 80-82 as well as the wiring of both components. Contact the service department or an electrician or replace the defective component or I/O board if the problem persists. (short term emergency operation is possible, see "operation without hardware test" at the end of error description) |
| 4610..4617 | Ignition fan | Ignition fan control defective. | Contact the service department or change the I/O board. (short term emergency operation is possible, see "operation without hardware test" at the end of error description) |
| 4620..4627 | Ignition fan | Ignition fan not connected; ignition fan or I/O board defective. | Check the fan's connection (clamps no. 26-28) and wiring. Contact the service department or an electrician or replace the fan or I/O board if the problem persists. (short term emergency operation is possible, see "operation without hardware test" at the end of error description) |
| 4630..4637 | Ignition fan | Ignition fan short circuited. | Fix the short circuit, check fuse F19 (see board scheme) and clamps 26-28 as well as the wiring. Contact the service department or an electrician or replace the fan or I/O board if the problem persists. (short term emergency operation is possible, see "operation without hardware test" at the end of error description) |
| 4710..4717 | Ignition heater | Ignition heater control defective. | Contact the service department or change the I/O board; (short term emergency operation is possible, see "operation without hardware test" at the end of error description) |
| 4730..4737 | Ignition heater | Ignition heater not working. | Check fuse F19 (see board scheme) and clamps 26-28 as well as the wiring; Contact the service department or an electrician or replace the ignition unit or I/O board if the problem persist; (short term emergency operation is possible, see "operation without hardware test" at the end of error description) |
| 4810..4817 | Cleaning device | Cleaning device not connected or short circuited. | Check fuse F11 (see board scheme) and clamps 29-32 as well as the wiring; Contact the service department or an electrician or replace the motor or I/O board if the problem persist; (short term emergency operation is possible, see "operation without hardware test" at the end oferror description) |
| 4820..4827 | Cleaning device | Cleaning device not working. | Check the cleaning device's connection with the I/O board (clamps 29-32) and the wiring. Contact the service department or an electrician or replace the motor or I/O board if the problem persists. (short term emergency operation is possible, see "operation without hardware test" at the end of error description) |
| 4830..4837 | Cleaning device | Cleaning device not connected correctly or motor defective. | Fix the cleaning device's connection with the I/O board (clamps 29-32). Contact the service department or an electrician or replace the motor or I/O board if the problem persist. (short term emergency operation is possible, see "operation without hardware test" at the end of error description) |
| 4910..4917 | Lambda sensor heating | Lambda sensor not connected or sensor or I/O board defective. | Fix the lambda sensor's connection and check the wiring and clamps 76-79. Contact the service department or an electrician or change the I/O board if the problem persists. Reassign parameter D4 in the commissioning level settings to "without lambda sensor" until the sensor has been replaced. CAUTION: The commissioning level settings can only be accessed after the boiler has been relaunched and hardware tests have been disabled as described at the end of error description. |
| 4920..4927 | Lambda sensor heating | Lambda sensor or sensor heating short circuited or defective. | Check the wiring and connection of the sensor (clamps 76-79); replace fuse F22 where needed; contact the service department or an electrician or change the I/O board if the problem persists; reassign parameter D4 in the commissioning level settings to "without lambda sensor" until the sensor has been replaced; CAUTION: The commissioning level settings can only be accessed after the boiler has been relaunched and hardware tests have been disabled described at the end of error description; |
| 5020..5027 | Pusher grate | Pusher grate not connected or I/O board defective. | Check the pusher grate's connection (clamps 33-34); Contact the service department or an electrician or replace the I/O board.if the problem persists (short term emergency operation is possible, see "operation without hardware test" at the end of error description) |
| 6001<br>6002 | Defective data transmission between boards. | Fuse F12 defect, flat ribbon connection interrupted, I/O board or control unit defective. | Green lights H5 and H6 are not lit. Change fuse F12 (see board scheme). Contact the service department or an electrician or replace the I/O board or ribbon cable if the problem persists; |
| 6101-6102 | Wrong software I/O board | I/O board not compatible with the software. | Contact the service department or replace the I/O board. |
| 0 | Initializing error buffer, only load default settings | Not an actual error, but logged in the error buffer. | Contact an electrician if this message is shown repeatedly; (Might be caused by power failure or loose contact) |
| 1000 | Hardware restart | Not an actual error, but logged in the error buffer. | Contact an electrician if this message is shown repeatedly; (Might be caused by power failure or loose contact) |

Short term emergency operation "no hardware test": If the error is clearly caused by a defect on the I/O board, meaning that all connected components are working properly, the control can be run in emergency operation without hardware test for a short term (until the service department technician arrives) 1. Disconnect the control from the grid (plug or main switch) (display is dark). 2. Press the lower left "Space" button while restarting the power supply. The 4th line of the display will show the message "no hardware test". Once the message appears you can release the button. System selftests are now disabled, but only until power supply is cut off again. Make sure to check all potentially defective components in "Manual" operation mode to ensure that no other errors persist.

## After correction of defects, Press ENTER !

# Combustion malfunctions Nr.: 0029

Your pellet boiler will automatically control the ignition process using the lambda sensor. Combustion malfunctions will be triggered if the $CO_2$ emission sinks below a safety limit of 5% (no. S4) during a period of 5 minutes (no. S5) or longer. This indicates that either the pellet delivery is interrupted or the ignition procedure failed. "Error no. 0029 - combustion malfunction" will be shown on the display.

**Possible reasons that could cause the malfunction:**

- The Intermediate bin is empty..... Level indicator defective (insufficient suction periods in the case of a suction turbi
- Bridging occured in the intermediate bin..... Debris or excessive dust in the intermediate bin
- The stoker auger is running backwards..... Stoker auger defective (capacitor)
- The combustion chamber is overfilled..... Ignition defective

**Follow these instructions to fix the problem:**

1. Remove the ash box and insert the control sheet.
2. Acknowledge the error by pressing "Enter" (the displayed message should be blinking now). While in "Manual" operation mode (and display no.2 is shown) press the + button until the pusher grate is fully opened. Check if the combustion chamber is overfilled and proceed with the **corresponding procedure** if that is the case.
3. While in "Manual" operation mode (no.4), press the + button until the stoker auger starts (and the pusher grate is being opened) and check if pellets are being delivered.

**if no pellets are being delivered:**

a. **Check if the intermediate bin contains pellets:**
In case of a **suction turbine,** this can be checked by tapping the intermediate bin or using the syphols contained the lid. Check the level indicator (the indicator light is lit when the bin is full) if the bin is empty. Then refill the bin and the stoker auger. (as described in c.)

In the case of a **direct auger**, remove the maintenance lid and check if the transition piece is empty. If that is the case, check if the orange diode light is lit and if the display shows the message "full" when the intermediate bin is filled. The absence of either of these two signals indicates a defective level indicator. Check clamps 14 and 15 and the connection cables to ensure that the device is correctly connected. If you can't find any sign of an incorrect connection try replacing the level indicator. Refill the extraction and stoker augers when done. (as described in c.)

b. If **no pellerts are being delivered** while **the intermediate bin is filled** and all components of the delivery system are running, the bin might be jam packed. This can be caused by debris or accumulated dust. Open the lid of the bin and remove all pellets and debris or dust to manually fix the problem. (If you find dust to be the cause of the problem, you might want to discuss the high dust content with the pellet supplier) Refill the extraction- and stoker augers when done. (as described in c.)

c. **Filling:** While in "Manual" operation mode (no.7/7a) start the automatical refill of the intermediate bin by pressing the + button. Then use the + button (no.4 active) to deliver pellets (with the stoker auger) until they fall onto the control sheet. (this takes up to 3 minutes) Then set the mode switch to "Auto" and restart the boiler.

**if pellets are being delivered:**

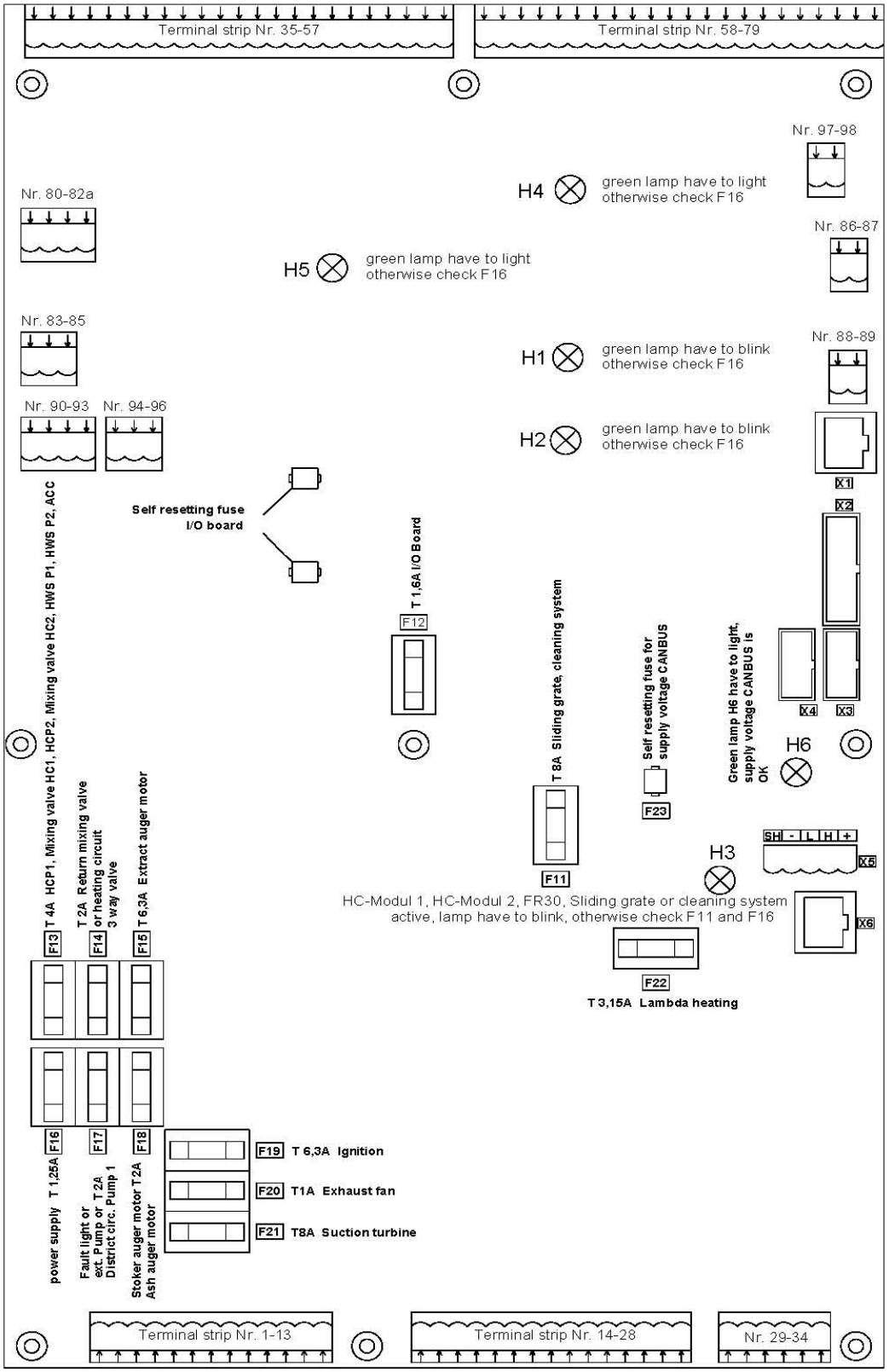
Start up the boiler in "Auto" mode and check if the stoker motor is rotating in the forward direction. If there are phases of backward rotation, the motor must be replaced as soon as possible.

**Combustion chamber overfilled:**

Remove the green heating device (after loosening the attachement screw) and check the function of the device using the + button while in "Manual" operation mode (no.8). Replace the heating element if the emitted air is cool, or replace the device if no air is emitted at all.

**If the problem is solved or no problem was found, restart the system in "Auto" mode, press Enter or shortly cut the system from power supply. CAUTION: Check no.2 must be performed to allow start up of the boiler.**

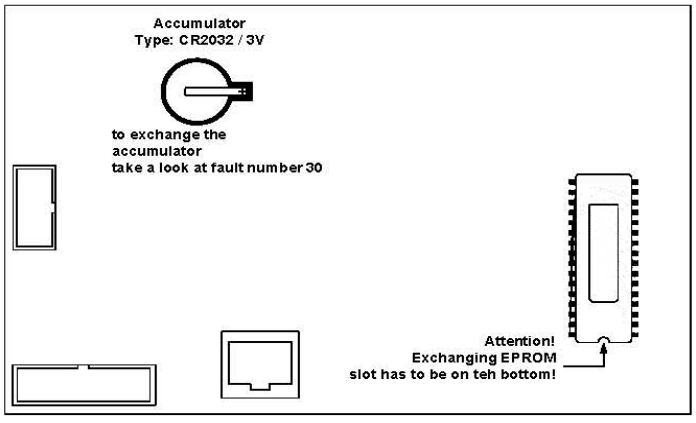
# Lambda-Hatronic Pellets




Backside control unit

| Reserve fuse |
|---|
| T 1A |
| T 1,25A |
| T 1,6A |
| T 2A |
| T 3,15A |
| T 4A |
| T 6,3A |
| T 8A |

on the protection plate



# Parameter-list

| | | | | |
|---|---|---|---|---|
| Scheme No. ..... | Date: | | | |
| | EPROM: | | | |
| | Signature: | | | |

***Customer Settings***

| Menu | Description | Default | Customer set-point I | Customer set-point II |
|---|---|---|---|---|
| No. 1 | Hot water storage 1 day clock | ON 17:00 00:00<br>OFF 20:00 00:00 | | |
| see parameter "Weekly clock" (No. D9 in the commissioning settings) | | | | |
| No. 1a | Hot water storage 1 | Mo Tu We Th Fr Sa Su<br>ON 17:00 00:00<br>OFF 20:00 00:00 | | |
| No. 1b | Hot water storage 1 | off | | |
| No. 2 | Hot water storage 1 set-point temperature | 60° | | |
| No. 3 | Heating circuit 1 day clock | ON 6:00 15:00<br>OFF 9:00 22:00 | | |
| see parameter "Weekly clock" (No. D9 in the commissioning settings) | | | | |
| No. 3a | Heating circuit 1 | Mo Tu We Th Fr Sa ...<br>ON 06:00 15:00<br>OFF 09:00 22:00 | | |
| No. 3b | Heating circuit 1 | .....Su<br>ON 06:00 00:00<br>OFF 22:00 00:00 | | |
| No. 4 | HC1 daytime roomtemp. set-point | 20° | | |
| No. 5 | HC1 daytime reduced roomtemp. set-point | 16° | | |
| No. 6 | Heating circuit 2 day clock | ON 06:00 15:00<br>OFF 09:00 22:00 | | |
| see parameter "Weekly clock" (No. D9 in the commissioning settings) | | | | |
| No. 6a | Heating circuit 2 | Mo Tu We Th Fr Sa ...<br>ON 06:00 15:00<br>OFF 09:00 22:00 | | |
| No. 6b | Heating circuit 2 | .....Su<br>ON 06:00 00:00<br>OFF 22:00 00:00 | | |
| No. 7 | HC2 daytime roomtemp. set-point | 20° | | |
| No. 8 | HC2 daytime reduced roomtemp. set-point | 16° | | |
| No. 9 | Heating circuit 2 day clock | ON 17:00 00:00<br>OFF 20:00 00:00 | | |
| No. 10 | Hot water storage 2 temperature set-point | 60° | | |

| **Extension module 1** | | | | |
|---|---|---|---|---|
| H 1 | Hot water storage 3 day clock | ON 17:00 00:00<br>OFF 20:00 00:00 | | |
| H 2 | Hot water storage 3 temperature set-point | 60° | | |
| H 3 | HC3 day clock | ON 06:00 15:00<br>OFF 09:00 22:00 | | |
| H 4 | HC3 daytime roomtemp. set-point | 20° | | |
| H 5 | HC3 daytime reduced roomtemp. set-point | 16° | | |
| H 6 | HC4 day clock | ON 06:00 15:00<br>OFF 09:00 22:00 | | |
| H 7 | HC4 daytime roomtemp. set-point | 20° | | |
| H 8 | HC4 daytime reduced roomtemp. set-point | 16° | | |
| H 9 | Hot water storage 4 day clock | ON 17:00 00:00<br>OFF 20:00 00:00 | | |
| H 10 | Hot water storage 4 temperature set-point | 60° | | |

| **Extension module 2** | | | | |
|---|---|---|---|---|
| H 11 | Hot water storage 5 day clock | ON 17:00 00:00<br>OFF 20:00 00:00 | | |
| H 12 | Hot water storage 5 temperature set-point | 60° | | |
| H 13 | HC5 day clock | ON 06:00 15:00<br>OFF 09:00 22:00 | | |
| H 14 | HC5 daytime roomtemp. set-point | 20° | | |
| H 15 | HC5 daytime reduced roomtemp. set-point | 16° | | |
| H 16 | HC6 day clock | ON 06:00 15:00<br>OFF 09:00 22:00 | | |
| H 17 | HC6 daytime roomtemp. set-point | 20° | | |
| H 18 | HC6 daytime reduced roomtemp. set-point | 16° | | |
| H 19 | Hot water storage 6 day clock | ON 17:00 00:00<br>OFF 20:00 00:00 | | |
| H 20 | Hot water storage 6 temperature set-point | 60° | | |
| | | | | |
| No. 11 | Heating off above outside temp. | 16° | | |
| No. 12 | Heating off during day time reduced temp. | 8° | | |
| No. 13 | Heating off during night time reduced temp. | -5 | | |
| No. 14 | Autom. filling and suction time | 21:00 Uhr | | |
| No. 15 | Holiday mode | inactive | | |
| No. 16 | Holiday | from … to … | | |
| No. 20 | Date / Time | | | |

* only for systems with suction turbine

# Parameter-list

***Commissioning settings (access by simultaneously pressing + und -)***

| Menu | Description | Default | Set-point | | |
|---|---|---|---|---|---|
| A 1 | **Heating Circuit 1** | with mixer | | | |
| A 2 | HC1 inclination | 1,60 | | | |
| A 3 | HC1 flow temp. min. | 30° | | | |
| A 4 | HC1 flow temp. Max. | 70° | | | |
| A 5 | HC1 mixing time | 90s | | | |
| A 6 | Remote control HC1 | not avail. | | | |
| A 7 | HC1 dist. heating circuit | not avail. | | | |
| A 8 | HC1 summertime bathroom heat. | off | | | |
| A 9 | HC1 floor dryout | off | | | |
| A 9a | HC1 floor dryout fl. sp. start/stop | 20° | | | |
| A 9b | HC1 floor dryout fl. setp. incr. | 5° | | | |
| A 9c | HC1 floor dryout incr./red. | daily | | | |
| A 9d | HC1 floor dryout fl. setp. max | 45° | | | |
| A 9e | HC1 floor dryout dwell time | one day | | | |
| A 9f | HC1 floor dryout fl. Setp. Red. | 10° | | | |
| A 11 | **Heating circuit 2** | not avail. | | | |
| A 12 | HC2 inclination | 1,60 | | | |
| A 13 | HC2 flow temp. min. | 30° | | | |
| A 14 | HC2 flow temp. Max. | 70° | | | |
| A 15 | HC2 mixing time | 90s | | | |
| A 16 | Remote control HC2 | not avail. | | | |
| A 17 | HC2 dist. heating circuit | not avail. | | | |
| A 18 | HC2 summertime bathroom heat. | off | | | |
| A 19 | HC2 floor dryout | off | | | |
| A 19a | to 19f HC2 floor dryout param. | default | | | |
| A 21 | **Heating circuit 3** | not avail. | | | |
| A 22 | HC3 inclination | 1,60 | | | |
| A 23 | HC3 flow temp. min. | 30° | | | |
| A 24 | HC3 flow temp. Max. | 70° | | | |
| A 25 | HC3 mixing time | 90s | | | |
| A 26 | Remote control HC3 | not avail. | | | |
| A 27 | HC3 dist. heating circuit | not avail. | | | |
| A 28 | HC3 summertime bathroom heat. | off | | | |
| A 29 | HC3 floor dryout | off | | | |
| A 29a | to 29f HC3 floor dryout param. | default | | | |
| A 31 | **Heating circuit 4** | not avail. | | | |
| A 32 | HC4 inclination | 1,60 | | | |
| A 33 | HC4 flow temp. min. | 30° | | | |
| A 34 | HC4 flow temp. Max. | 70° | | | |
| A 35 | HC4 mixing time | 90s | | | |
| A 36 | Remote control HC4 | not avail. | | | |
| A 37 | HC4 dist. heating circuit | not avail. | | | |
| A 38 | HC4 summertime bathroom heat. | off | | | |
| A 39 | HC4 floor dryout | off | | | |
| A 39a | to 39f HC4 floor dryout param. | default | | | |
| A 41 | **Heating circuit 5** | not avail. | | | |
| A 42 | HC5 inclination | 1,60 | | | |
| A 43 | HC5 flow temp. min. | 30° | | | |
| A 44 | HC5 flow temp. Max. | 70° | | | |
| A 45 | HC5 mixing time | 90s | | | |
| A 46 | Remote control HC5 | not avail. | | | |
| A 47 | HC5 dist. heating circuit | not avail. | | | |
| A 48 | HC5 summertime bathroom heat. | off | | | |
| A 49 | HC5 floor dryout | off | | | |
| A 49a | to 19f HC5 floor dryout param. | default | | | |
| A 51 | **Heating circuit 6** | not avail. | | | |
| A 52 | HC6 inclination | 1,60 | | | |
| A 53 | HC6 flow temp. min. | 30° | | | |
| A 54 | HC6 flow temp. Max. | 70° | | | |
| A 55 | HC6 mixing time | 90s | | | |
| A 56 | Remote control HC6 | not avail. | | | |
| A 57 | HC6 dist. heating circuit | not avail. | | | |
| A 58 | HC6 summertime bathroom heat. | off | | | |
| A 59 | HC6 floor dryout | off | | | |
| A 59a | to 19f HC6 floor dryout param. | default | | | |

| Menu | Description | Default | Set-point | | |
|---|---|---|---|---|---|
| B 1 | **HWS 1** | available | | | |
| B 2 | HWS 1 temp. tolerance | 6° | | | |
| B 3 | HWS 1 temp. minimum | 40° | | | |
| B 4 | Legionella protection | OFF | | | |
| B 5 | Legionella protection temp setp. | 70° | | | |
| B 6 | Legionella protection scheduled time | Mo-17:00 | | | |
| B 7 | HWS 1 dist. heating circuit | not avail. | | | |
| B 11 | **HWS 2** | available | | | |
| B 12 | HWS 2 temp. tolerance | 6° | | | |
| B 13 | HWS 2 temp. minimum | 40° | | | |
| B 14 | Legionella protection | OFF | | | |
| B 15 | Legionella protection temp setp. | 70° | | | |
| B 16 | Legionella protection scheduled time | Mo-17:00 | | | |
| B 17 | HWS 2 dist. heating circuit | not avail. | | | |
| B 21 | **HWS 3** | available | | | |
| B 22 | HWS 3 temp. tolerance | 6° | | | |
| B 23 | HWS 3 temp. minimum | 40° | | | |
| B 24 | Legionella protection | OFF | | | |
| B 25 | Legionella protection temp setp. | 70° | | | |
| B 26 | Legionella protection scheduled time | Mo-17:00 | | | |
| B 27 | HWS 3 dist. heating circuit | not avail. | | | |
| B 31 | **HWS 4** | available | | | |
| B 32 | HWS 4 temp. tolerance | 6° | | | |
| B 33 | HWS 4 temp. minimum | 40° | | | |
| B 34 | Legionella protection | OFF | | | |
| B 35 | Legionella protection temp setp. | 70° | | | |
| B 36 | Legionella protection scheduled time | Mo-17:00 | | | |
| B 37 | HWS 4 dist. heating circuit | not avail. | | | |
| B 41 | **HWS 5** | available | | | |
| B 42 | HWS 5 temp. tolerance | 6° | | | |
| B 43 | HWS 5 temp. minimum | 40° | | | |
| B 44 | Legionella protection | OFF | | | |
| B 45 | Legionella protection temp setp. | 70° | | | |
| B 46 | Legionella protection scheduled time | Mo-17:00 | | | |
| B 47 | HWS 5 dist. heating circuit | not avail. | | | |
| B 51 | **HWS 6** | available | | | |
| B 52 | HWS 6 temp. tolerance | 6° | | | |
| B 53 | HWS 6 temp. minimum | 40° | | | |
| B 54 | Legionella protection | OFF | | | |
| B 55 | Legionella protection temp setp. | 70° | | | |
| B 56 | Legionella protection scheduled time | Mo-17:00 | | | |
| B 57 | HWS 6 dist. heating circuit | not avail. | | | |
| B 90 | Access all HWS temp. min. | 06:00-22:00 | | | |
| C 1 | Return bypass- or buffer-pump | bypass pump | | | |
| C 1a | Return mixer | not avail. | | | |
| C 1b | Return mixing time | 90s | | | |
| C 2 | Buffer- oder ext. heat. mode | not avail. | | | |
| C 4 | Buffer temperature set-point | 60° | | | |
| C 4a | Temp. Set point for buffer charging | 78° | | | |
| C 5 | Constrained charging / day clock | 00:00 | | | |
| C 6 | Temp set point ext HC | 69° | | | |
| C 7 | Fault light / ext.-/ dist. circuit pump | fault light | | | |
| C 8 | ext. HC with dist. heat. pump | not avail. | | | |
| D 1 | **Operation mode** | varying | | | |
| D 2 | Frost protection ON below | 1° | | | |
| D 3 | Frost prot flow temp. setp. | 7° | | | |
| D 4 | with / without Lambda sensor | with | | | |
| D 5 | Cangeover daytime/temp.reduction | 06:00-22:00 | | | |
| D 6 | Access deashing/cleaning | 06:00-22:30 | | | |
| D 7 | HC 1-6 summer shutdown delay | 120min | | | |
| D 8 | Summer shutdown switchover | autom. | | | |
| D 9 | Day- / weekly clock | day clock | | | |
| D 10 | Number of blocks week clock | 2 | | | |
| E 1 | Language | german | | | |

***Run time counter found in the extended INFO LEVEL (Access by pushing the ↑ key for 2 seconds )***

| Info | Description | Value | Value |
|---|---|---|---|
| | Run time heating | | |
| | Run time deash auger | | |
| | Run time stoker auger | | |
| | Run time ignition | | |

| Info | Description | Value | Value |
|---|---|---|---|
| | Run time extraction auger + suct. turb. | | |
| | Counter grate cycles | | |
| | Counter cleaning device | | |
| | Run time control | | |