Operating instructions

GILLES TOUCH

Content

1. Menu navigation

Home

Press this button to display the homepage.

Screen back

Press this button to go back one page in the menu, i.e., to the previous window.

Chimney sweep button

Press this button to activate chimney sweeper mode (see page 8). **=>** Chimney sweeper mode can only be activated on the start up screen.

Reset

Press this button to acknowledge error messages!

Page down

Page down button => Max. 7 setting parameters per screen can be displayed. Press this button to display the next screen for the setting parameters.

Page up

Page up button => Press this button to display the previous screen.

Number pad

Any time the value changes, you must press the **"ENTER"** button (POS 1) to confirm.

Press the **left arrow** button (POS 2) to **delete characters**.

POS 2

POS 1

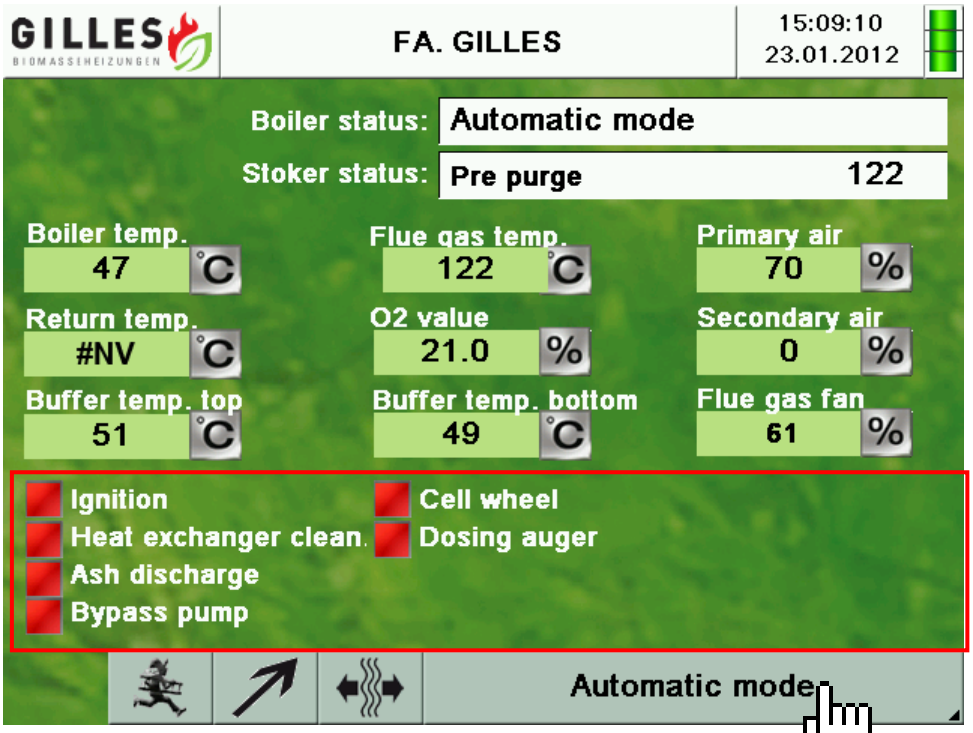
Customer parameters

By selecting this option on the main screen, the customer's setting parameters are displayed immediately, e.g. flow control, temperature entries, etc.

Heat distribution

If there is a buffer, press this icon (on the main screen) to display the detailed view of the buffer.

2. Start up screen



➔ This page displays all relevant boiler data such as boiler temperature, return temperature, O2 value, flue gas fan performance, buffer temperatures (if present), etc. .

➔ If the value **#NV** appears for a temperature, this sensor is **not connected or defective**.

#NV => 1. The respective sensor has not been connected.
2. Sensor is defective.

➔ The bottom third of the display (see **POS 1** on the graphic), shows which components of the system are currently active (ON).

Red: Components are currently inactive (not running)
Green: The respective components (e.g. ignition, heat exchanger cleaning, ash discharge, etc.) are currently active and under control.

➔ **POS 2** can be used to switch operating modes.

2.1 Boiler status & stoker status

Boiler status: The boiler status describes the current operating mode of the boiler, i.e. a distinction is made between the following operating modes:

1. Controller is OFF
2. Manual mode
3. Time mode
4. Buff./DHW mode
5. Buffer/DHW slumber mode
6. Automatic mode
7. Log wood mode

The **"Boiler status"** window displays the respective operating mode.

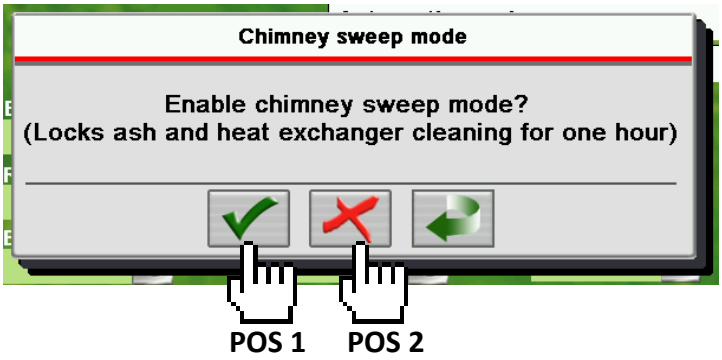
Stoker status: The stoker status defines in which status the boiler (control) is at any given time.

1. Stoker off
2. Pre-purge
3. Ignition feeding
4. Checking system
5. Ignition
6. Start up phase
7. Heating mode
8. Post purge
9. Overrun flue fan
10. Slumber mode
11. Log wood mode

You can find an exact description of the respective status on page 67 & ff.

2.2 Chimney sweeper mode

Pressing this button opens a window to activate or deactivate this mode.



Press **POS 1** to activate this mode.
The boiler now automatically switches to **"AUTOMATIC"** and starts (if the current boiler temperatures allow it).
This operating mode can no longer be manually changed after this point.

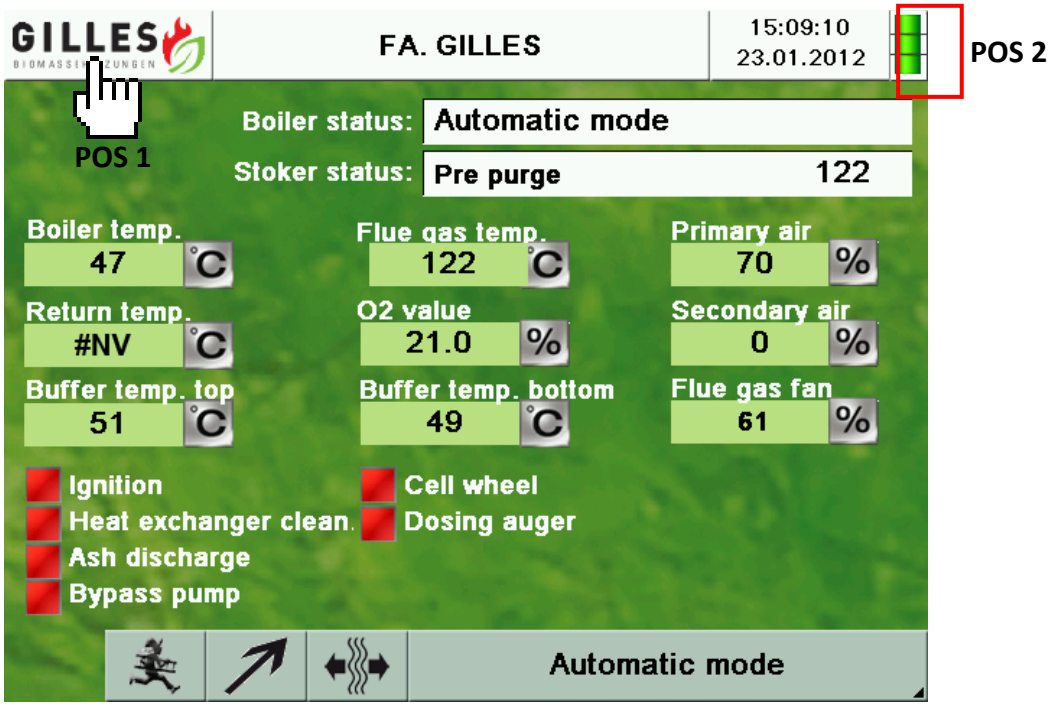
NOTICE: **The operating mode can only be changed again when chimney sweep mode has been deactivated by pressing POS 2.**

INFO:
Ash discharge and **Heat exchanger cleaning** are locked for one hour.

The boiler also attempts to reach 100% output.

This function ensures that the chimney sweeper can properly perform the flue gas measurement.

2.3 Setting the password for parameter changes



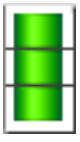
➔ Please press **POS 1** to open the window for entering the password.

➔ You can see the respective password level at the top right of the window **(POS 2)**.

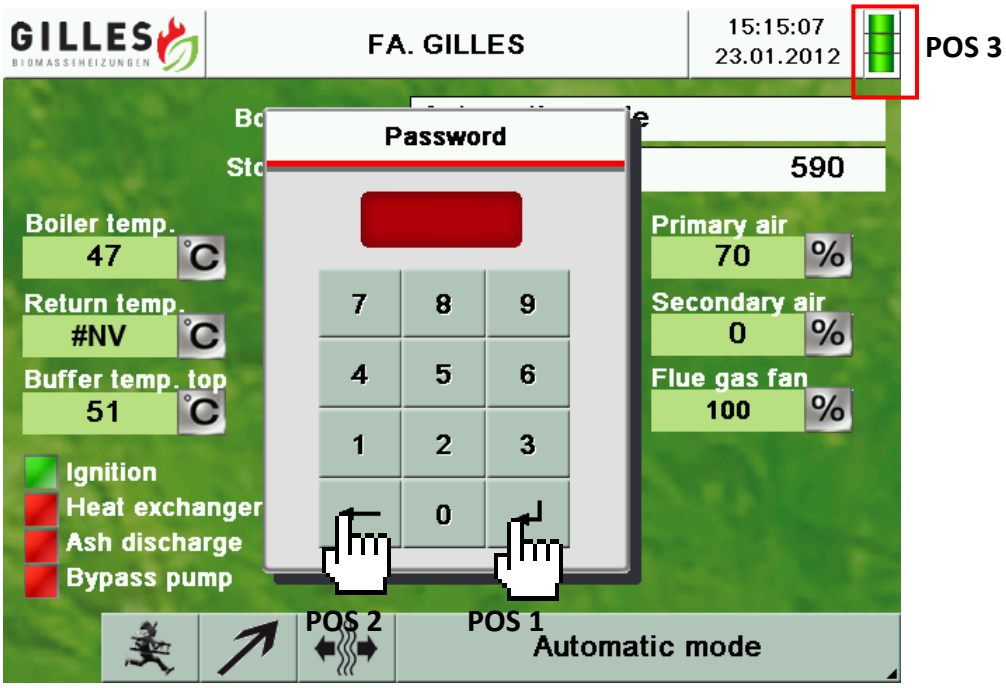
Password levels:

Level 0= No authorization to change parameters

Level 1= Customer authorization active **(password = "4711")**
=> The customer is allowed to
change various setting parameters.



Level 3= Level service engineer => The service technician has full access to the system and is allowed to set all parameters and to reset the system to factory default.

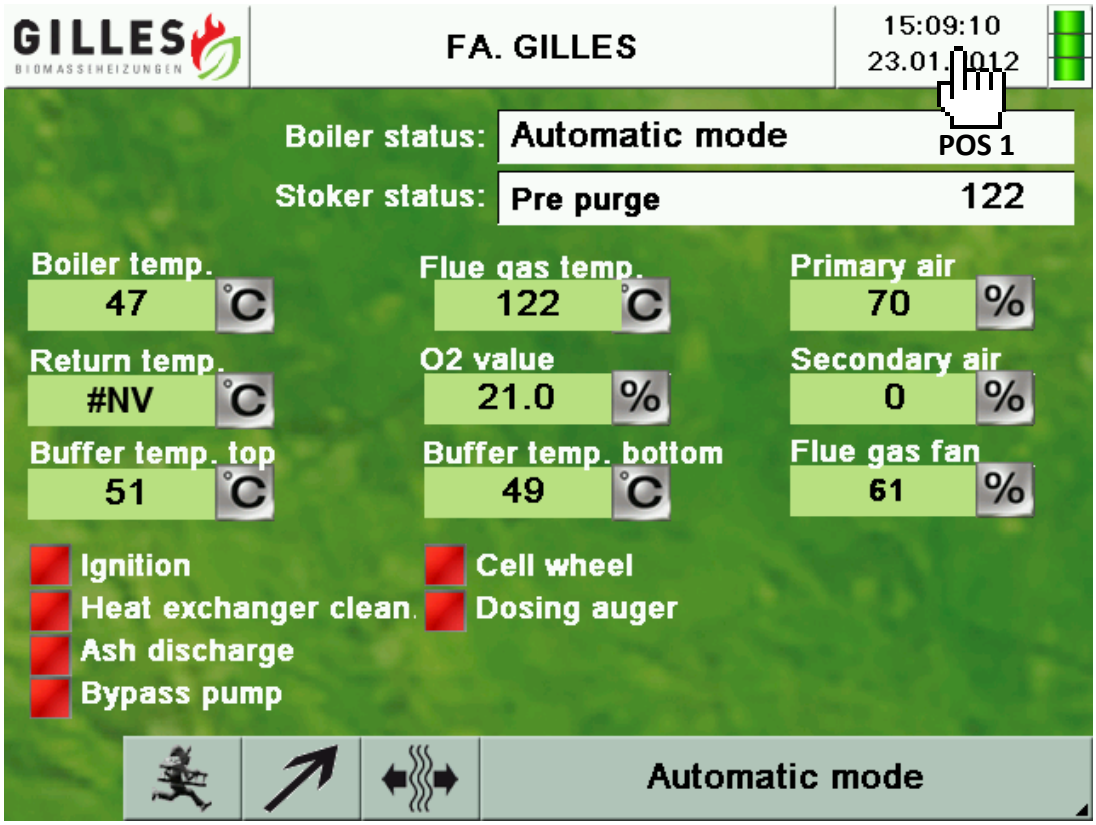


➔ Enter your customer password in this window. The password is **4711**.
Press "Enter" **(POS 1)** to confirm your entry.

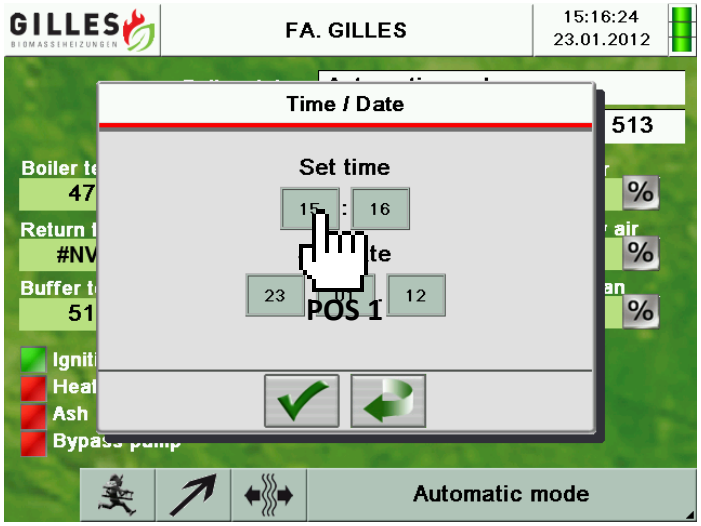
➔ Press the **Delete** button (POS 2) to delete a character on the display window.

➔ When you enter the correct password, the respective password level (green bar) appears at the top right **(POS 3)**.

2.4 Change date / time



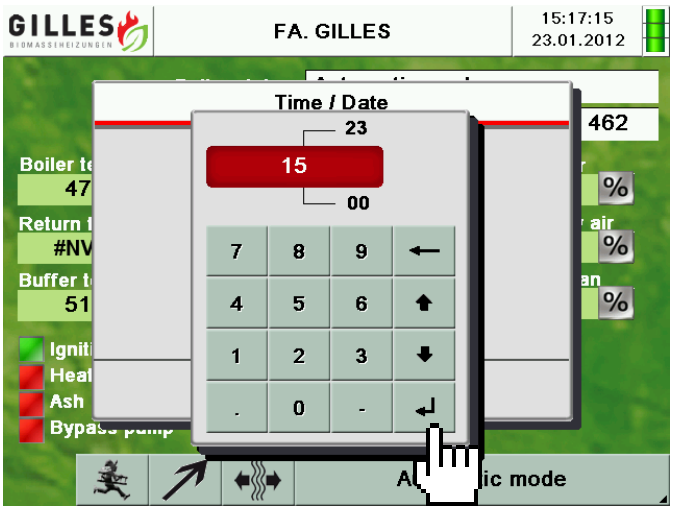
➔ Press the **Time/Date (POS 1)** to open the respective setup menu.



➔ To change the values here, press on the respective window.

➔ When all changes have been entered correctly, press  to apply the changes.

➔ If you do not want to save the settings, press the  button.



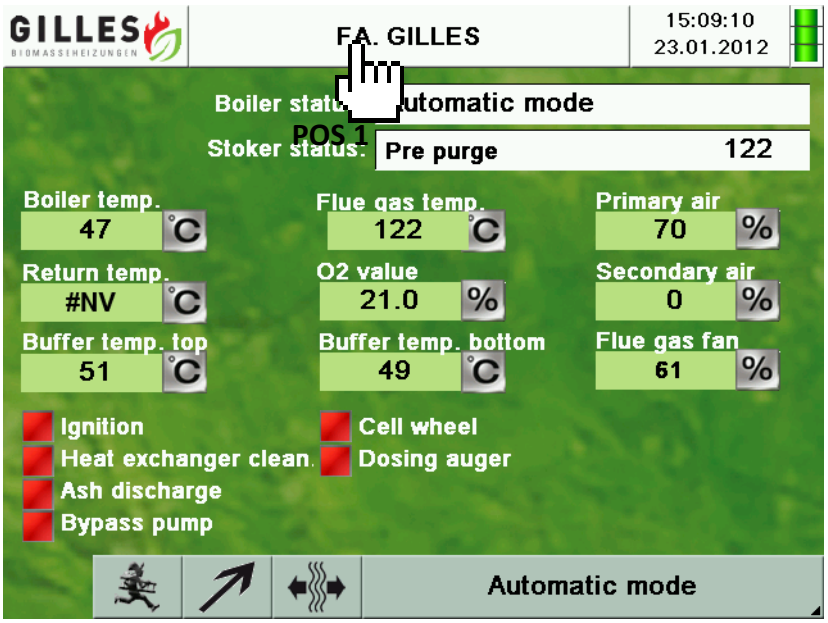
POS 1

➔ You can now change the current hour.
Press the **"Enter"** (POS 1) to confirm your entry. Otherwise, the changes are not applied.

INFO:

The controller automatically changes the time based on the season (summer/winter).

2.5 Language setting

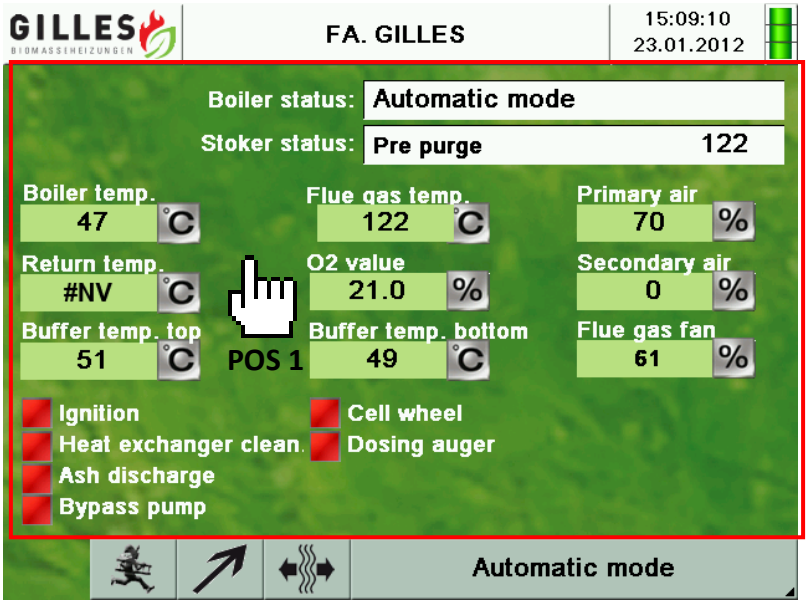


➔ Press **POS 1** to change the language setting.

➔ Press the respective language **(POS 1)** to automatically change the language of the controller.

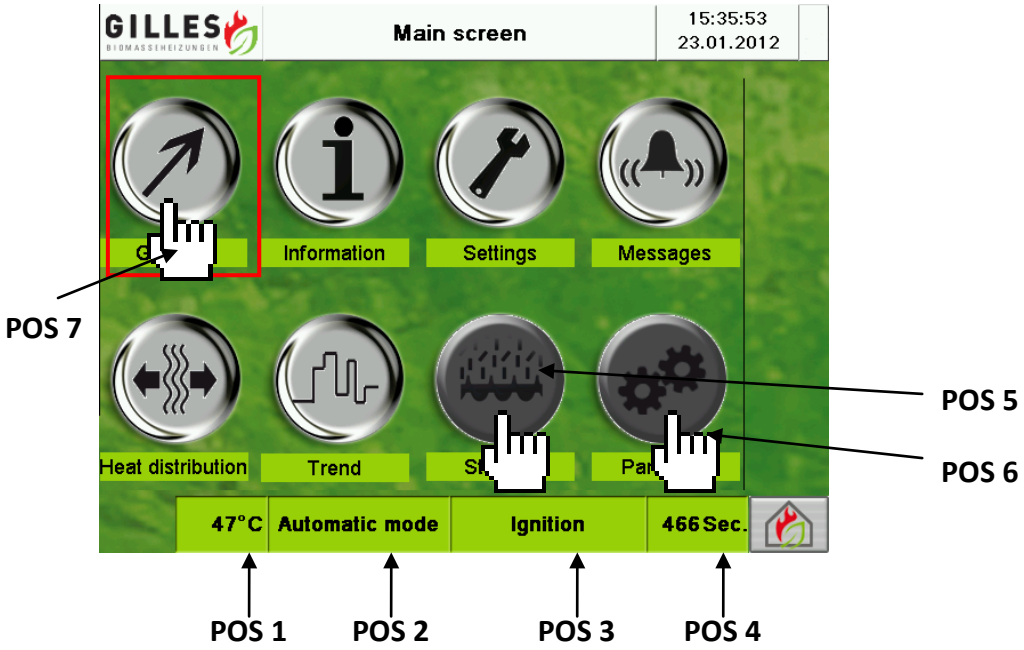
➔ If you have selected the required language, press the  button to exit the window.

2.6 Return to the main screen



➔ Press in this area **(POS 1)** on the main screen to move forward one level in the system.

3. Main screen



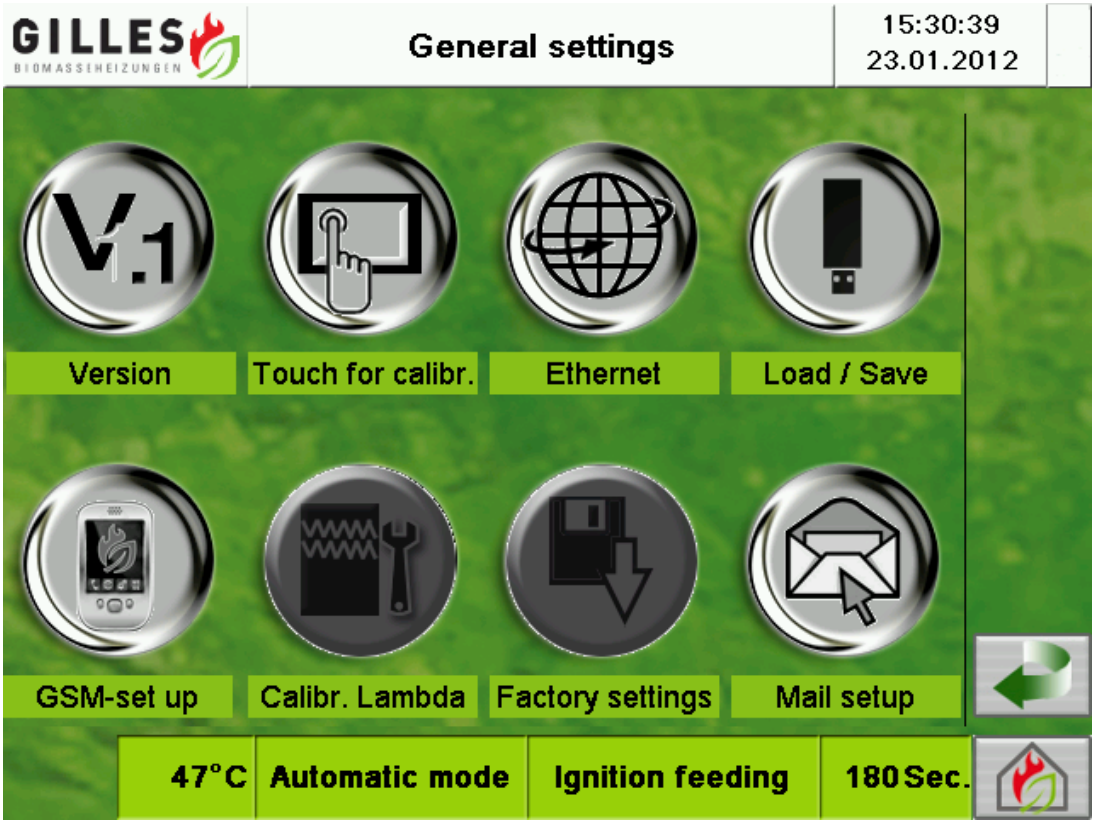
➔ The following parameters appear in each submenu:

- Boiler temperature **(POS 1)**
- Boiler status **(POS 2)**
- Stoker status **(POS 3)**
- Time remaining until the boiler status changes **(POS 4)**

➔ Areas with a dark grey such as **POS 5 & POS 6** are inactive.
They also have no effect when pressed
(see page 57 ff).

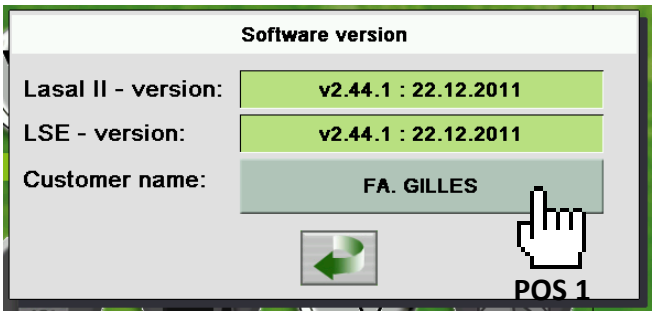
➔ Press **"General" (POS 7)** button to switch to the General settings.

4. General settings



➔ You can make general settings such as network settings, load/save parameters, etc. on this screen.

4.1 Version



➔ The current controller version **(LASAL II - version)** and visualization version **(LSE - version)** are displayed here.

➔ You can also subsequently change the customer name by pressing **POS 1**.

➔ Press the  button to close the window.

4.2 Touch calib. (touch screen recalibration)

GENERAL:

The touch screen can be recalibrated if it is not responding correctly.

➔ To start the recalibration, press button 

The controller then restarts and the calibration menu appears.

INFO:
A more detailed description of recalibrating the display is available in the "Update Gilles-Touch" documentation on page 6, Sec. 9 & ff.

➔ Press the  button to cancel the recalibration and to close the window.

4.3 Ethernet (network settings)

General:

The network settings are of particular importance for visualization on a private computer or on a mobile phone.

If the controller is connected to the existing building network, i.e. to an Intranet or Internet router, the correct address (address range that the router uses) must be set.

If not, the controller cannot be accessed from a computer in-house or via the Internet.

Example: There is an internet router in the building and it has the address (IP address) **10.0.0.138 (This address is normally found on the back of the router or in the manual).**

If the controller is connected to the Internet router **(by means of a CAT5 cable)**, the **TCP-IP address** to the controller also has to be assigned to the respective number range of the Internet router.
All addresses 10.0.0.2 – 10.0.0.137 and 10.0.0.139 – 10.0.0.254 are allowed and work.

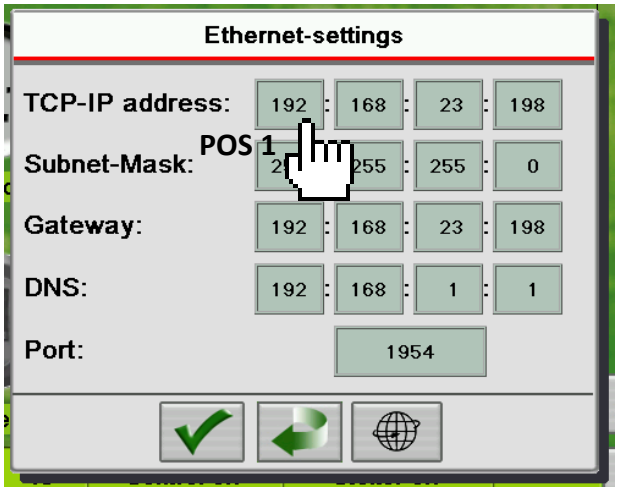
The address 10.0.0.138 may not be used because it is already used by the Internet router.

The **subnet mask** is usually always **255.255.255.0**.

For the **Standard Gateway & DNS**, enter the address of the Internet router.
In our case, the address is now **10.0.0.138**.

The **Port** remains set to **1954** by default.

INFO:
The DNS address must be set for the e-mail error notification.

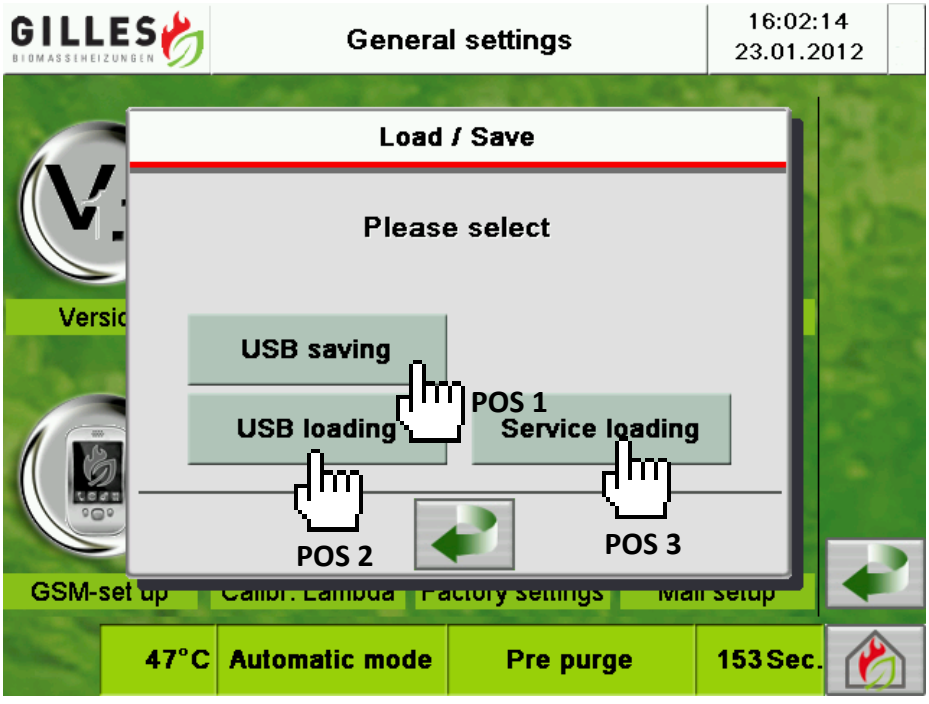


Press on the respective window **(POS 1)** to change the number.

Press the  button to close the window.

Press the  button to apply your settings.

4.4 Load / save (save or restore setting data)



You now have the option of saving all boiler parameters to a USB flash drive => **"USB saving"**

You can also restore data already saved to a USB flash drive
=> **"USB loading"**

4.4.1 USB saving (save boiler parameters to USB flash drive):

1. Plug a USB flash drive into the front of the touch display.
2. Press the **"USB saving"** button.
3. If the data is saved to the USB flash drive successfully, following message appears:
   "Parameters saved successfully"

There is now a file saved on the USB flash drive called **"Boilerparameters.dat"**.

However, if the following message appears ...
"Failed to save parameters"
... no data has been saved to the USB flash drive.

Possible error causes:

1. No USB flash drive was plugged into the touch display.
2. The device (touch display) does not support the USB flash drive.

4.4.2 USB loading (restore file saved on the USB flash drive to the controller)

1. Plug the USB flash drive (where the backup is saved) into the touch display
2. Press the **"USB-loading"** (POS 2) button.
3. If the data is successfully restored, the following Message appears:
   "Parameters loaded successfully"
   All boiler parameters have now been replaced by the backup.

However, if the following message appears:
"Failed to load parameters"
the data was not successfully restored.

Possible error causes:

1. No USB flash drive was plugged into the touch display.
2. The device (touch display) does not support the USB flash drive.
3. The backup file called **"Boilerparameters.dat"** is not on the USB flash drive or the file is corrupt.

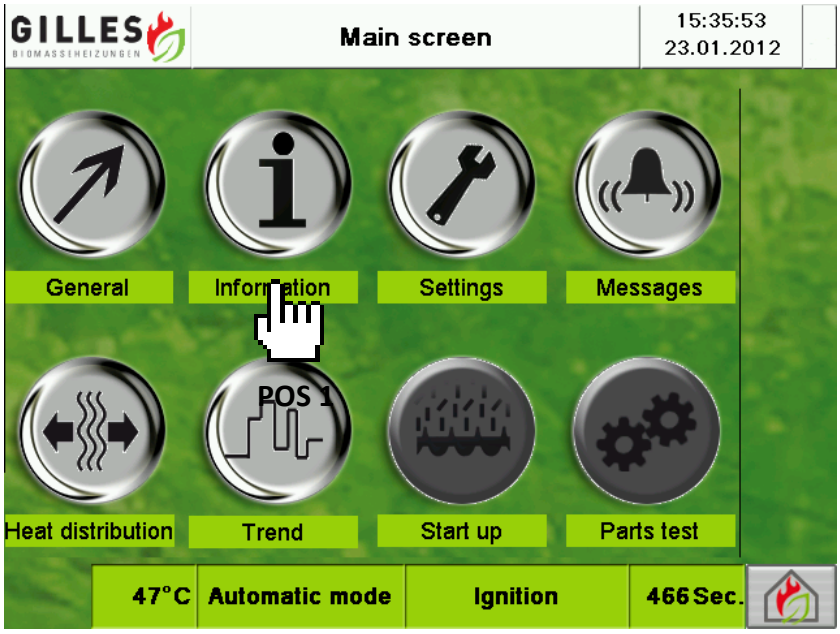
4.4.3 Service loading (restoration of start up settings)

You can press **"Service loading"** (POS 3) at any time to restore the start up settings.
For example: If commissioning personnel have saved the setting parameters after successful commissioning, the setting parameters can be uploaded to the controller again at any time.

This option makes sense if changes are made to the settings on the system, which subsequently lead to system problems.
If you now forget what the original settings were, you can restore the original settings.

If after pressing this button **(POS 3)** the message **"Failed to load parameters"** appears, the setting parameters were not saved after commissioning by commissioning personnel. If so, please contact the service department.

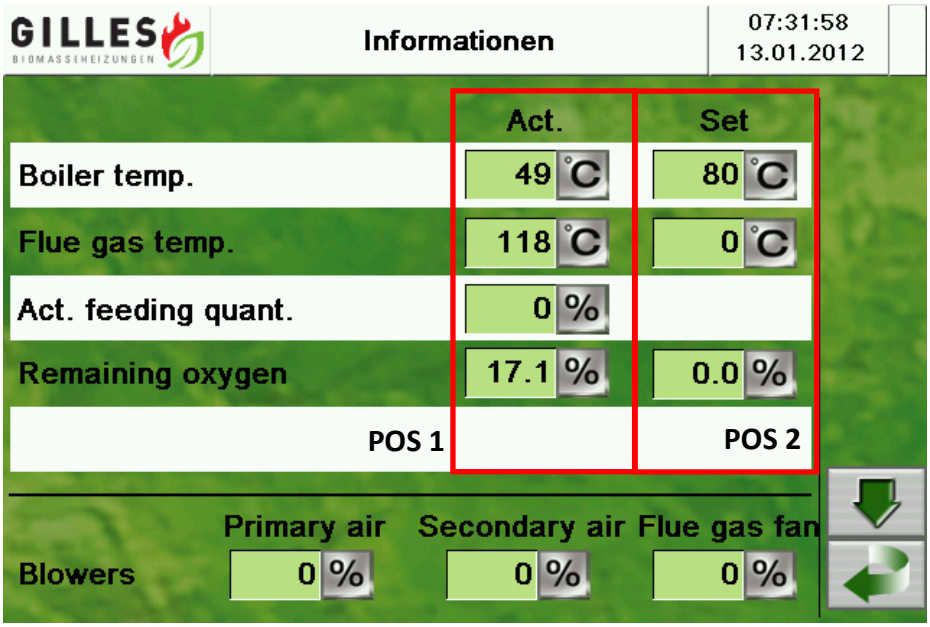
5. Information



➔ Press on this button on the main screen **(POS 1)** to open the **Information** screen for the boiler.

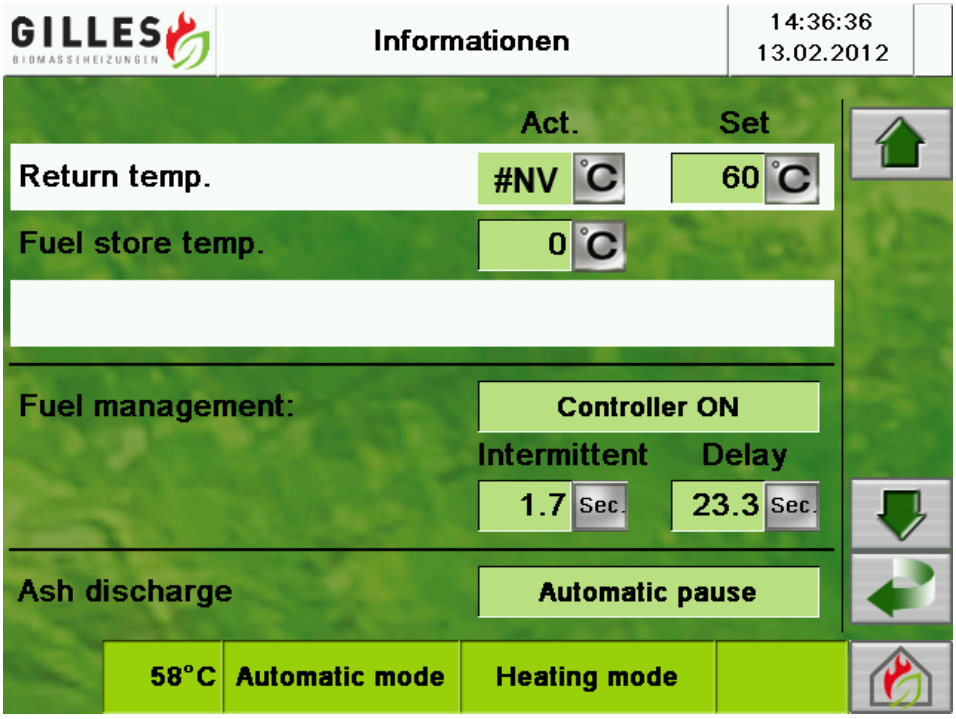
➔ The current status of the boiler and the status to be attained **(ACT / SET)** appears on the information screen.

5.1 Information page 1



➔ This window displays all data such as temperatures, remaining oxygen, etc. related to the current state of the boiler - **ACT** (POS 1) and
the specified values that the boiler must reach - **SET** (POS 2).

5.2 Information page 2



5.2.1 Fuel management & ash discharge

Fuel management:

➔ The current intermittent / delay ratio is displayed when feeding material.

Example:	Intermittent =	5 seconds
	Delay =	15 seconds

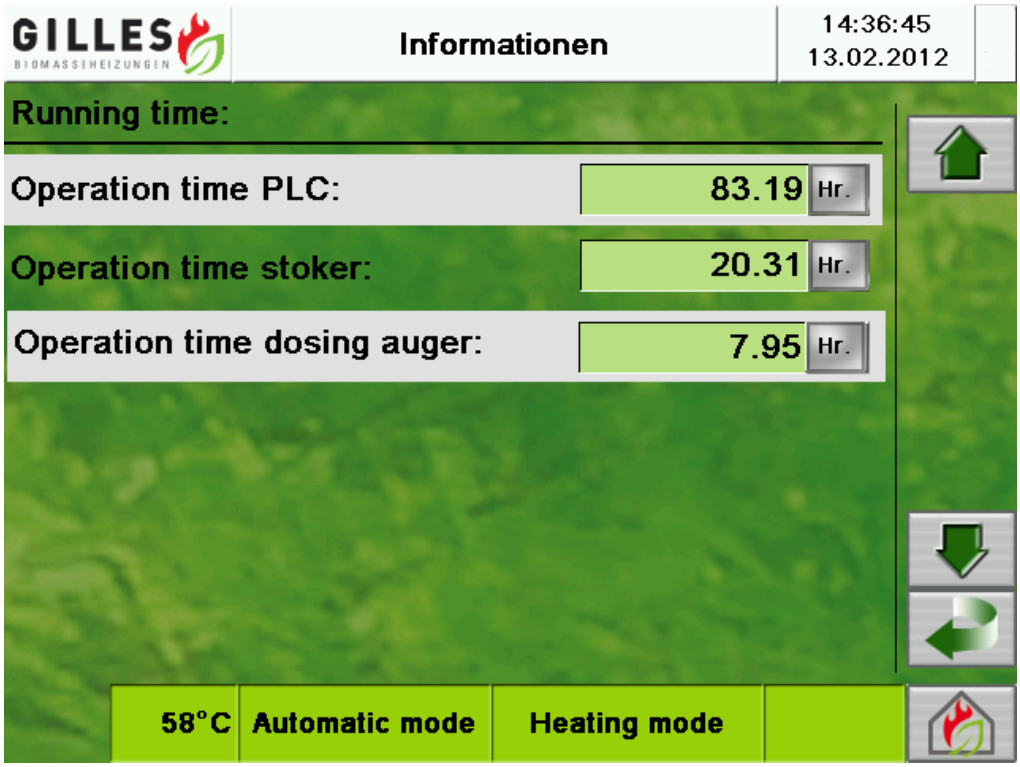
With this intermittent / delay ration, the stoker runs for 5 seconds and then switches off (delay) for 15 seconds.

Ash discharge:

The following operating modes are available for ash discharge:

1. **Manual mode =>** Ash discharge is manually operated from the touch display.
2. **Automatic pause =>** The auger (ash discharge) is automatically controlled by the program (currently in the pause position).
3. **Active =>** Ash discharge is on and running (automatically controlled by the program).
4. **Blocked =>** If the ash auger or ash plate cannot be moved (current consumption of the motor is too high), this is set to **blocked**.

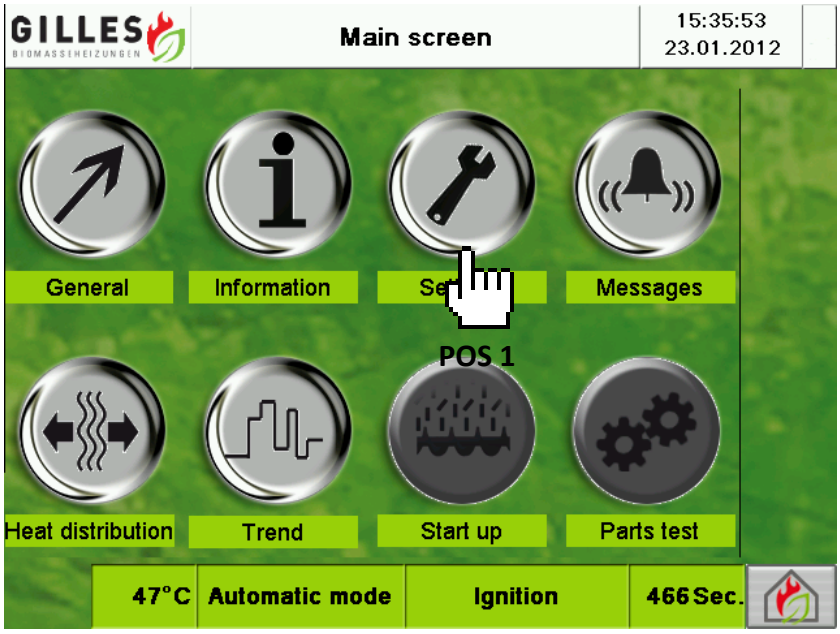
5.3 Information page 3



➔ Various running times are recorded on this page.

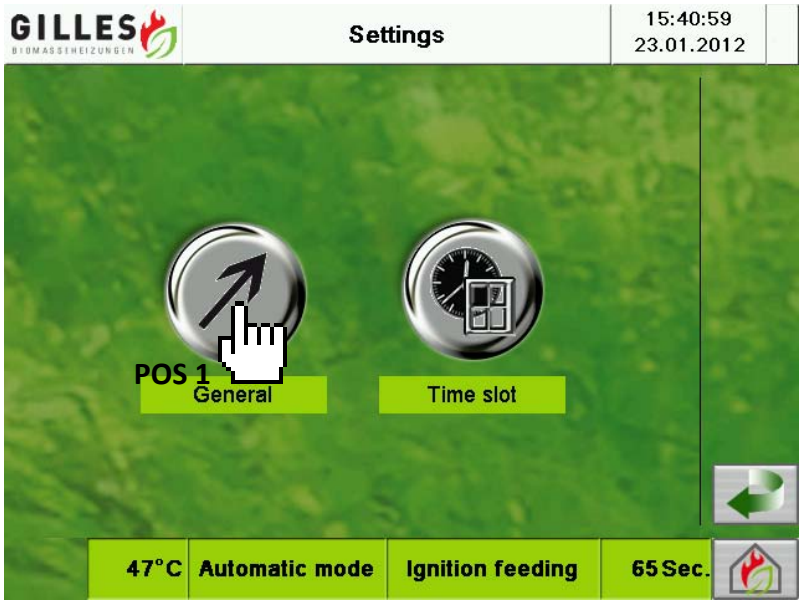
Operating time PLC:	This counter runs from the first time power is supplied to the controller.
Operating time stoker:	This counter refers to the operating time of the stoker => cell wheel + feeding auger.
Operating time dosing auger:	This counter always refers to the operating time of the first auger before the cell wheel.

6. Settings



➔ To view the boiler settings such as boiler set temperature, ignition feeding, percent dosing auger to stoker, etc., press the **"Settings"** button **(POS 1)**.

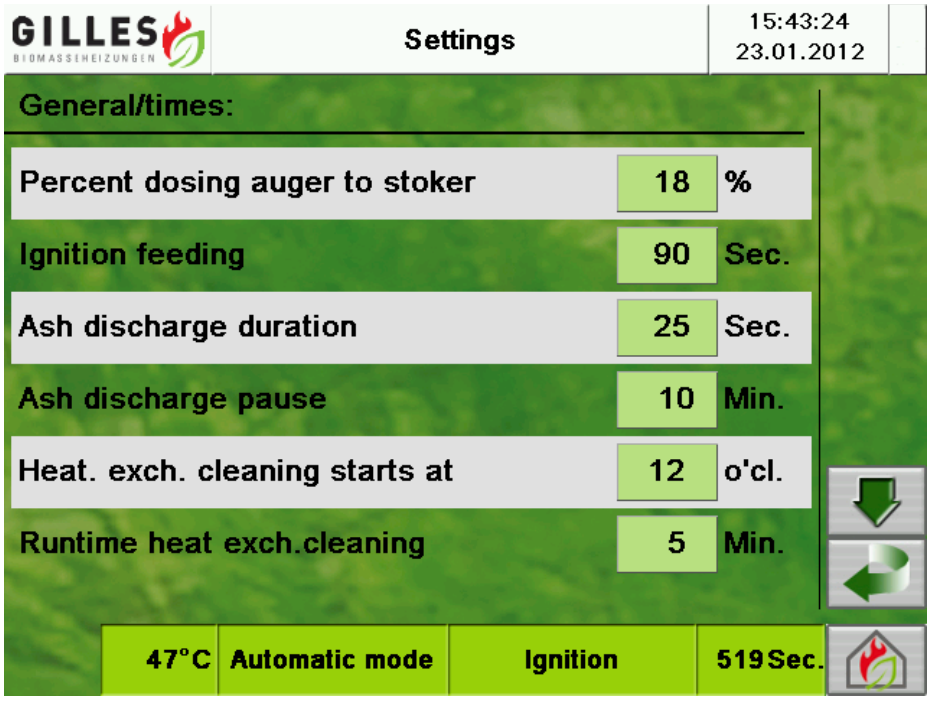
6.1 General boiler settings



➔ To set general boiler set temperature, ignition feeding, percent dosing auger to stoker, etc., press the **"General"** button (POS 1).

6.1.1 General boiler settings

6.1.1.1 Parameters, page 1 (general, times)



Parameter: ***Percent dosing auger to stoker***

Responsibility: **This parameter controls the material supply to the boiler.**

If the value is set too high, material is often advanced into the boiler => the cycle time is high and the delay is less.

If the value is set too low, less material is advanced into the boiler

=> the cycle (material feeding) is more likely shorter and the delay is higher.

The limits for this parameter are **lower limit = 0%, upper limit = 100%**

Parameter: ***Ignition feeding***

Responsibility: **This parameter controls material feeding for the ignition phase.**

If the boiler needs to be started when cold, it has to be reignited (by the ignition).

This parameter specifies how much material should be transported to the boiler before the ignition lights the material.

NOTICE: **This parameter depends on the operating time of the dosing auger (dosing auger = first auger before cell wheel).**
In this case, for example: Set to 50 sec., the dosing auger has to run for a total of 50 seconds. Only then is the ignition feeding stopped. => NO DELAYS ARE INCLUDED FOR THE DOSING AUGER, ONLY THE OPERATING TIME.

Parameter: ***Ash discharge duration***

Responsibility: **This parameter describes how long the ash discharge should run.**

NOTICE: **This value should not be too high to prevent any embers from being transported out of the boiler into the ash container.**

Parameter: ***Ash discharge pause***

Responsibility: **This parameter describes the delay for the ash auger.**

This value depends on the **operating time of the dosing auger**. For example: If this value is set to 10 minutes, for example, ash is discharged only after the dosing auger has run for 10 minutes.

Parameter: ***Heat. exch. cleaning starts at***

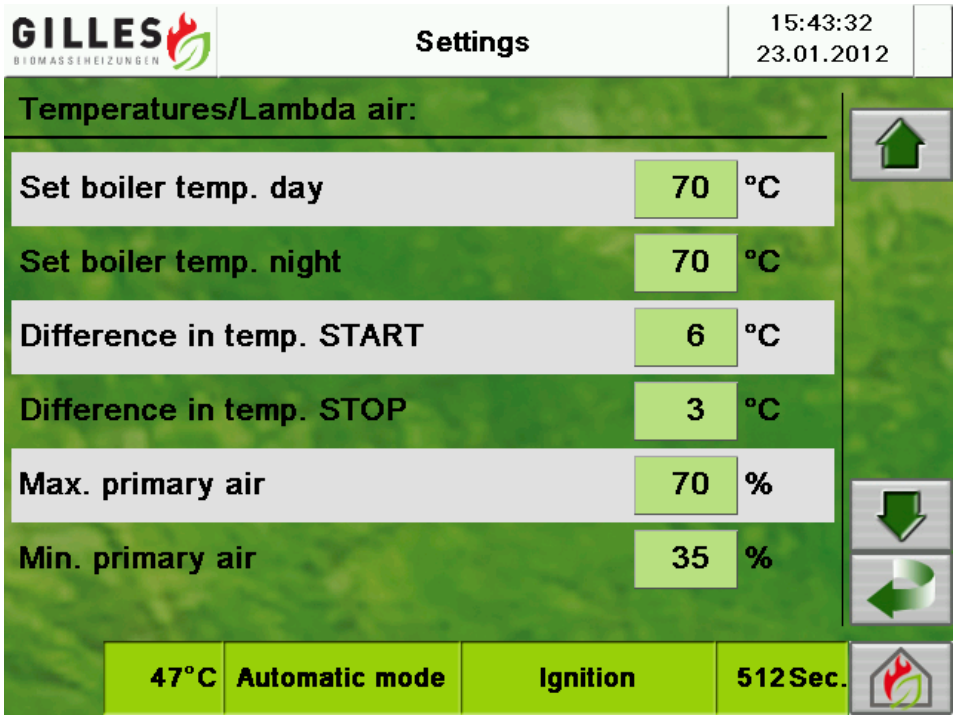
Responsibility: **This parameter is set when a basic cleaning of the heat exchanger should be performed.**

For systems where the heat exchanger does not have its own motor to perform the cleaning, this parameter is ineffective.

Parameter: ***Runtime heat exch. cleaning***

This parameter describes how long the heat exchanger cleaning should be performed.

6.1.1.2 Parameters, page 2 (temperatures, lambda air)



Parameter: ***Set boiler temp. DAY***

Responsibility: **Operating mode = automatic mode, time mode, log wood mode**

Automatic mode, time mode, log wood mode:
This temperature specifies by when the boiler should have reached its set temperature and when it can go into slumber mode.

Parameter: ***Set boiler temp. NIGHT***

Responsibility: **If the boiler goes into night economy (this time is in the "Night economy active" time window, see page 32 & f), this temperature is used as its target boiler temperature.**

NOTICE: **The boiler only switches off if it has reached boiler temperature of "Boiler temperature day/night + Difference in temp. STOP".**

Parameter: ***Difference in temp. START***

Responsibility: **This parameter specifies when the boiler starts again.**

Example: Boiler temperature DAY = 80°C
Difference in temp. START = 5°C

The boiler switches on at a boiler temperature of
"80°C - Difference in temp. START".

It only gets the signal for heating mode again if the boiler temperature is lower than "Boiler temperature DAY – Difference in temp. START"

Parameter: ***Difference in temp. STOP***

Responsibility: **This parameter specifies when the boiler should switch off.**

Example: Boiler temperature DAY = 80°C
Difference in temp. STOP = 3°C

The boiler only switches of when the boiler temperature is
"80°C + Difference in temp. STOP".

Parameter: ***Max. primary air***

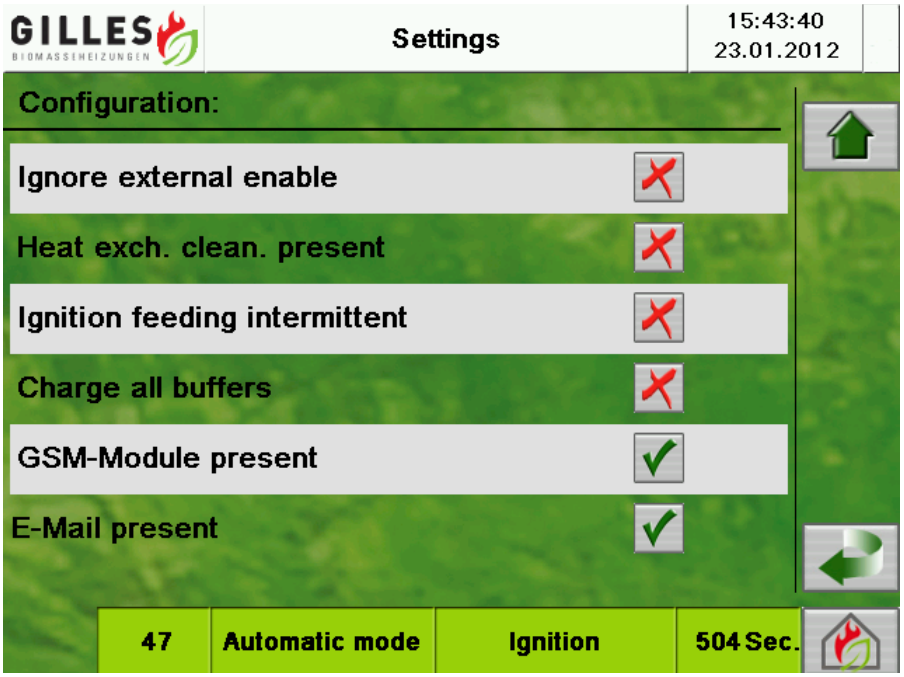
Responsibility: **This parameter is used to set the maximum fan performance.**

Parameter: ***Min. primary air***

Responsibility: **This parameter is used to set the minimum fan performance.**

NOTICE: **The primary fan is primarily responsible for combustion in the boiler!**

6.1.1.3 Parameters, page 3 (configurations)



Parameter: ***Ignore external enable***

Responsibility: **If the boiler does not receive any external signal that it should heat, e.g. from a heating circuit control, the "Ignore external enable"" parameter must be activated.**

Parameter: ***Heat exch. clean present***

Responsibility: **If heat exchanger cleaning is not powered by its own motor, this selection must be deactivated.**

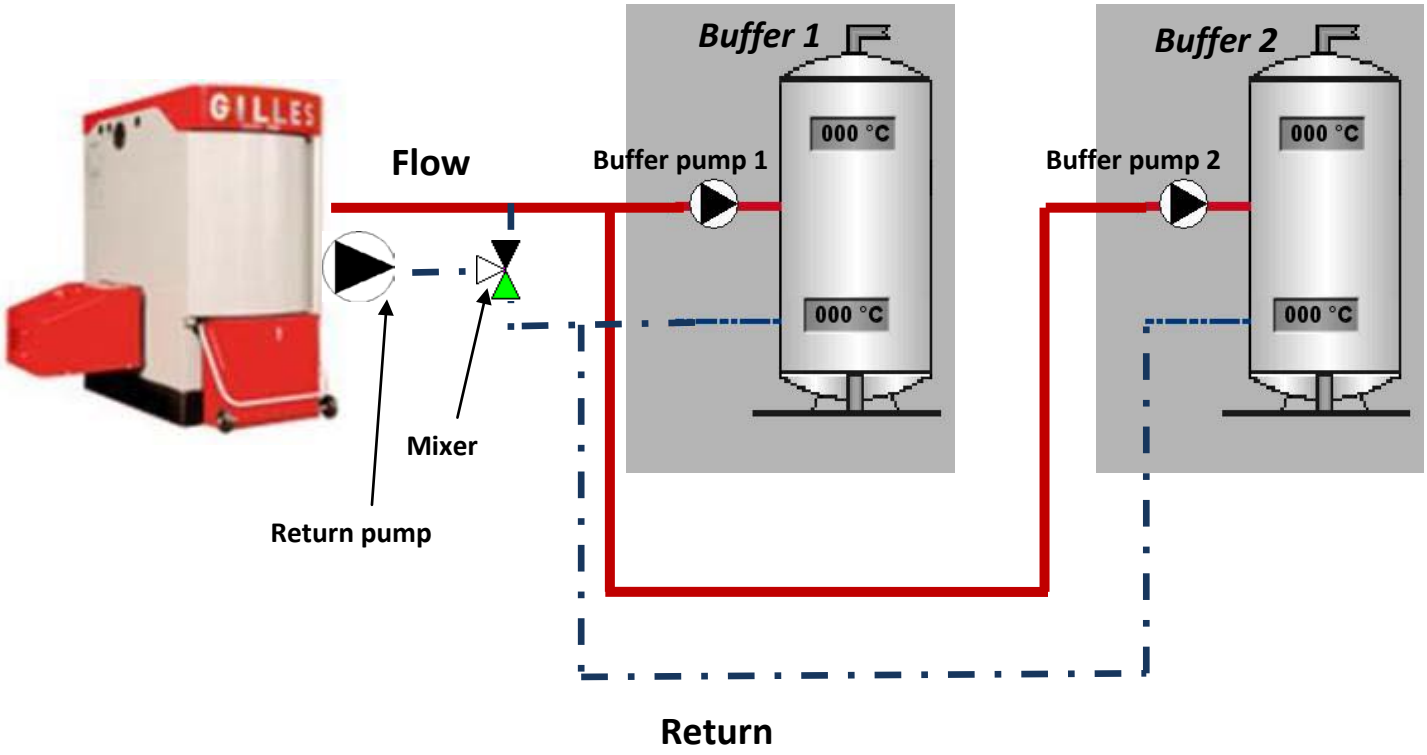
Parameter: ***Ignition feeding intermittent***

Responsibility: **This parameter describes if the ignition feeding should be intermittent or continuous.**

Parameter: ***Charge all buffers***

Responsibility: **This parameter can be used when two buffers are are connected to the system and they are not connected in serial, but in parallel. See detail drawing 1**

Detail drawing 1:



➔ **Control behaviour:**

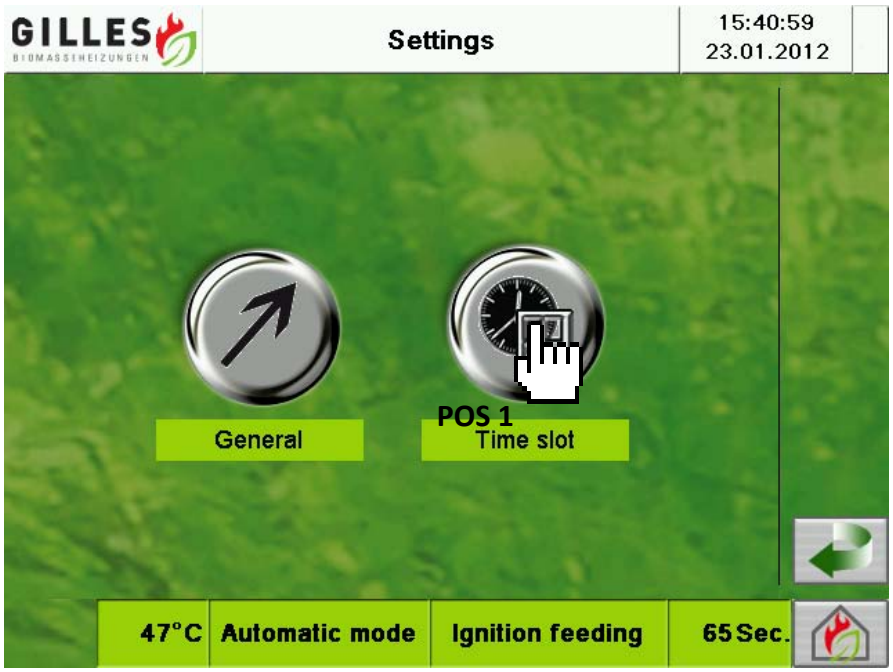
If a buffer demands heat, the second buffer also controls if it can require heat.
If buffer 2 falls below **"Buffer set temperature – 4°C"**, this buffer (buffer 2) is also charged.
The same control behaviour occurs with buffer 1 should buffer 2 require it.

Parameter: ***GSM Module present***

If an SMS interference device is attached to the display, this parameter must be activated.
Only after it has been activated can you configure this device from the touch display.
The "GSM setup" option is now enabled in the **"General settings" (see S15)**.

INFO: **To set up the GSM module, please read the documentation "Cinterion GSM Module Operating Instructions".**

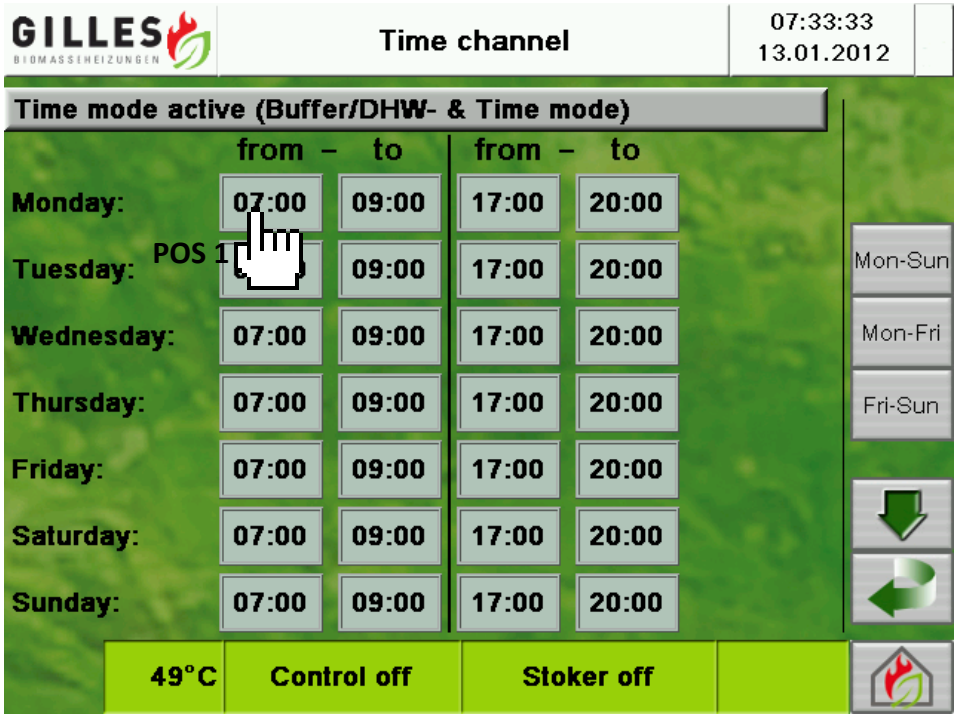
6.2 Time slot / Night economy



➔ To set a time slot (for operating mode: time operated & buffer/boiler mode) and night economy mode, please press **POS1**.

6.2.1 Time mode

The enable times for the "Buffer/boiler" and "Time mode" operating modes are set in the first screen.



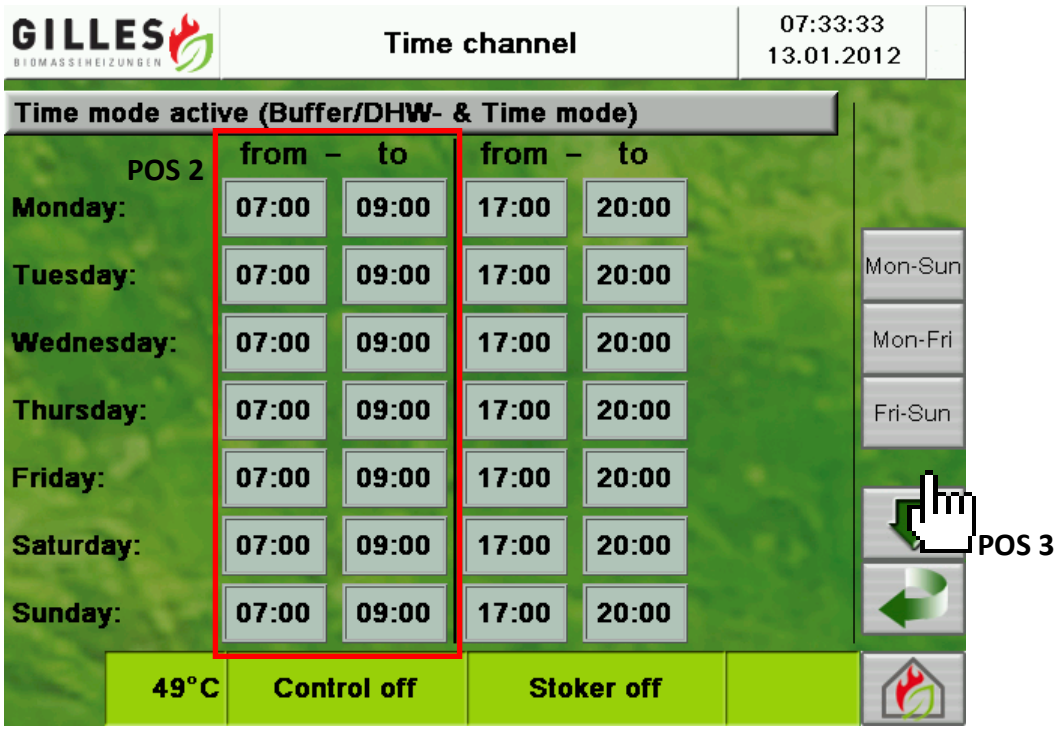
➔ In general, two different time slots (e.g. morning/afternoon) can be set. These time slots precisely define when the boiler can start. Outside these time slots, the boiler is not enabled to heat.

➔ Press **POS 1** to display the settings window.

➔ If every day should have the same time slot, only enter the time for Monday. Click the **"Mon-Sun"**, **"Mon-Fri"** or **"Sat-Sun"** button to automatically apply the time for Monday to the other days.

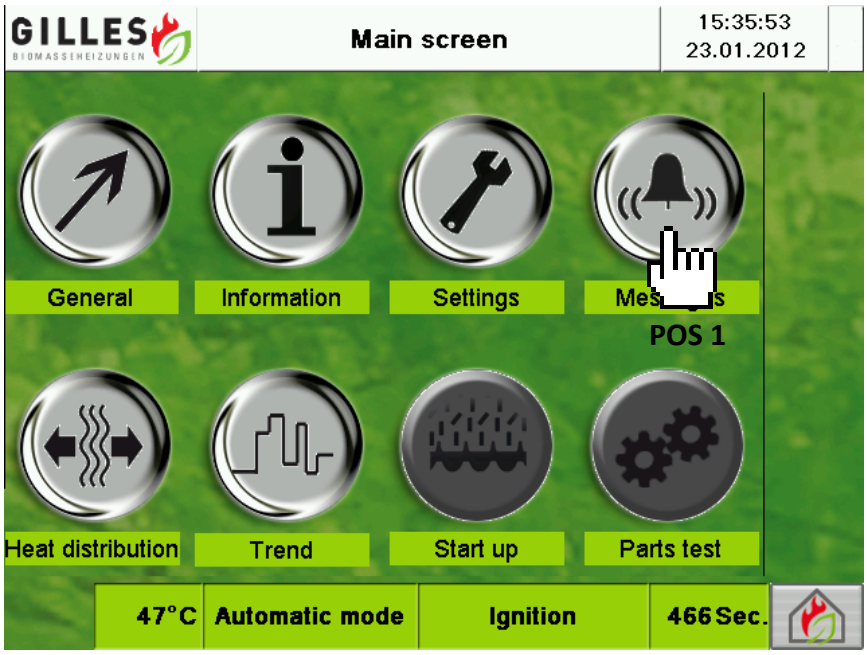
Mon-Sun =	**Monday through Sunday**
Mon-Fri =	**Monday through Friday**
Sat-Sun =	**Saturday through Sunday**

NOTICE: Should the boiler be enabled for **24 hours** continuously, only **one row** of the time slots must be enabled **(see POS 2).** The enable time must now be set to **from 00:01 – 23:59**.



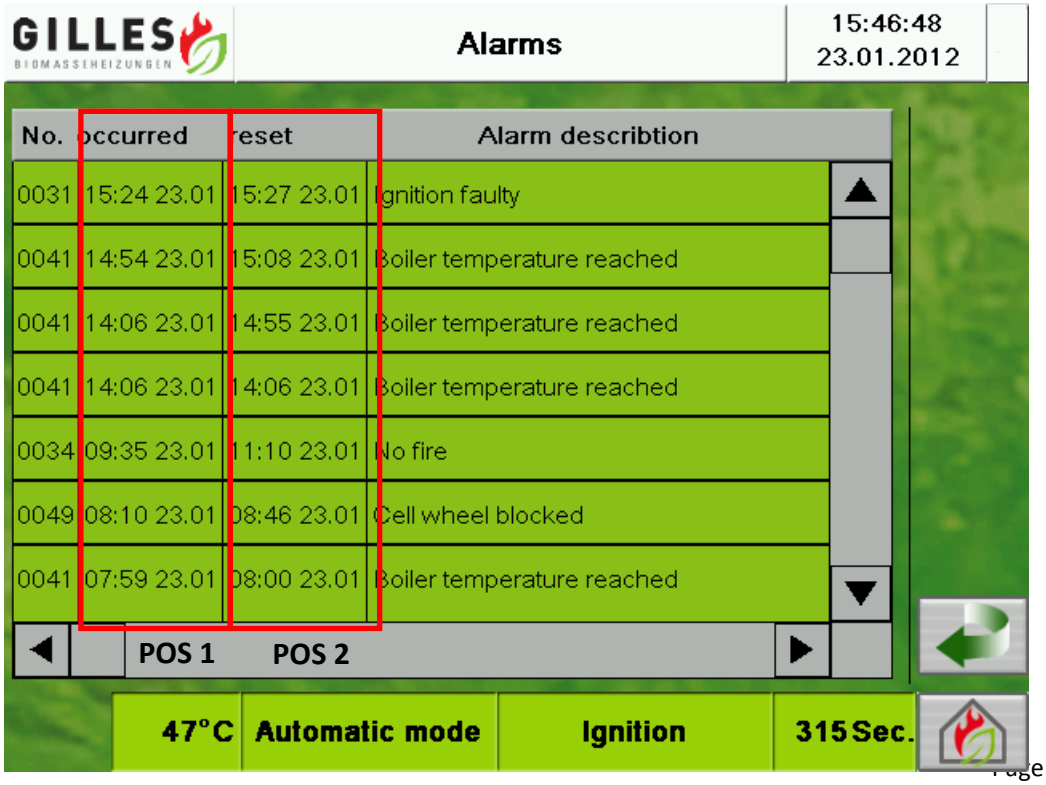
➔ Press the ***"Page Down" button (POS 3)*** to switch to the time slots for the **"Buffer / boiler slumber"** mode and then to the times for **night economy**.

7. Messages



The boiler events or alarm messages appear under **POS 1**.

7.1 Messages



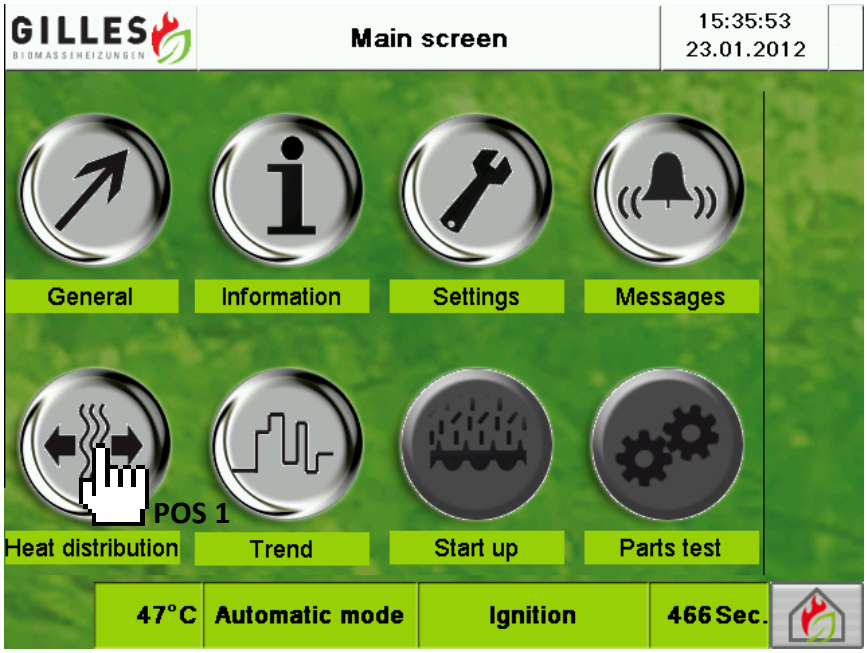
➔ 5000 messages and alarms are stored in this window. The 5001st alarm is added again at the very top.
More information about alarms & messages, see page 61 & ff.

➔ When **it occurred (POS 1)** and when **it was acknowledged (POS 2)** appears for each alarm.

Colour identification: **Messages/alarms in red are current messages that have not been acknowledged yet.**

Messages in green have already been acknowledged.

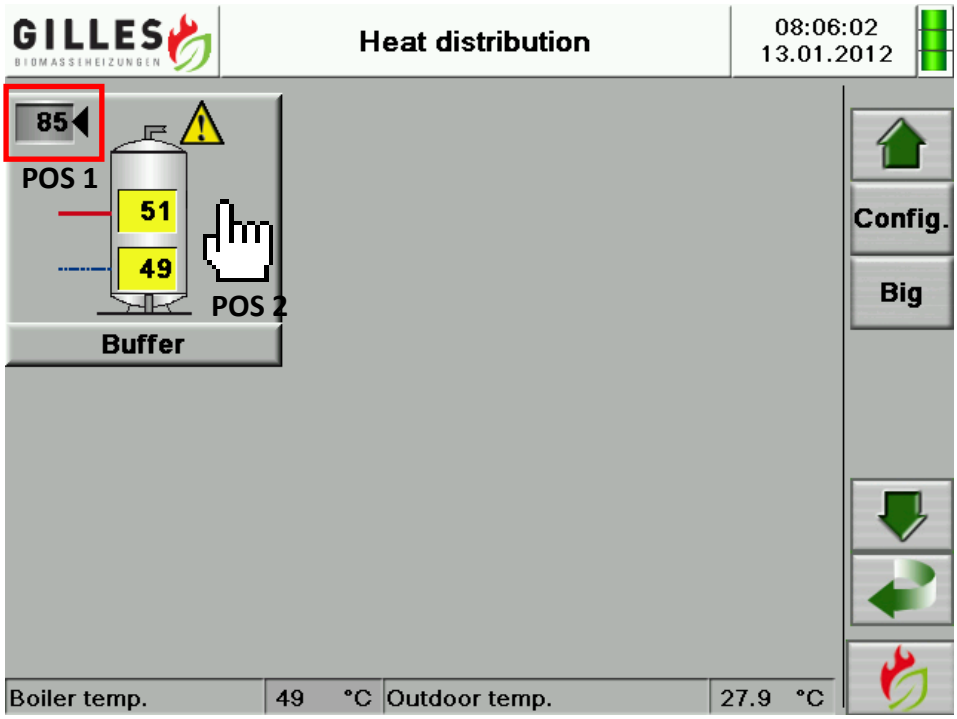
8. Heat distribution



In the heat distribution you can view and change the temperatures and parameters for a buffer or boiler.

8.1 Heat distribution

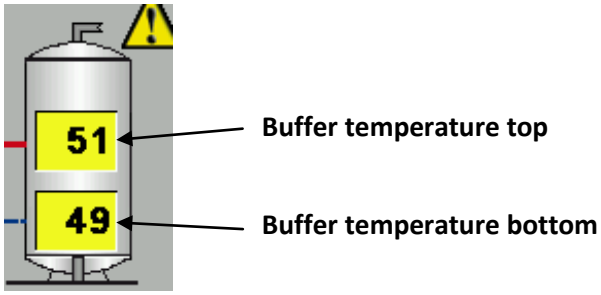
8.1.1 Buffer parameters



➔ If a value greater than 0 is entered in **POS 1**, there is currently a request from the buffer to the boiler => **the buffer requires heat again.**

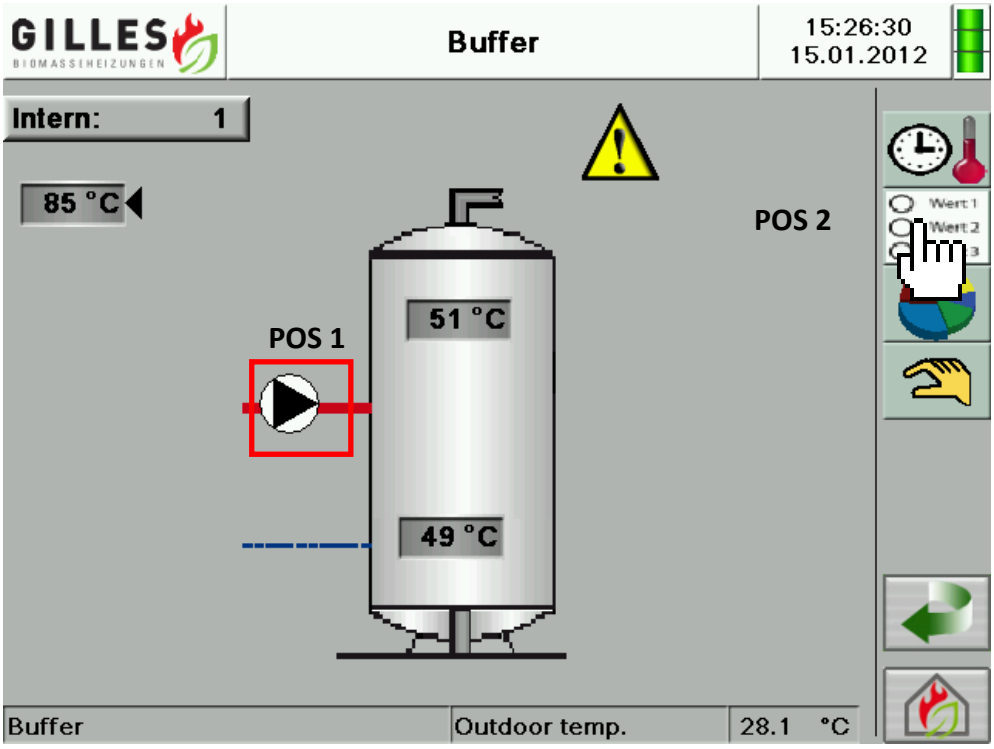
➔ The buffer temperatures top & bottom immediately appear here (see Detail 1).

Detail 1:



➔ Press **POS 2** to display the settings menu for the buffer.

8.1.2 Detailed information about the buffer parameters

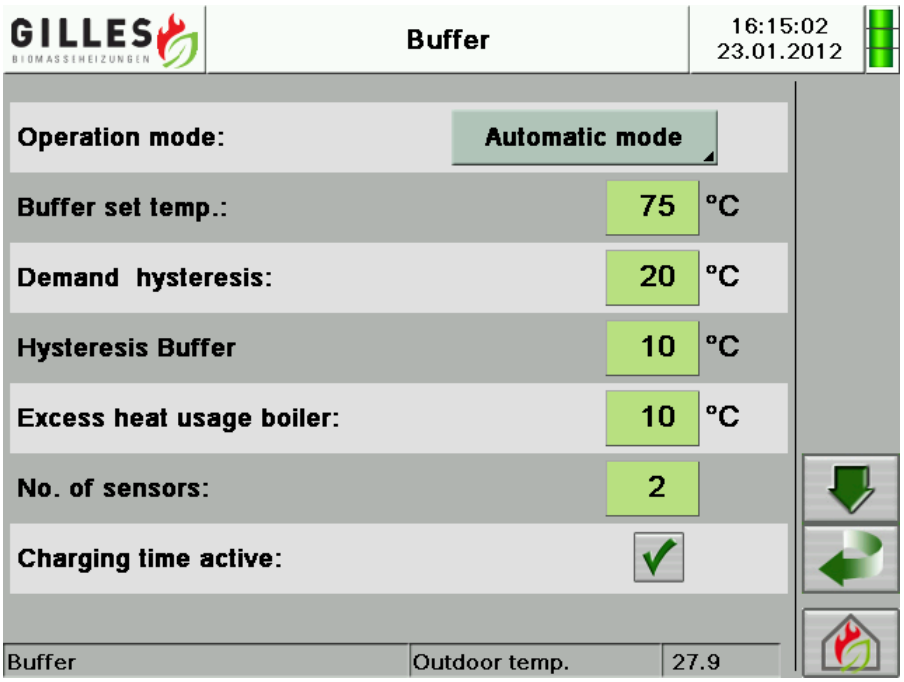


➔ This screen now also displays data visible under point 8.1.1, only larger.

➔ This screen also shows if the buffer pump is currently running **(POS 1)** (if present).
If the buffer pump is running, this is green.

➔ To now change the buffer settings, press **POS 2**.

8.1.2.1 Buffer settings (page 1)



➔ In this window, you can make any settings that affect the buffer.

Parameter: ***Operating mode***

Responsibility: **This parameter controls the return pump and buffer pump (if present)**

The following operating modes are available: ***(Pump control, see page 49 f)***

1. **OFF** The return pump and buffer pump (if present) are off and no longer controlled.
2. **Manual** The buffer pump can be switched on manually. (Switching on the buffer pump manually, see page 47 ff)
3. **Manual ON** The return pump and buffer pump (if present) run continuously (24 hours).
4. **Automatic** The return pump and buffer pump (if present) are controlled intelligently & energy-efficiently. If the **"Excess heat usage boiler"** parameter has been set (see p. 52 & 53), the excess boiler energy is transported to the buffer.

NOTICE: **Excess heat usage is only useful for boilers with a large water volume (from 75KW). Otherwise, the buffer could cool down faster by the excess heat usage.**

Parameter: ***Buffer set temperature***

Responsibility: This parameter describes to which temperature the buffer should be heated.

NOTICE: **This temperature is based on the "Buffer temperature BOTTOM => The boiler only switches off if the buffer set temperature corresponds to the Buffer temperature BOTTOM.**

Parameter: ***Demand hysteresis***
Parameter: ***Demand hysteresis slumber mode***

Demand hysteresis: This parameter applies to the operating mode Buffer/DHW

Demand hysteresis slumber mode: Operative for the Buffer/boiler slumber mode.

Responsibility: This defines the temperature at which the buffer may demand on the boiler **(The buffer demand on the boiler refers to the buffer temperature TOP).**

Example: Buffer set temp. = 70°C
Demand hysteresis = 5°C

The buffer should only have demand again if the buffer temperature TOP is less than 65°C.

Parameter: ***Temperature increase boiler***

Responsibility: **To reach a buffer set temperature of 70°C, for example, the boiler must be set to the higher boiler set temperature.**

Example: Buffer set temp. = 70°C
Temperature increase boiler = 10°C

The boiler now regulates to a boiler temperature of 80°C, so that it reaches a buffer set temperature (based on the lower sensor) of 70°C.

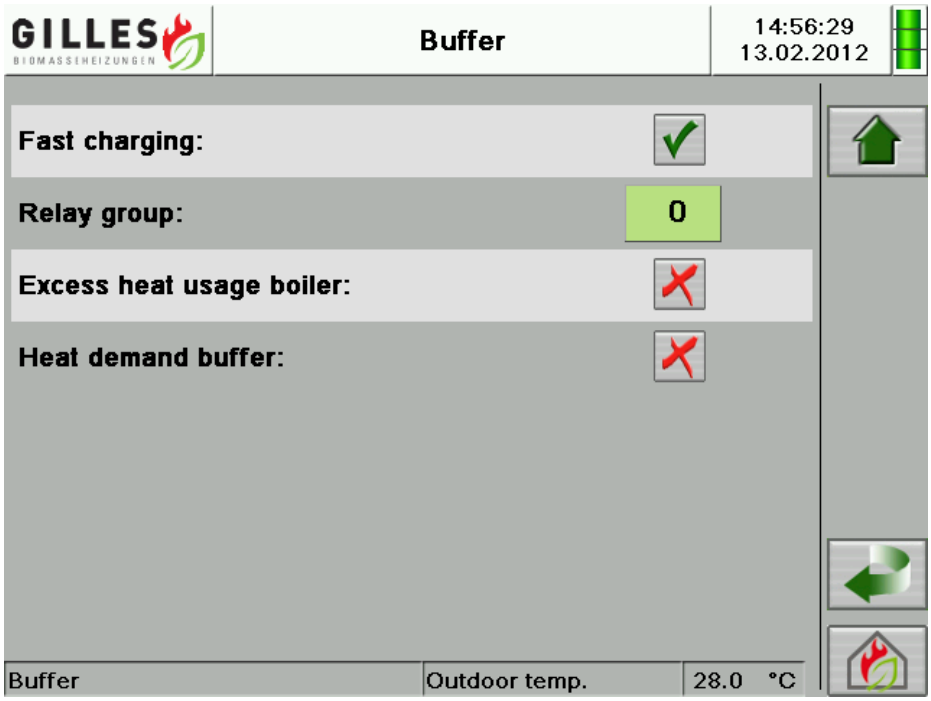
Parameter: ***No. of sensors***

Responsibility: **Number of sensors in the buffer (there is normally one sensor in the top half and one sensor in the bottom half of the buffer).**

Parameter: ***Charging time active***

Responsibility: **The buffer charging times (enable for the boiler) has been activated. For more information, see page 45.**

8.1.2.2 Buffer settings (page 2)

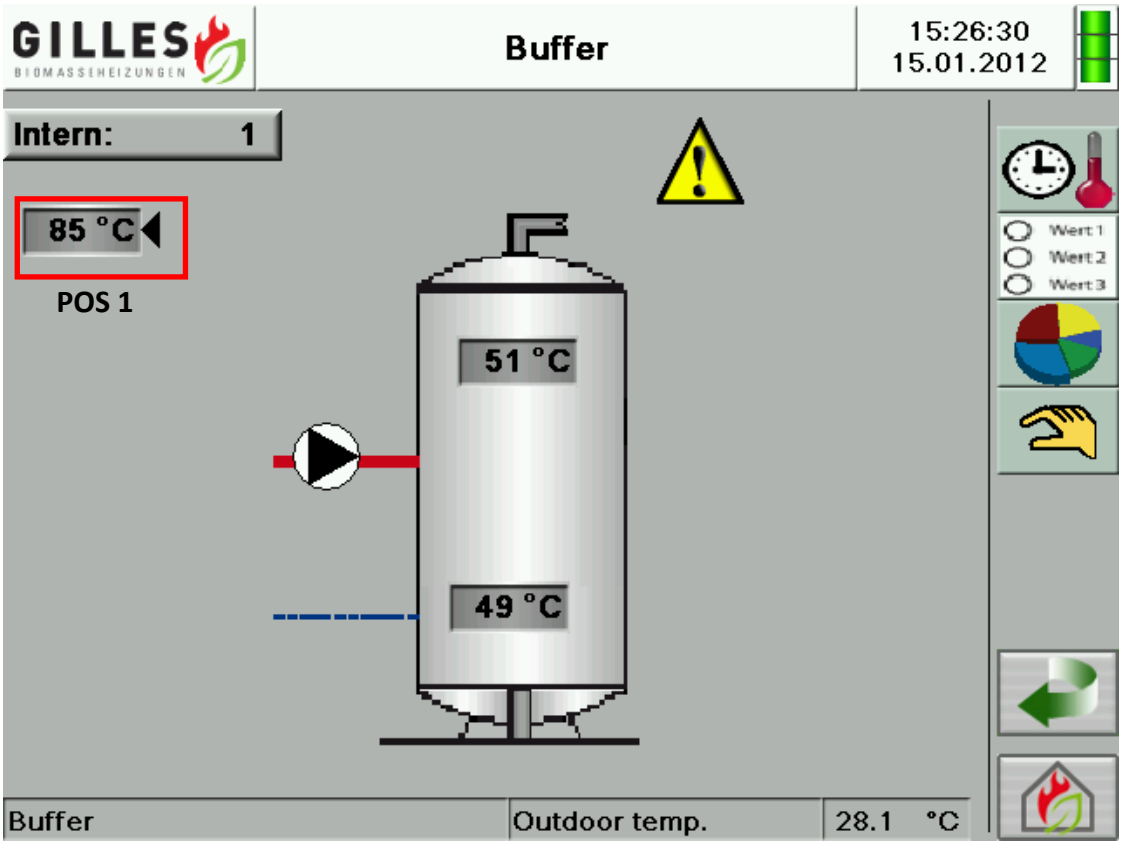


Parameter: ***Fast charging***

Responsibility: **The fast charging parameter defines if the buffer should charge slowly or whether the boiler can immediately charge the buffer to its buffer set temperature.**

Example: Butter set temp. = 70°C

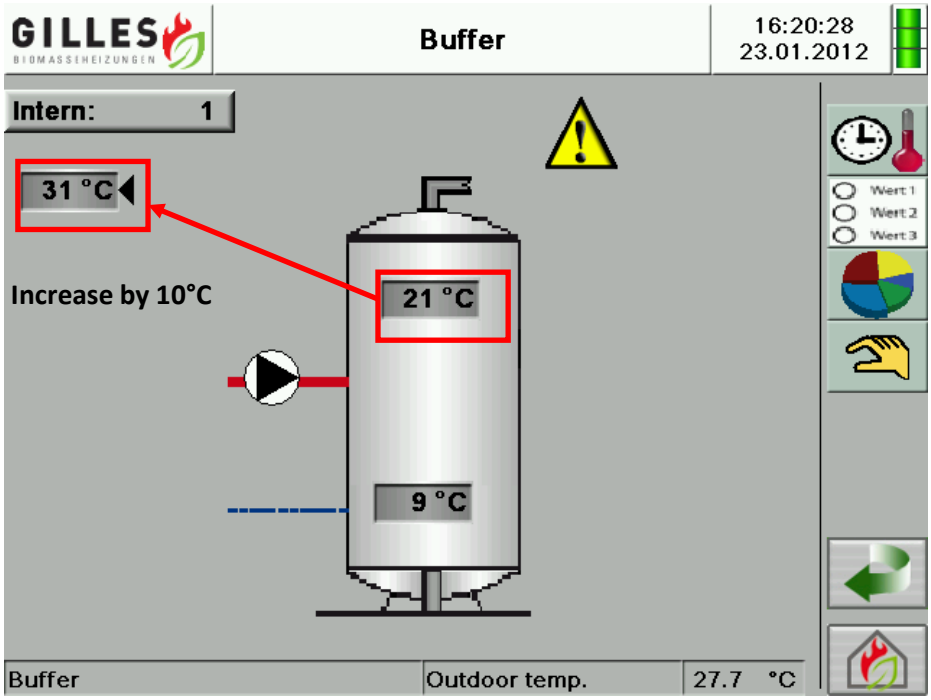
Fast charging = 



➔ If fast charging is on, the boiler immediately receives a **temperature specification of 85°C (POS 1)**
(Buffer set temp. + Temperature increase boiler)

Example: Butter set temp. = 70°C

Fast charging = 



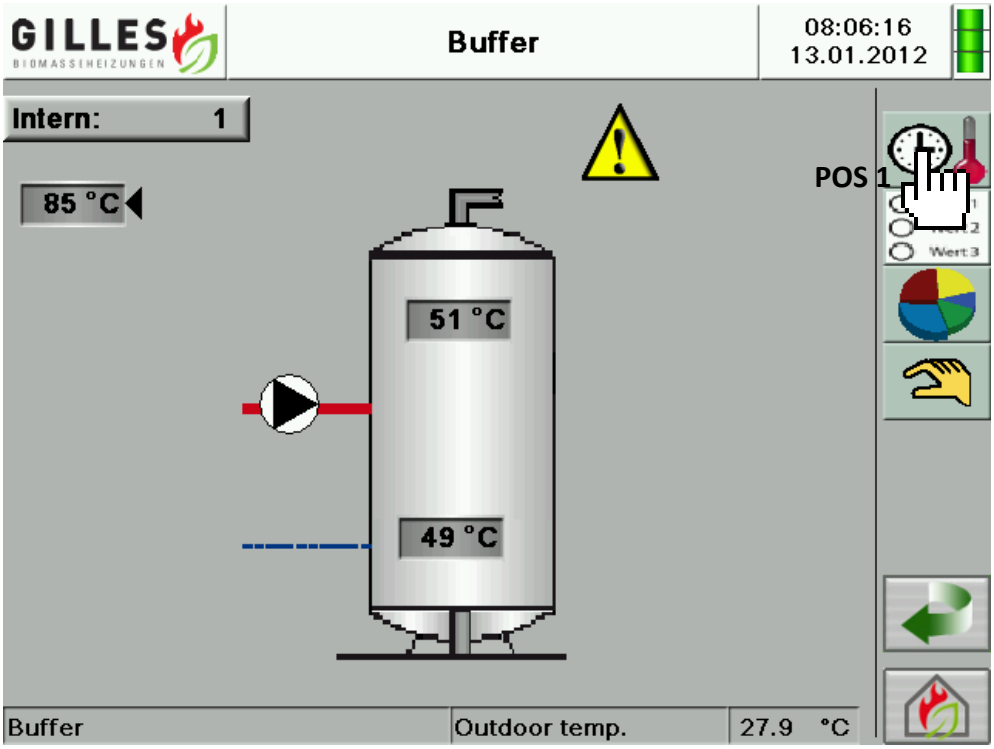
➔ If fast charging has been switched off, the buffer is charged slowly (in layers).

For example: If the buffer temperature TOP is 21°C, the boiler only receives a demand 10°C higher than this temperature => the boiler receives a specification of 31°C.
The temperature is always increased in layers by 10°C as long as the buffer set temperature is reached.

Parameter: ***Excess heat usage***

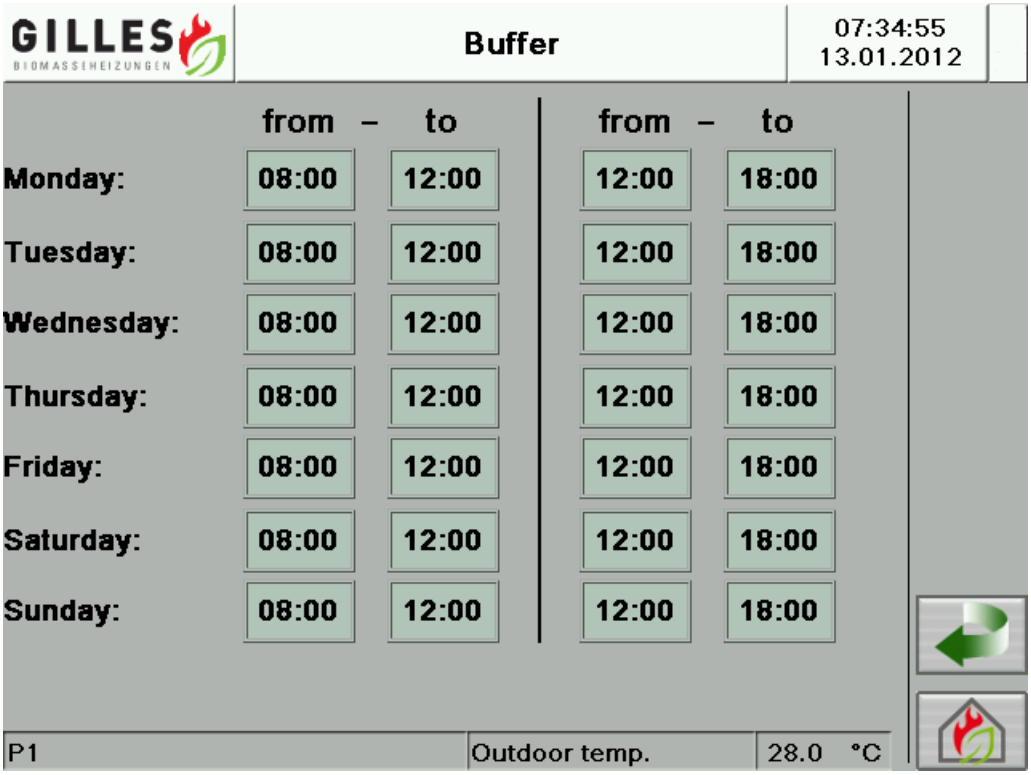
Responsibility: **If this parameter has been activated, the excess heat is transported from the boiler to the buffer after reaching the buffer set temperature - boiler has switched off.**
(see pump control, page 52 & 53)

8.1.3 Detailed information, charging times (enable time)



➔ To assign separate charging times to the buffer **in addition to the boiler enable times** (see page 32 & 33), go the screen **POS 1**.

8.1.3.1 Buffer charging times



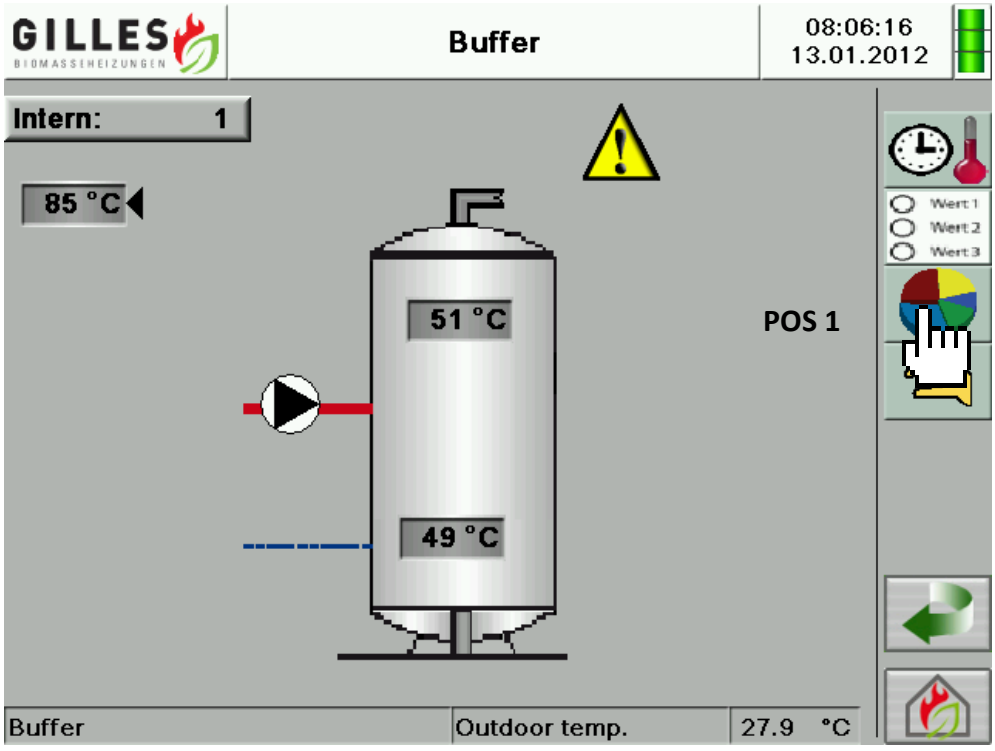
➔ In this window, you can define additional enable times to the buffer in addition to the boiler enable times (see page 32 & 33).

➔ The settings and operation are the same as described on page 32 & 33.

➔ These enable times are only active if the **"Charging times active"** parameter has been set (see page 38 & ff).

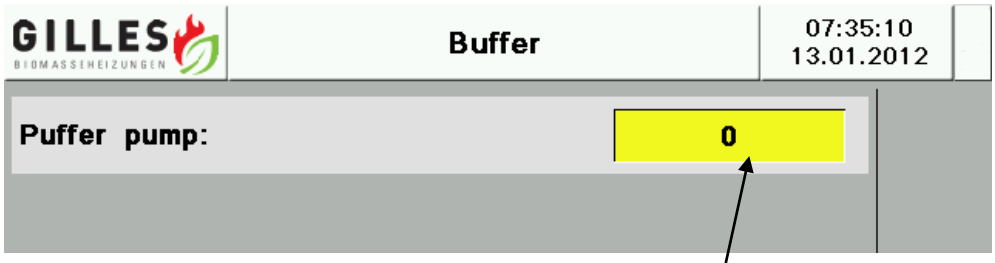
NOTICE: **If the boiler gets demand from the buffer, the buffer must be in the boiler enable times (see page 32 & 33) and in the buffer release times. Otherwise, the boiler does not receive any release to charge the buffer.**

8.1.4 Information, buffer charging pump



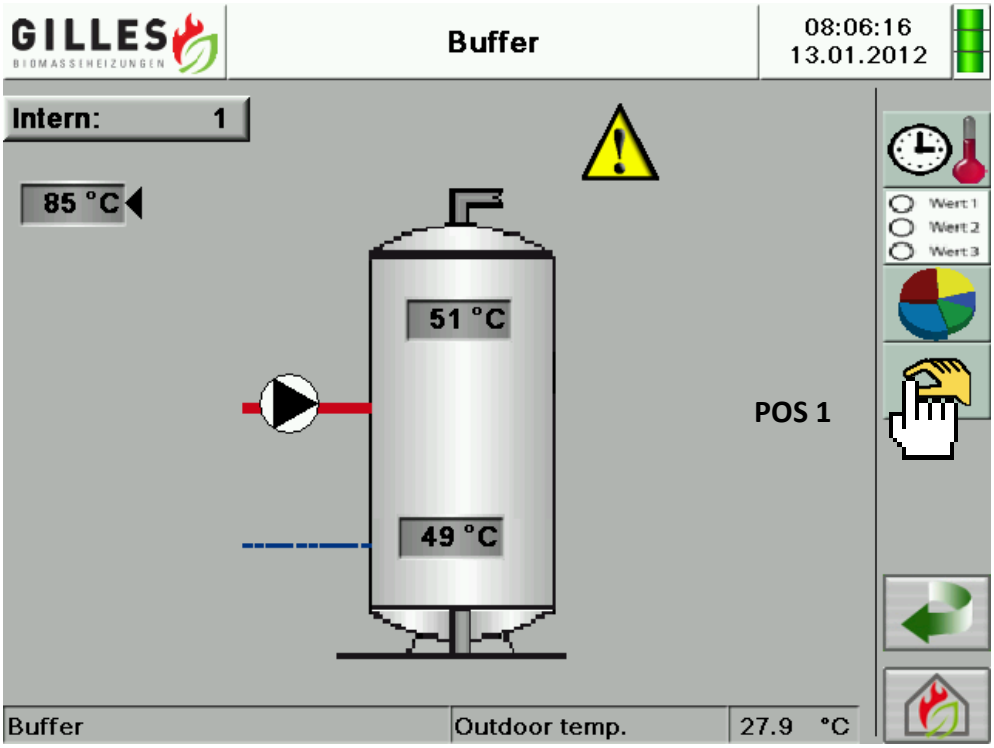
➔ Press **POS 1** to display information about how often the buffer pump has already been switched on.

8.1.4.1 Information, buffer charging pump (detail)



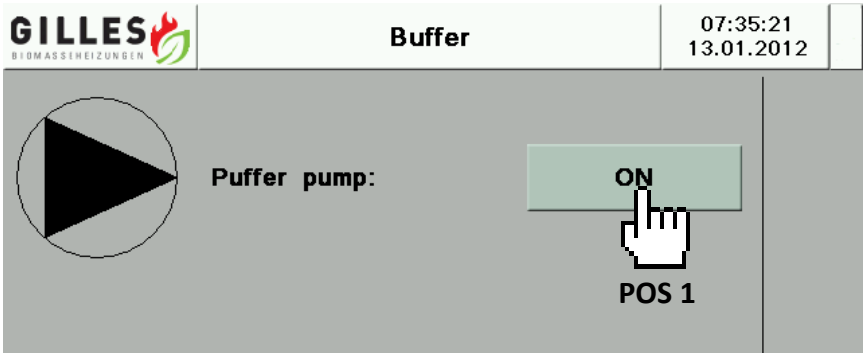
Total number of times the buffer charging pump has already been switched on.

8.1.5 Manual mode (buffer charging pump)

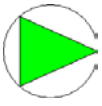


➔ To control the buffer charging pump in manual mode, you must switch to the **POS 1** screen.

8.1.5.1 Manual mode for buffer charging pump



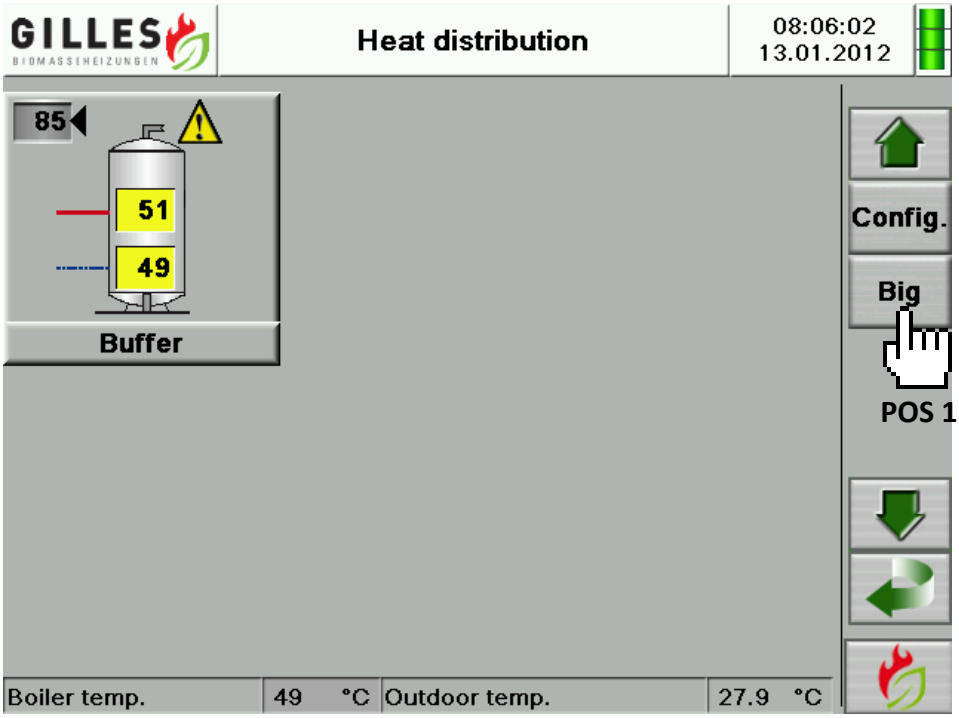
➔ Press the **ON button (POS 1)** to switch the buffer charging pump on.
The charging pump is now green:



➔ If you leave this screen, the buffer pump also switches off.

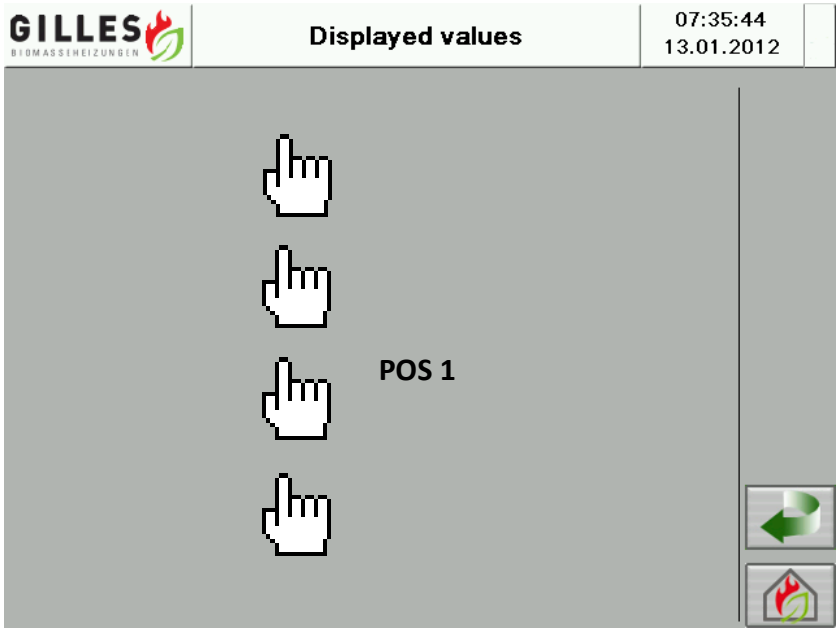
INFORMATION: **To continue controlling the pump in manual mode when exiting the screen, the pump must be set to "Manual mode" (see page 38).**

8.1.6 Large display of the individual parameters (via BIG button)

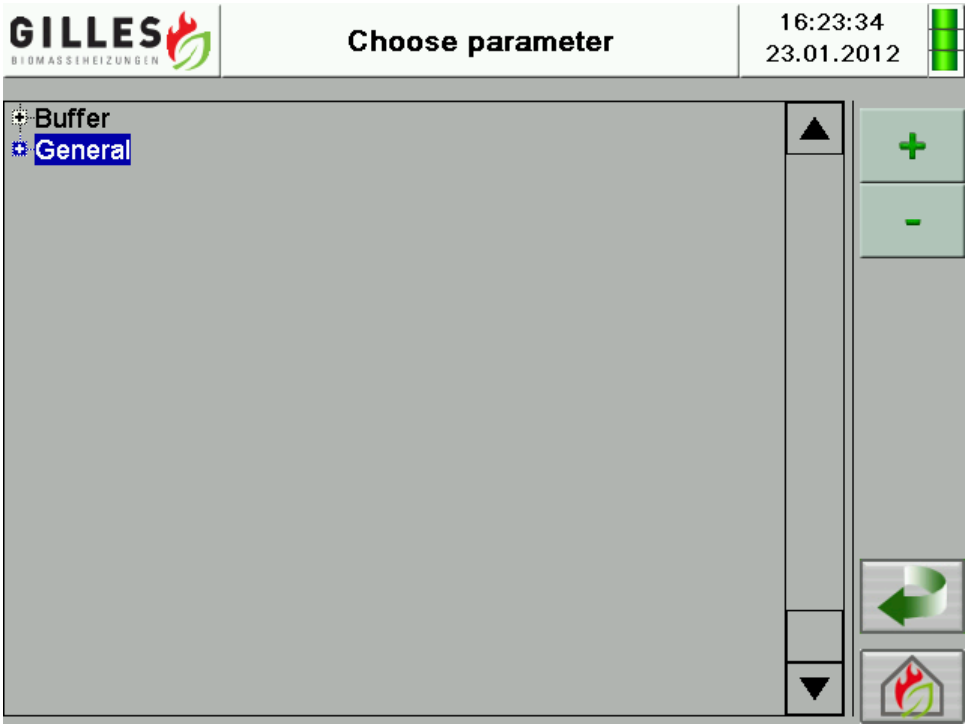


➔ Press **POS 1** to display the parameters in the large format.

8.1.6.1 Large display of the parameters (details)

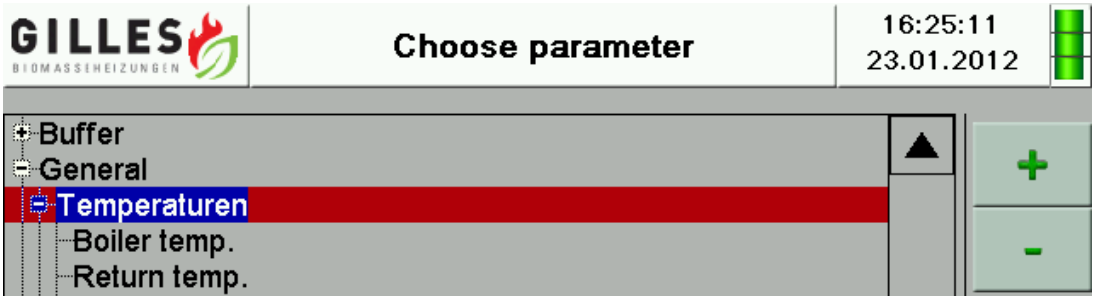


➔ To create a parameter in the large display, click on the position on the screen **(POS 1)**, where you want to create it.

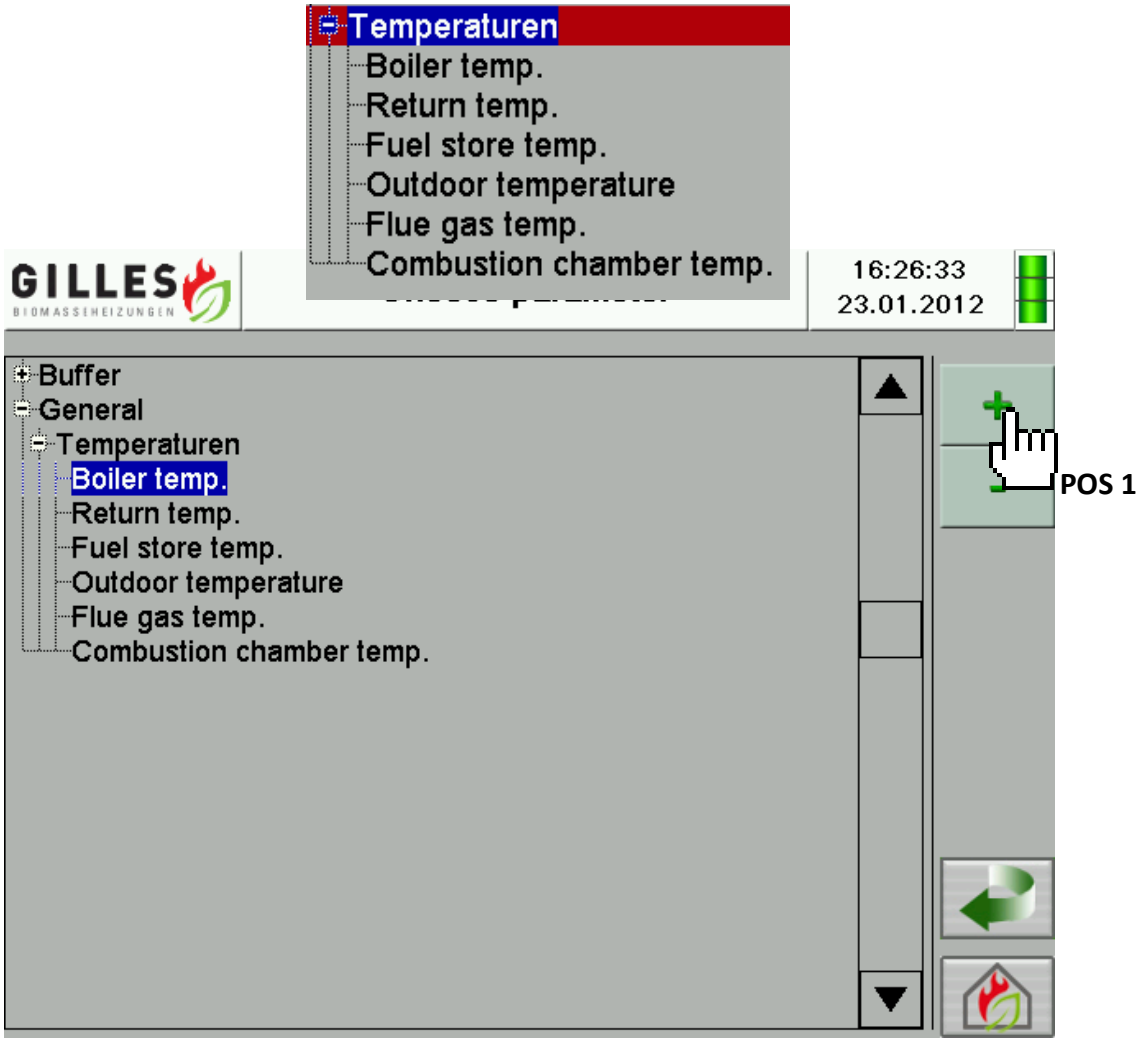


➔ Now you can select between **general parameters,** such as boiler temperature, return temperature, etc. or **temperatures that affect the buffer** (if present).

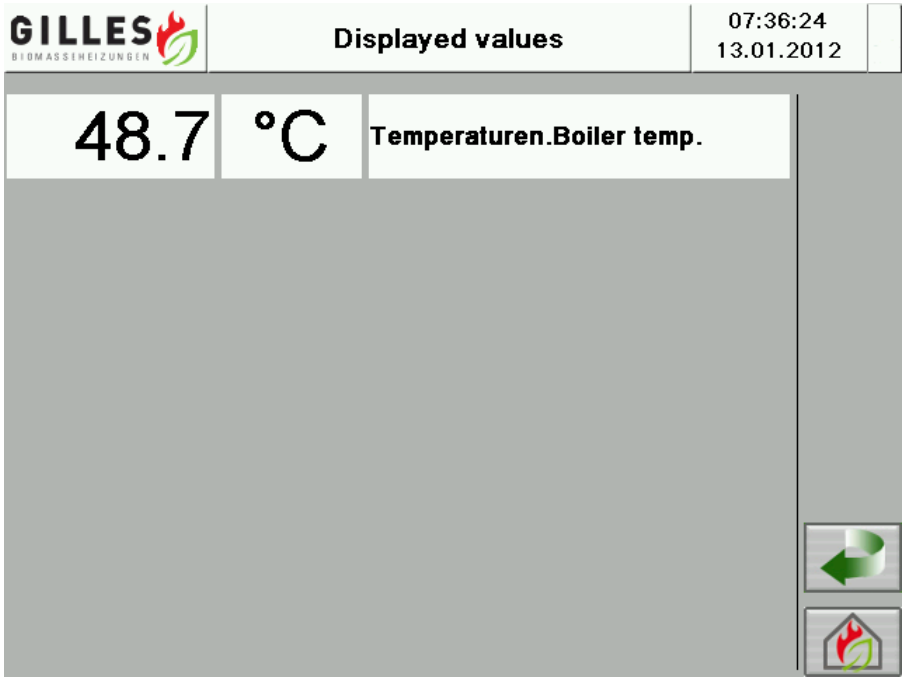
➔ Double-click with your finger to list all parameters that may be selected.



➔ The tree structure then opens (you go one level further). Double-click on temperatures to list the individual parameters that may be displayed.

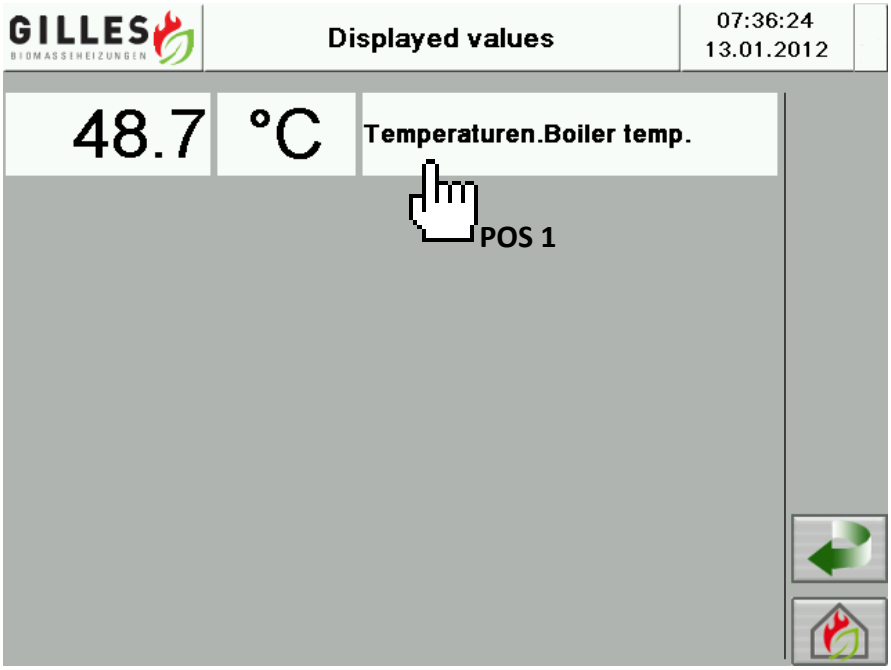


➔ Now you only have to select the required temperature (click once with your finger) and then press the **"+" button (Pos 1)**.

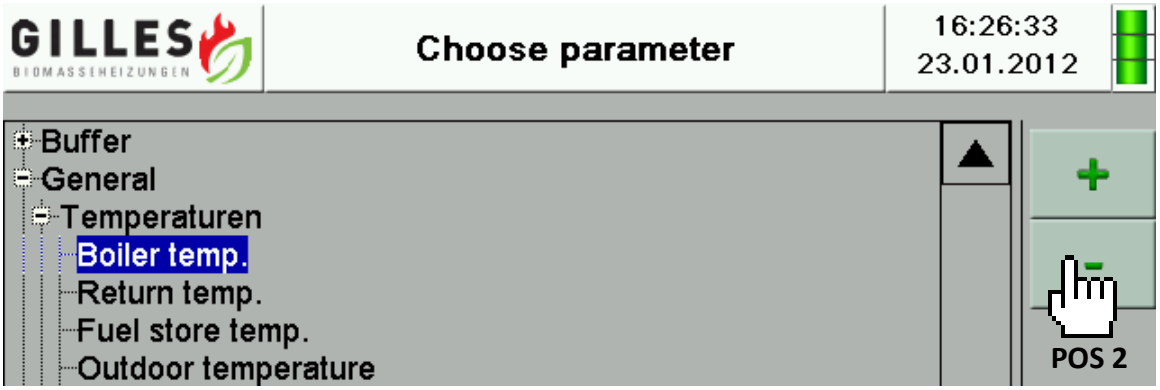


➔ The required temperature now appears in large format and in the position you previously selected.

8.1.6.2 Deleting a parameter (large display)



➔ To now delete this parameter again, click **(POS 1)**.



➔ Click the **"-" button (POS 2)** to delete parameters previously created.

9. Return pumps & buffer pump control

➔ Control of the pumps differs depending on the type of application or hydraulic conditions.

9.1 Variant 1

Bypass pump present = YES
Buffer pump present = NO
Buffer present = NO

Boiler temperature:	Event
Boiler temperature >= 63°C	Bypass pump ON
Boiler temperature <= 60°C	Bypass pump OFF

9.2 Variant 2

Bypass pump present = YES
Buffer pump present = YES
Buffer present = YES

Boiler temperature:	Event
Boiler temperature >= 63°C	Bypass pump ON
Boiler temperature <= 60°C	Bypass pump OFF
Boiler temperature >= 65°C	Bypass pump ON
Boiler temperature <= 63°C	Bypass pump OFF
EXCESS HEAT USAGE OPTION	
Boiler temperature >= Buffer temp. bottom + 5°C & Boiler temperature >= 65°C	Bypass pump ON, buffer pump ON
Boiler temperature <= Buffer temp. bottom + 2°C or Boiler temperature < 63°C	Bypass pump OFF, buffer pump OFF

9.3 Variant 3

Return pump present = YES
Buffer pump present = NO
Buffer present = YES

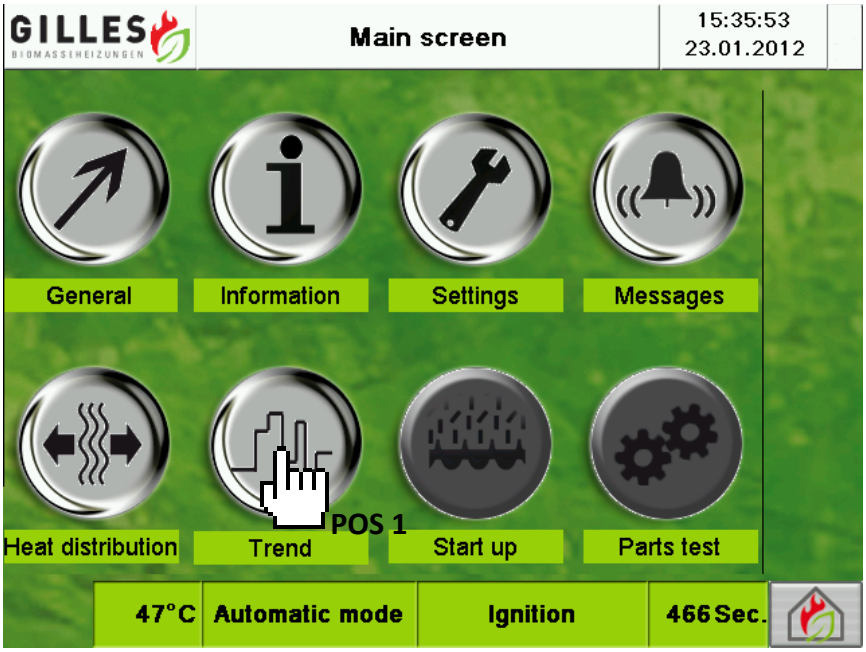
Boiler temperature:	Event
Boiler temperature >= 63°C	Bypass pump ON
Boiler temperature <= 60°C	Bypass pump OFF
EXCESS HEAT USAGE OPTION	
Boiler temperature >= Buffer temp. bottom + 5°C & boiler temperature >= 65°C	Bypass pump ON
Boiler temperature <= Buffer temp. bottom + 2°C or Boiler temperature < 63°C	Bypass pump OFF

GENERAL:

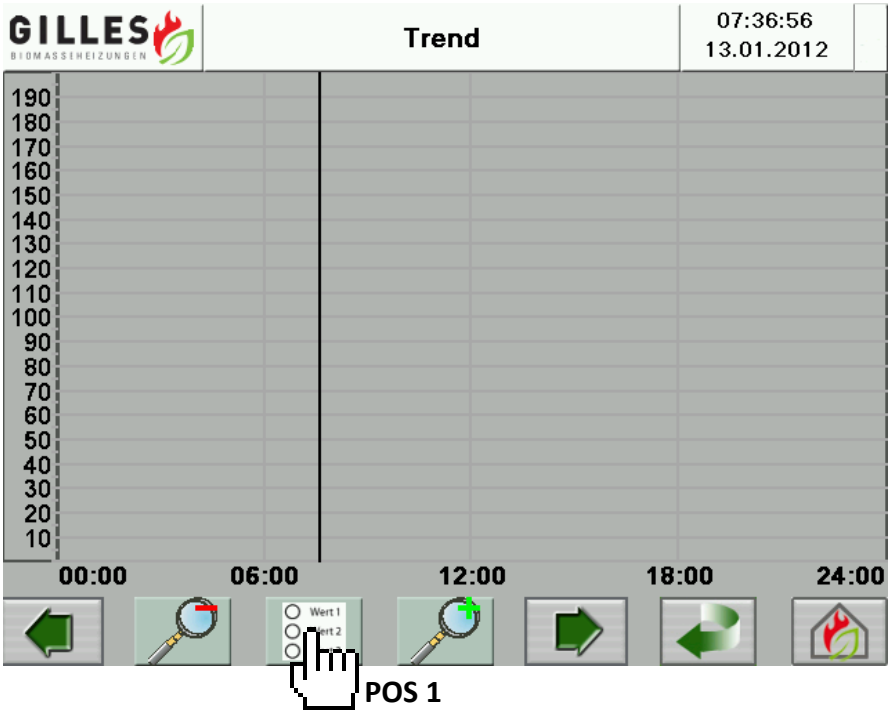
- **In the "Control OFF" or "Manual" operating modes, no pumps are controlled.**

- **When the boiler temperature is greater than 92°C, all pumps are switched on => overheat control**

10. Trend display



➔ To observe the control behaviour and temperature behaviour of the boiler, go to the **"Trend display" (POS 1)** window.

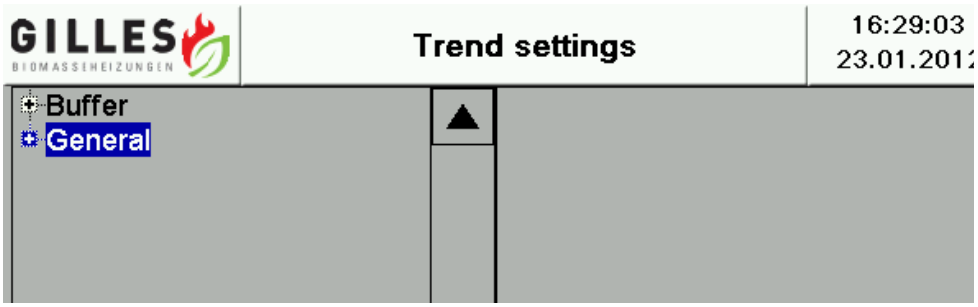


➔ To display a diagram curve, press the **"VALUE 1,2,3" (POS 1)** BUTTON.

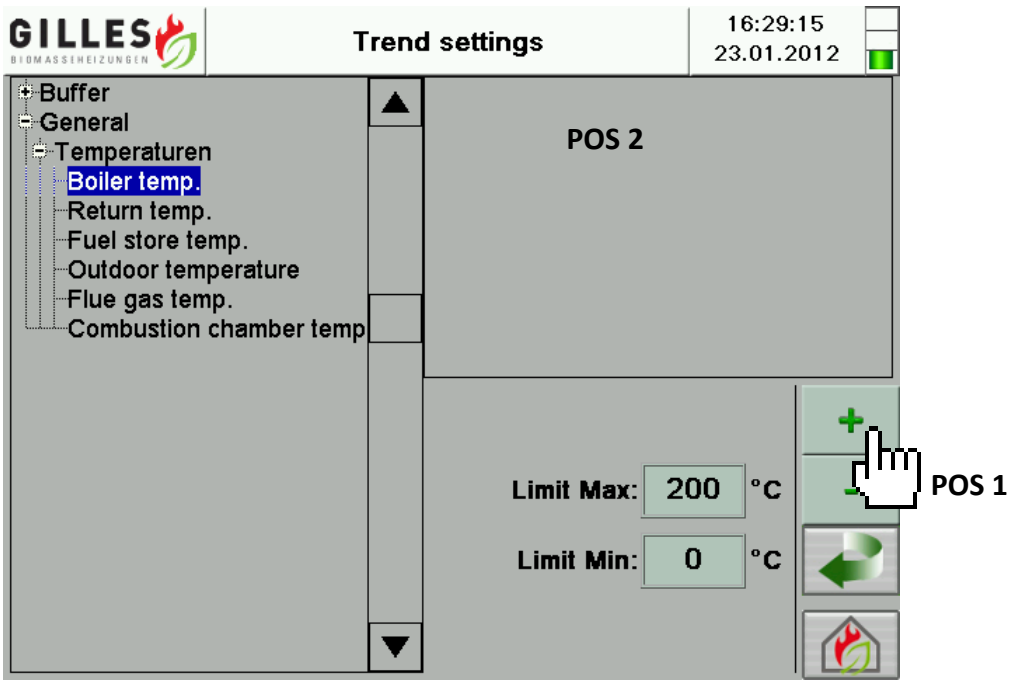
10.1 Creating a trend curve

➔ You must now execute the same procedure as described on page **49 & ff**.

1.

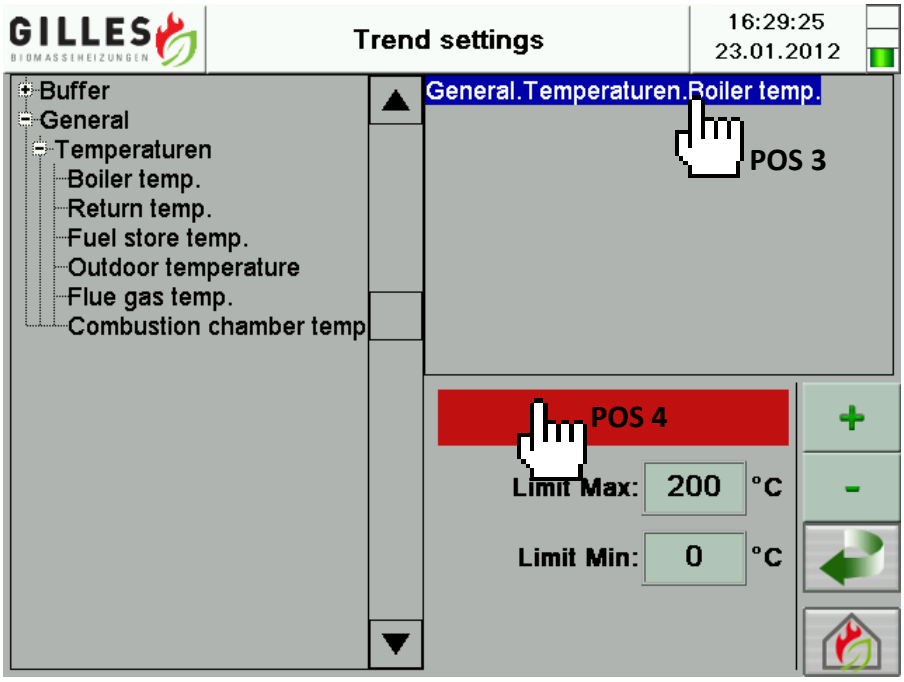


2.

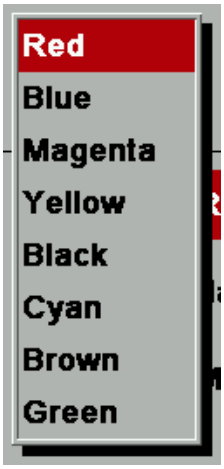


➔ Press the **"+" button (POS 1)** to now apply the "Boiler temperature" parameter to the **(POS 2)** window.

3.

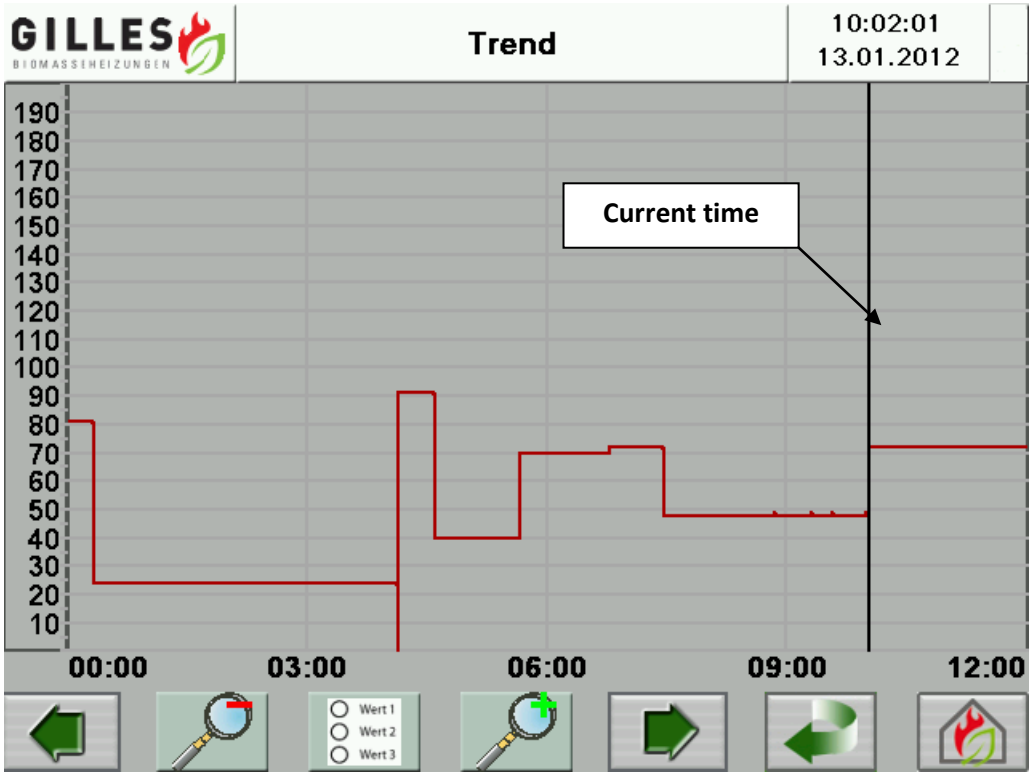


➔ If you now select this parameter in the **(POS 3)** apply window, you can also assign a colour **(POS 4)** to it.



➔ You can define the **scaling** for the **Y axis**, specify the "Limit Max" and "Limit Min" parameters.

➔ If you again switch to the trend display window, this parameter (boiler temperature) is created and the temperature distribution now apparent.



10.2 Trend curve menu description

Move left in the diagram (in the time curve).

Zoom out (time scales out)

Create a new or edit an already existing curve

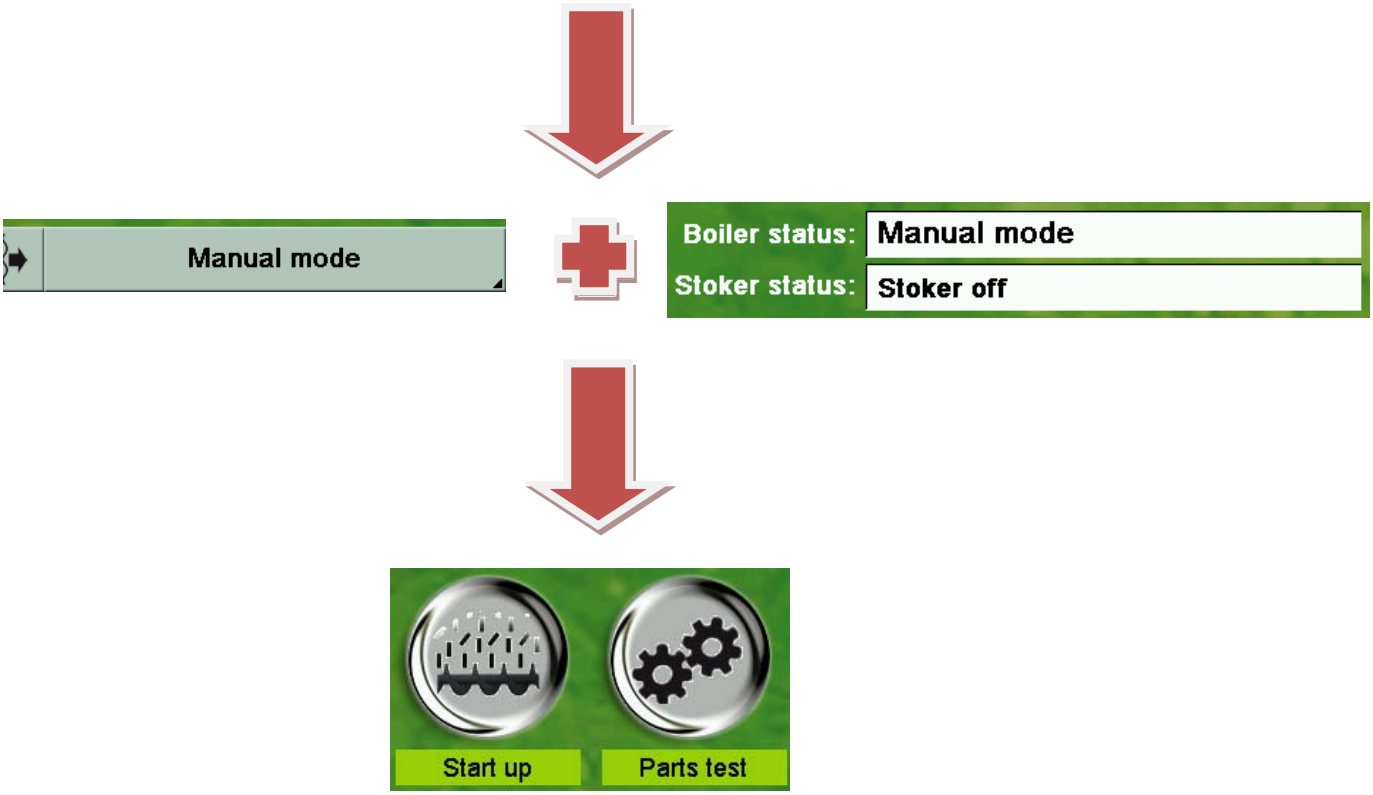
Zoom in (time scales in)

Move right in the diagram (in the time curve).

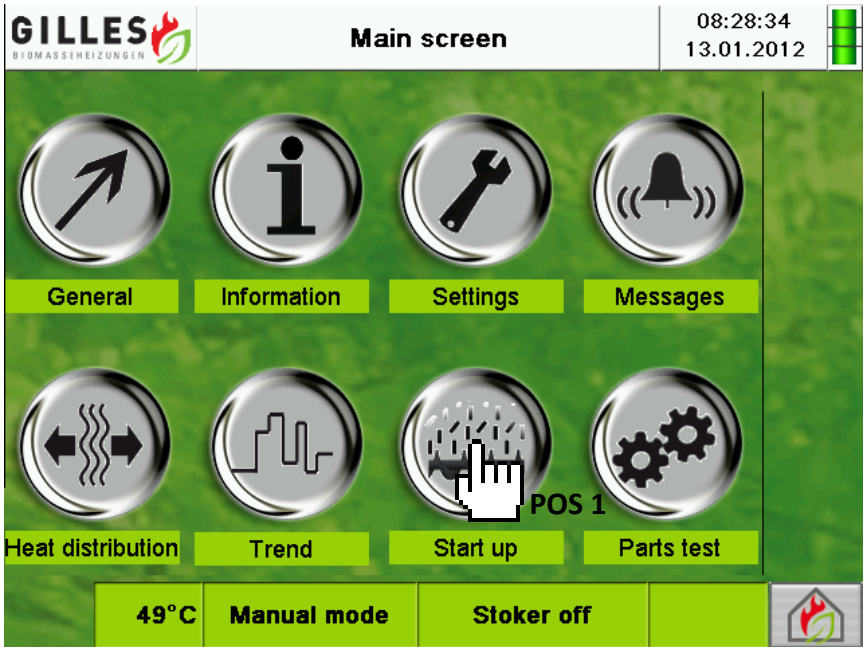
11. Start up & parts test

These screens are only active when in **"Manual mode"**.
Changing the operating mode, see page 6 & 7.

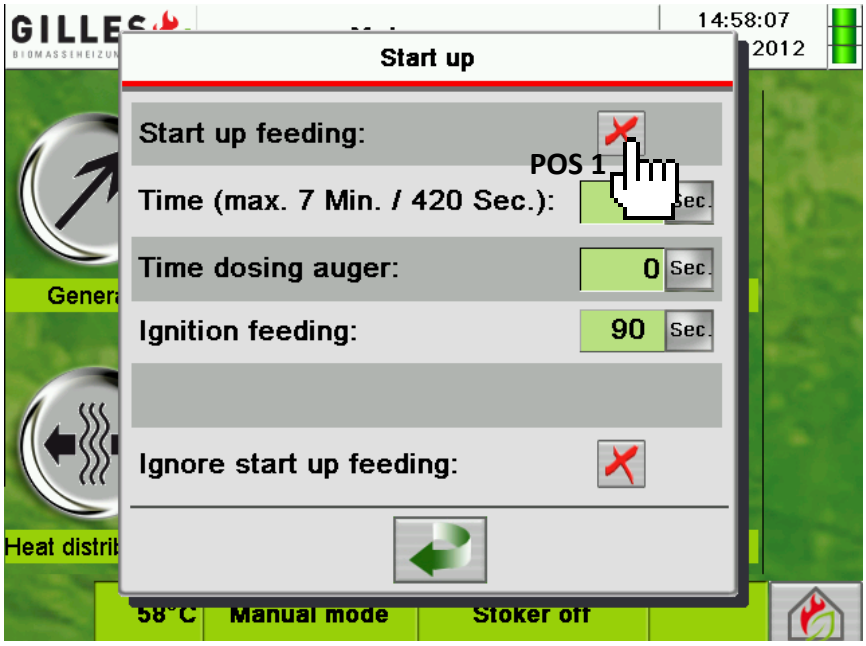
Only after the **operating mode has been switched to "Manual mode"**, the **boiler status is on "Manual mode"** and the **stoker status is on "Stoker OFF"** are they activated.



11.1 Start up

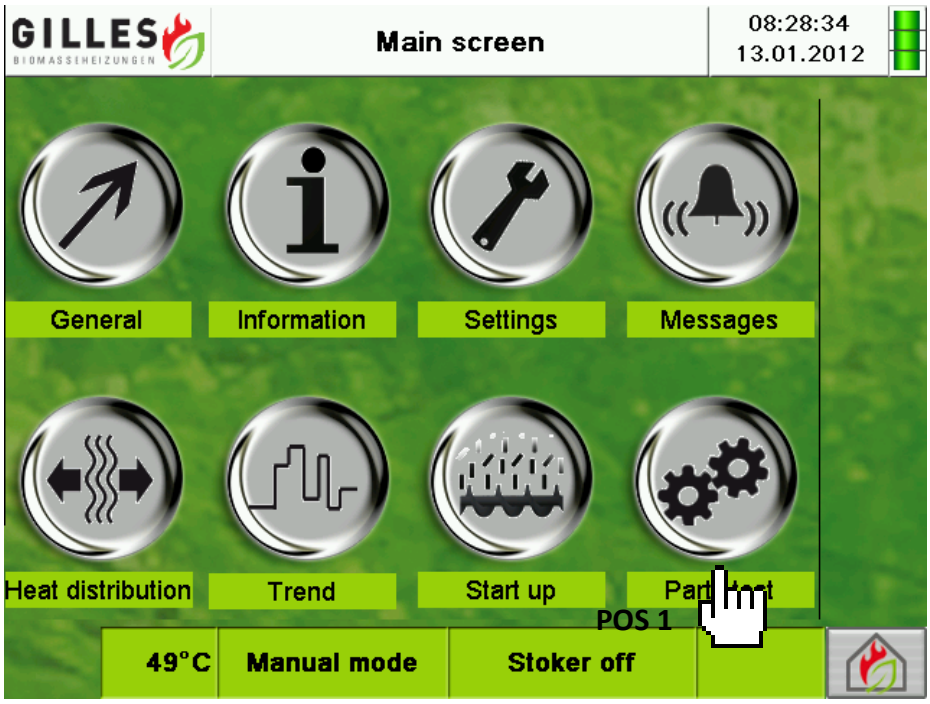


➔ Press this option **(POS 1)** to open the start up window.

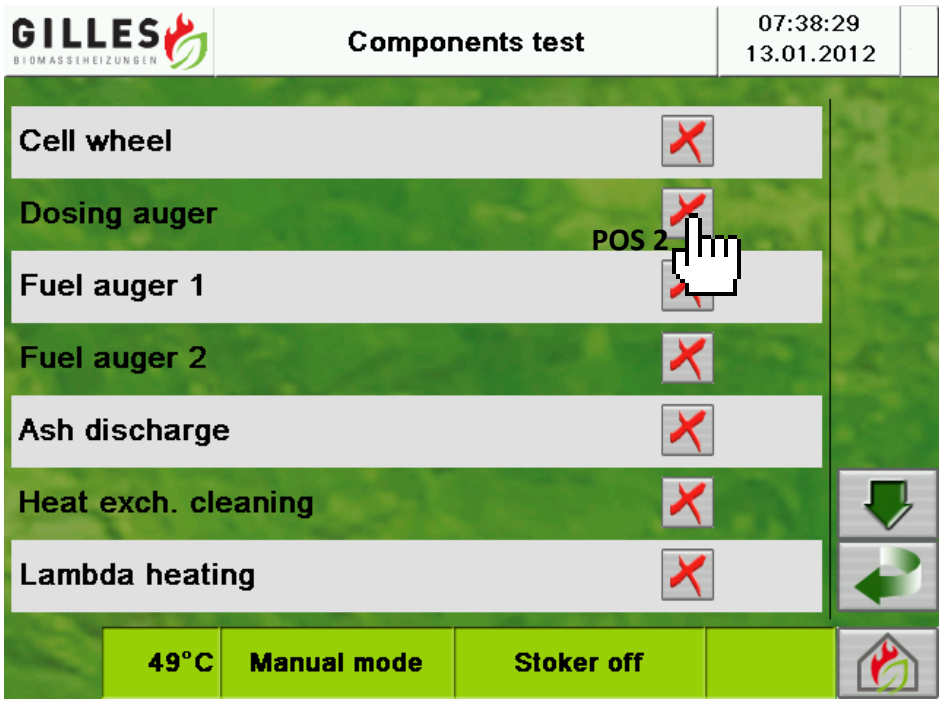


➔ **The customer only uses the start up window for filling the auger if they are empty.**
Press **"Start up feeding" (POS 1)** starts the entire transport system incl. stoker auger.
Auger filling is stopped by pressing **POS 1**.

11.2 Parts test



➔ The Parts test **(POS 1)** can be used to manually control all boiler components to check the function.



➔ Press the respective components **(POS 2)** to manually control them.
Press again to stop them.

12. Error descriptions

1. **Error message:** **Hardware defect**
   Cause: The controller (circuit board) is unable to connect to the touch display.

   Remedy:
   - CAN connection from the board (HZS522) to the ETV 555 is incorrect (cable was swapped).
   - Touch display is defective
   - CAN connector to the HZS522 board defective
   - Notify service department (dealer / customer service)

2. **Error message:** **Emergency stop activated**
   Cause: An external EMERGENCY stop switch (heating switch) has been pressed.

   Remedy:
   - Cancel the Emergency stop on the external switch
   - Emergency stop switch (external) defective
   - Input on control defective

3. **Error message:** **High limit activated**
   Cause: If the boiler temperature rises above 95°C, the so-called safety thermostat (high limit) triggers.
   It has to be manually reset on the boiler after triggering the boiler temperature.

   Remedy:
   - Reset the high limit stat on the boiler directly
   - High limit stat defective
   - Input on the board is defective
   - Notify service department (dealer / customer service)

4. **Error message:** **Boiler sensor faulty**
   Cause: The control does not receive any value for the current boiler temperature.
   On the display, only **#NV** appears on the main screen.

   Remedy:
   - Boiler sensor is faulty
   - Input on the board is defective
   - Sensor was pinched off on the board
   - Notify service department (dealer / customer service)

5. **Error message:** **Flue gas temp. sensor faulty**
   Cause: The control does not receive any value for the current flue gas temperature.
   On the display, only **#NV** appears on the main screen.

   Remedy:
   - Flue gas sensor is defective
   - Input on the board is defective
   - Sensor was pinched off on the board
   - Notify service department (dealer / customer service)

6. **Error message:** **Return temp. sensor faulty**
   Cause: The control does not receive any value for the current return temperature.
   On the display, only **#NV** appears on the main screen.

   Remedy:
   - Return sensor is defective
   - Input on the board is defective
   - Return sensor is not connected
   - Notify service department (dealer / customer service)

7. **Error message:** **Fuel store temp. sensor faulty (for wood chip systems only)**
   Cause: The control does not receive any value for the current fuel store temperature.
   On the display, only **#NV** appears in the information window (page 5).

   Remedy:
   - Fuel store sensor is defective
   - Input on the board is defective
   - Hopper sensor is not connected
   - Notify service department (dealer / customer service)

8. **Error message:** **Cover switch**
   Cause: The cover switch for the transport system is / has opened

   Cause:
   - Close the cover switch
   - Switch contact for the cover is defective
   - Input on the board is defective

9. **Error message:** **Fuel store temp. exceeded (for wood chip systems only)**
   Cause: The fuel store temperature is higher than 65°C

   Remedy:
   - Extinguish the fuel store with water in the event of a fire
   - Fuel store sensor defective
   - Input on the board is defective

10. **Error message:** **Ignition faulty**
    Cause: After ignition feeding, the ignition did not execute properly because the flue gas temperature during this time did not increase by 10°C or the lambda value was not below 16% O2.

    Remedy:
    - Increase the duration of the ignition feeding
    - Increase the feeding duration parameter during ignition *(with service password only)*
    - Decrease the feeding pause parameter during ignition *(with service password only)*
    - Increase the "maximum ignition time" value *(with service password only)*
    - "Target exhaust temperature at ignition" parameter was set too high *(with service password only).*

11. **Error message:** **Therm. overl. heat exch. clean.**
    Cause: The thermal overload in the control cabinet with the designation **(22K3)** triggered.

    Cause:
    - **Reset the thermal overload in the control cabinet** by pressing the "R" button on the thermal overload
    - Thermo is defective
    - Motor is defective => over current
    - Ampere on the electronic thermal overload set incorrectly
    - Notify service department (dealer / customer service)

12. **Error message:** **Motor circuit breaker auger 1**
    Cause: The thermal overload in the control cabinet with the designation **(24K1)** triggered.

    Cause:
    - **Reset the thermal overload in the control cabinet** by pressing the "R" button on the thermal overload
    - Thermal overload is defective
    - Motor is defective => over current
    - Ampere on the electronic thermal overload set incorrectly
    - Notify service department (dealer / customer service)

13. **Error message:** **Thermal overload ash discharge 1**

Cause: The thermal overload in the control cabinet with the designation **(22K2)** triggered.

Remedy:
- **Reset the thermal overload in the control cabinet** by pressing the "R" button on the thermal overload
- Thermal overload is defective
- Motor is defective => over current
- Ampere on the electronic thermal overload set incorrectly
- Notify service department (dealer / customer service)

14. **Error message:** **Thermal overload ash discharge 2**

Cause: The thermal overload in the control cabinet for the second ash auger (if present) triggered.

Remedy:
- **Reset the thermal overload in the control cabinet** by pressing the "R" button on the thermal overload
- Thermal overload is defective
- Motor is defective => over current
- Ampere on the electronic thermal overload set incorrectly
- Notify service department (dealer / customer service)

15. **Error message:** **Motor circuit breaker cell wheel**

Cause: The thermal overload in the control cabinet with the designation **(24K3)** triggered.

Remedy
- **Reset the thermal overload in the control cabinet** by pressing the "R" button on the thermal overload
- Thermal overload is defective
- Motor is defective => over current
- Ampere on the electronic thermal overload set incorrectly
- Notify service department (dealer / customer service)

16. **Error message:** **Motor circuit break. dosing aug.**
    Cause: The thermal overload in the control cabinet with the designation **(24K2)** triggered.

    Remedy:
    - **Reset the thermal overload in the control cabinet** by pressing the "R" button on the thermal overload
    - Thermal overload is defective
    - Motor is defective => over current
    - Ampere on the electronic thermal overload set incorrectly
    - Notify service department (dealer / customer service)

17. **Error message:** **Motor circuit breaker auger 2**
    Cause: The thermal overload in the control cabinet with the designation **(22K4)** triggered.

    Remedy:
    - **Reset the thermal overload in the control cabinet** by pressing the "R" button on the thermal overload
    - Thermal overload is defective
    - Motor is defective => over current
    - Ampere on the electronic thermal overload set incorrectly
    - Notify service department (dealer / customer service)

18. **Error message:** **Flue temp. too high**
    Cause: The maximum flue gas temperature set was exceeded.

    Remedy:
    - The "Safety shutdown flue gas temp." parameter is set too low *(with service password only).*
    - Flue gas temp. sensor is defective (displays an incorrect value)
    - Notify service department (dealer / customer service)

19. **Error message:** **No fire**
    Cause: As the boiler was in ***"Heating mode"***, the flue gas temperature fell below the **"Set boiler temp."** for 15 minutes. **+ 5°C" or the O2 content was higher than 19%.**

    Remedy:
    - Control of flow of fuel (bridging where possible in the store) or the fuel store is empty
    - Increase material feeding **"Percent dosing auger to stoker"**
    - Maximum primary air set too low

20. **Error message:** **Boiler door open**
    Cause: The boiler door was opened and no longer closed

    Remedy:
    - Door contact switch defective
    - Close doors
    - Input on control defective
    - Notify service department (dealer / customer service)

21. **Error message:** **Cell wheel blocked**
    Cause: The cell wheel was blocked by e.g. a large piece of material, direction reversal (10x) has also been performed unsuccessfully.

    Remedy:
    - Cell wheel clogged or a large piece of material is blocking the cell wheel.
    - Initiator under the cell wheel defective
    - The "Time pulse cell wheel" parameter set too high *(with service password only)*

22. **Error message:** **Temperature stoker exceeded (for pellet system >75kW only)**
    Cause: The Klixon (temperature switch for feeding) triggered

    Remedy:
    - **<u>Controlled by the control:</u>**
      - ⇨ Cell wheel runs through
      - ⇨ Primary fan regulates with minimum speed set
      - ⇨ Secondary fan regulates with maximum fan performance set (if present)
      - ⇨ Flue gas fan regulates with maximum fan performance set

13. Messages

1. **Message:** **Boiler temperature reached**
   Cause: The boiler set temperature set has been reached.

   Parameter: Set boiler temp. DAY
   Difference in temp. STOP

2. **Message:** **Buffer temp. reached**
   Cause: The buffer set temperature set has been reached.

   Parameter: Buffer set temperature

3. **Message:** **Heat exch. cleaning active**
   Cause: Cleaning of the boiler (heat exchanger cleaning) is in operation

   Parameter: Heat exch. cleaning starts at
   Runtime heat exch. cleaning
   Heat exch. cleaning present

4. **Message:** **Time slot not active**
   Cause: The boiler cannot be started because it is not in its specified time slot.

   Parameter: Time slot

5. **Message:** **Boiler not enabled**
   Cause: The boiler receives an external start signal (e.g. heating circuit control), if heat is required => If no heat is required, this message appears.

   Parameter: Time slot

14. Control description

1. **Stoker OFF**
   → The boiler is in an idle state and all augers are off.

2. **Pre purge**
   → The boiler is flushed with air during a period of approx. 3 minutes.

Fan:	Primary	=	Max. primary air
	Secondary	=	Max. secondary air
	Induced draught	=	Max. ID performance

Parameter: **Duration pre purge**
(*service password required to change parameter)*

3. **Ignition feeding**
   → Fuel is transported to the boiler over a period of time continuously or intermittently.

Parameter: **Ignition feeding**
Ignition feeding intermittent

NOTICE: **If during ignition feeding the flue gas temperature increases by 10°C (and that is higher than the flue gas temperature during ignition) or O2 content in the boiler falls below 16%, the ignition process is no longer performed => The boiler immediately switches into the "Start up phase" operating mode.**

4. **Ignition**
   → Ignition is switched on to ignite the material.

Parameter: **Ignition feeding**
Set flue gas temperature at ignition
(*service password required to change parameter)*
Feeding time during ignition
(*service password required to change parameter)*
Feeding pause during ignition
(*service password required to change parameter)*

NOTICE: **The following criteria are important for ignition:**

Current flue gas temperature >= Set flue gas temperature at ignition **AND** current temperature has increased by 10°C **OR** current O2 content in the boiler < 16%

- If the O2 content in the boiler falls below 15% => Ignition is switched off
- If the O2 content again increases above 17% during ignition, ignition turns on again.

NOTICE: **If the lambda value falls, but not below 15% and it again rises by 0.5% and the flue gas temperature has not increased by 10°C, the material is transported to the boiler intermittently. (The boiler may have had too little material for ignition feeding.)**

Parameter: **Feeding time during ignition**
(service password required)
Feeding pause during ignition
(service password required)

5. Start up phase

Parameter: **Start up phase time**
(*service password required to change parameter)*

- During the start up phase, the feeding quantity is normally 50%. However, this value can be set.

Parameter: **Start up phase feeding quantity**
(service password required)

6. **Heating mode**

The boiler is now in normal operation, i.e. the feeding quantity continuously increases to 100%, fans are controlled with lambda value, control of flue gas temperature, etc. .

The goal of this operating mode is for the boiler to achieve its set temperature.

Varying depending on the operating mode:

Automatic / time mode = Set boiler temp. DAY / NIGHT + Difference in temp. STOP
Buffer mode = set buffer temperature

If the boiler is in partial load, i.e. *Set boiler temp. DAY / NIGHT – Difference in temp. Partial load*, it reduces its output, so that it can slowly approach the set temperature => reduces overshooting of the set boiler temperature.

7. **Overrun flue fan**

Parameter: **Duration post purge**
(*service password required to change parameter)*

Operating mode: Automatic mode / Time mode / Buffer boiler slumber

In slumber mode, the fans run as long as there is ***an O2 value of 12% or more*** in the boiler. Otherwise, the fans run until the ***"Duration post purge "*** has elapsed.

Fan:	Primary	=	0%
	Secondary	=	Min. secondary air
	Induced draught	=	Min. ID performance

8. **Completion combustion**

Operating mode: Buffer mode

The fire bed still in the boiler is going to be burned out.
As long as an O2 value greater than 17% is reached.

9. **Slumber mode**

Parameter: **Feeding delay (slumber mode)**
(*service password required to change parameter)*
Feeding duration (slumber mode)
(*service password required to change parameter)*

Operating mode: Automatic mode / Time mode

Slumber mode ensures that material is transported into the boiler at adjustable time intervals, so that a fire bed is maintained in the boiler.

The boiler immediately reignites with demand without ignition.