

# *Operating instructions*

## ***GILLES TOUCH***

**From HPK-RA/VR - v5.25**

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## 1. Menu navigation

### Home



Press this button to display the main screen.

### Screen back



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

### Flue gas analysis mode (FGA)



Press this button to activate the FGA (see page 8). => FGA can only be activated on the main screen.

### Reset



Press this button to acknowledge error messages.

### Page down



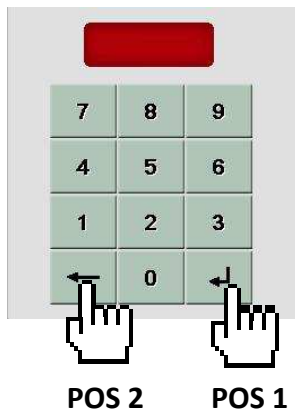
**Page down button** => Max. 7 setting parameters per screen can be displayed. Press this button to display the next screen for the setting parameters.

### Page up



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

### Number pad



**For any value changes**, you have to press the "ENTER" button (POS 1) to confirm.

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

**Customer parameters**



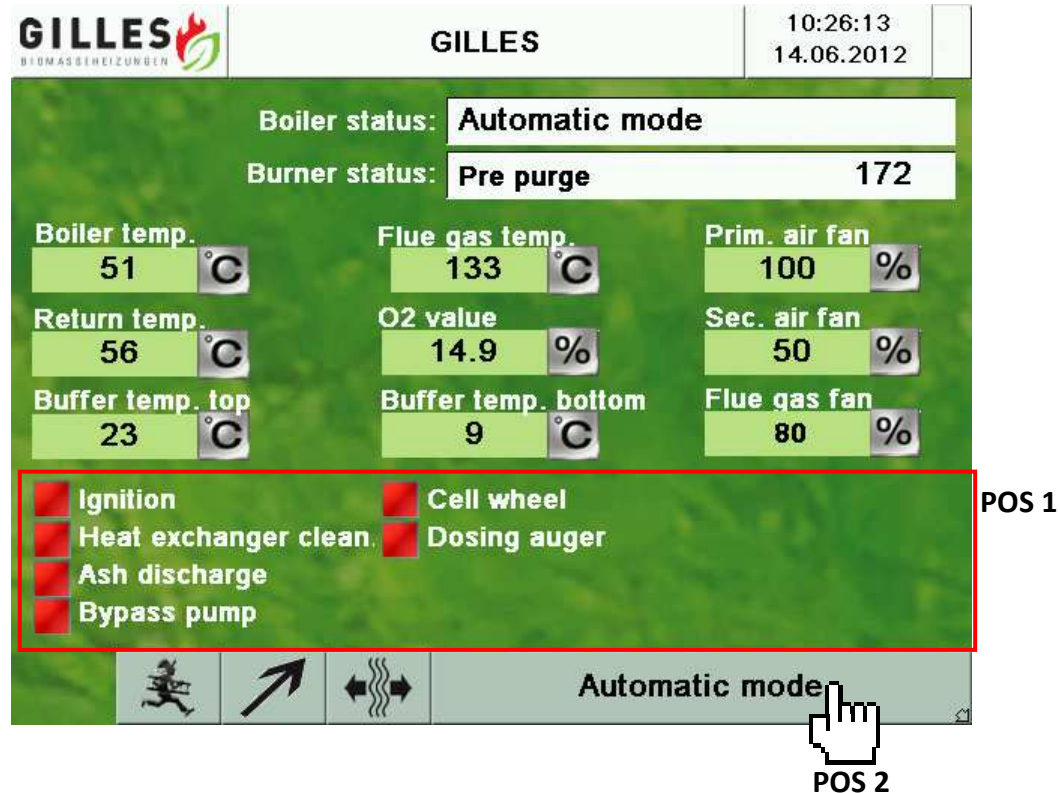
Lists all customer parameters which are changeable without authorisation.

**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. Sensor not connected.
  2. Sensor is defective.

→ The lower 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.

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

## 2.1 Boiler status & stoker status

<b>Boiler status:</b>	<b>Automatic mode</b>	
<b>Burner status:</b>	<b>Pre purge</b>	<b>172</b>

**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. Buffer no slumber
5. Buffer with slumber
6. Automatic mode
7. Emergency mode

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

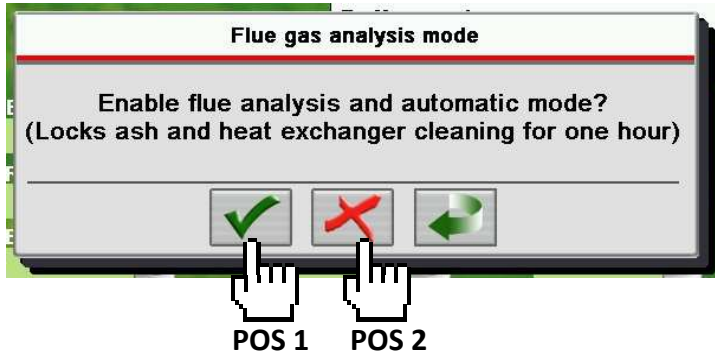
**Stoker status:** The stoker status defines in which status the boiler (control) currently is.

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

## 2.2 Flue gas analysis mode (FGA)



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:** This operating mode can only be changed again when FGA 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 engineer 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:**



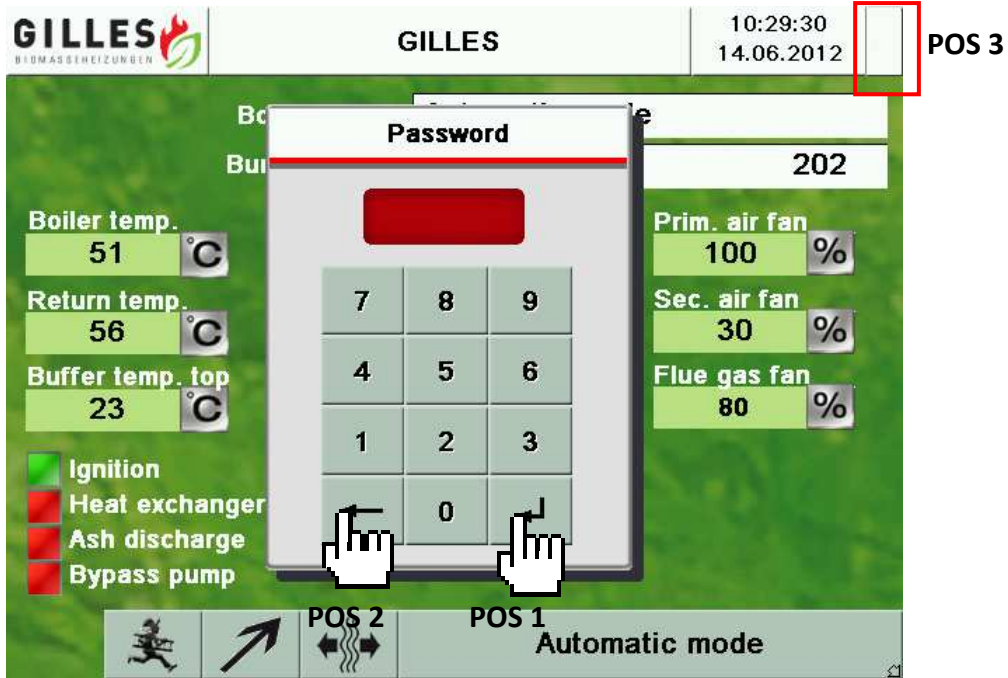
**Level 0=** No authorization to change parameters.



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

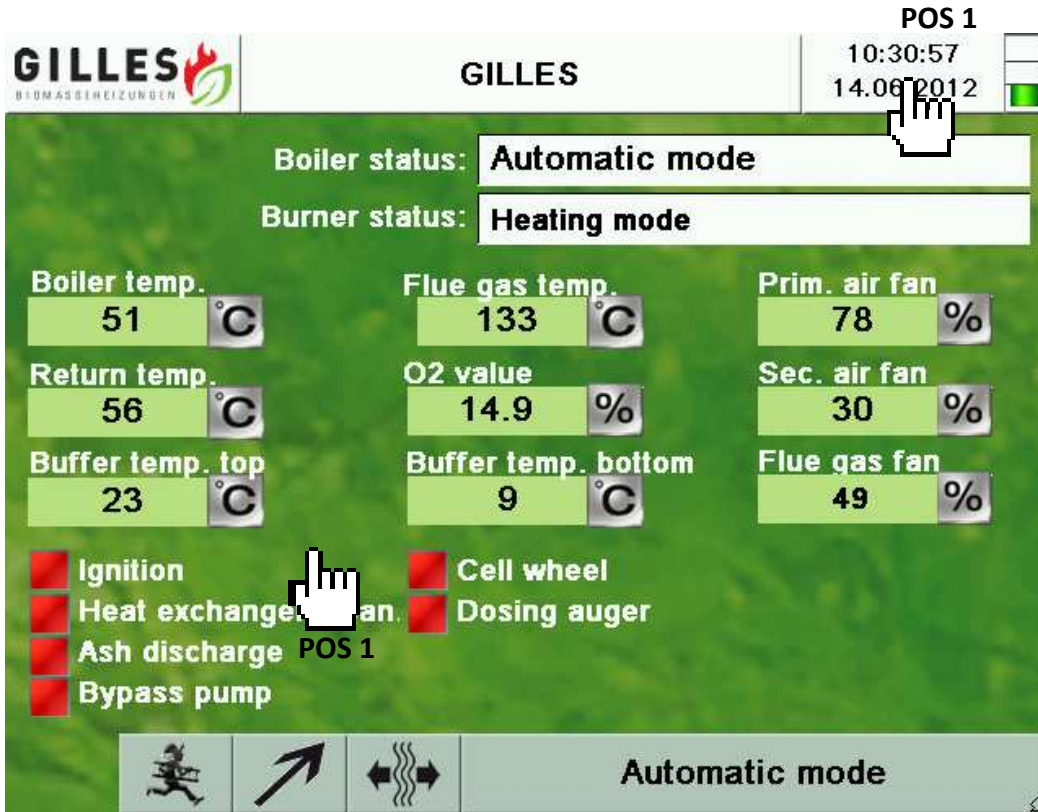


**Level 3=** Level service engineer => The service engineer has full access to set all parameters and to reset the system to default settings.





- ➔ Enter 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 number on the display window.
- ➔ When you enter the correct password, the respective password level (green bar) appears at the top right (**POS 3**).

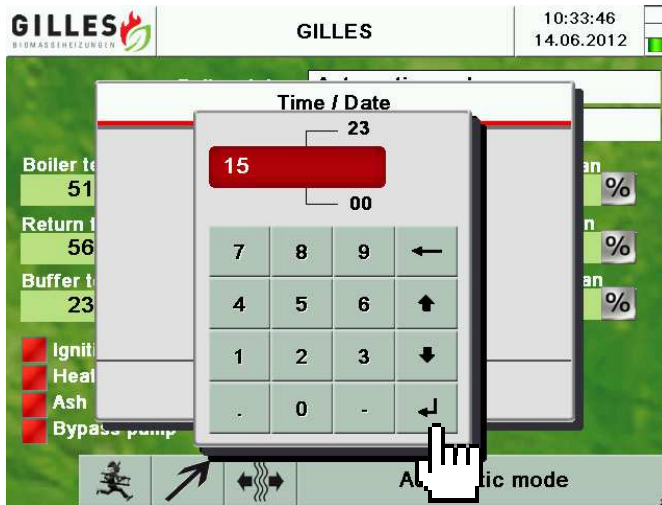
2.4 Change date / time



➔ To change the values, 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.



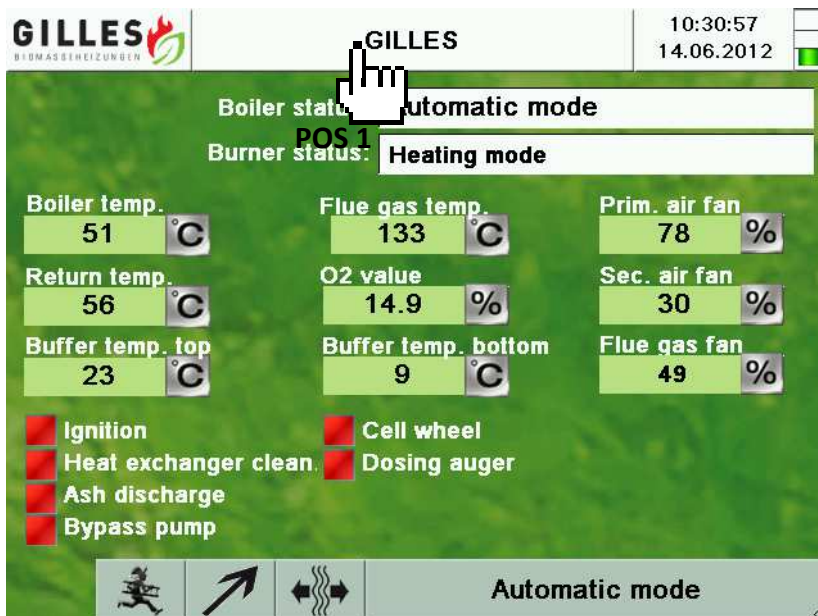
**POS 1**

- ➔ You can now change the hour.  
Press "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**



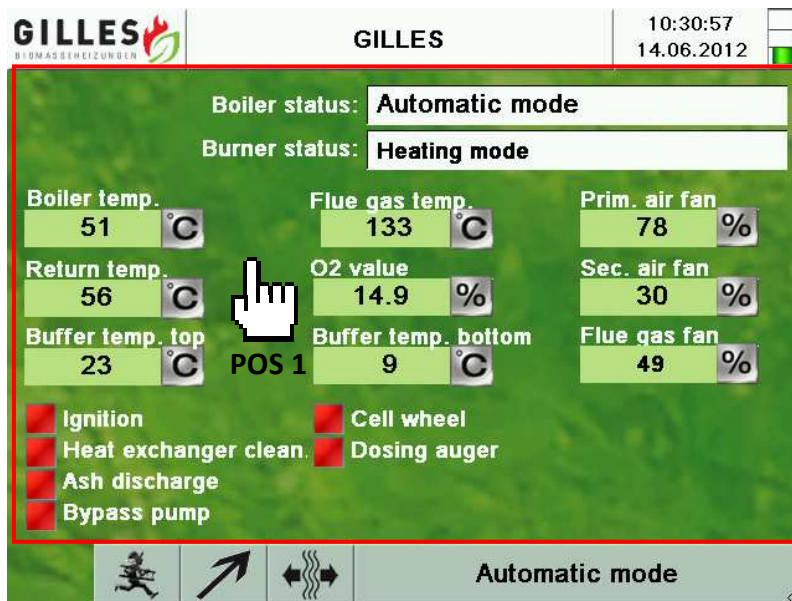
- ➔ Press **POS 1** to enter the language menu.



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

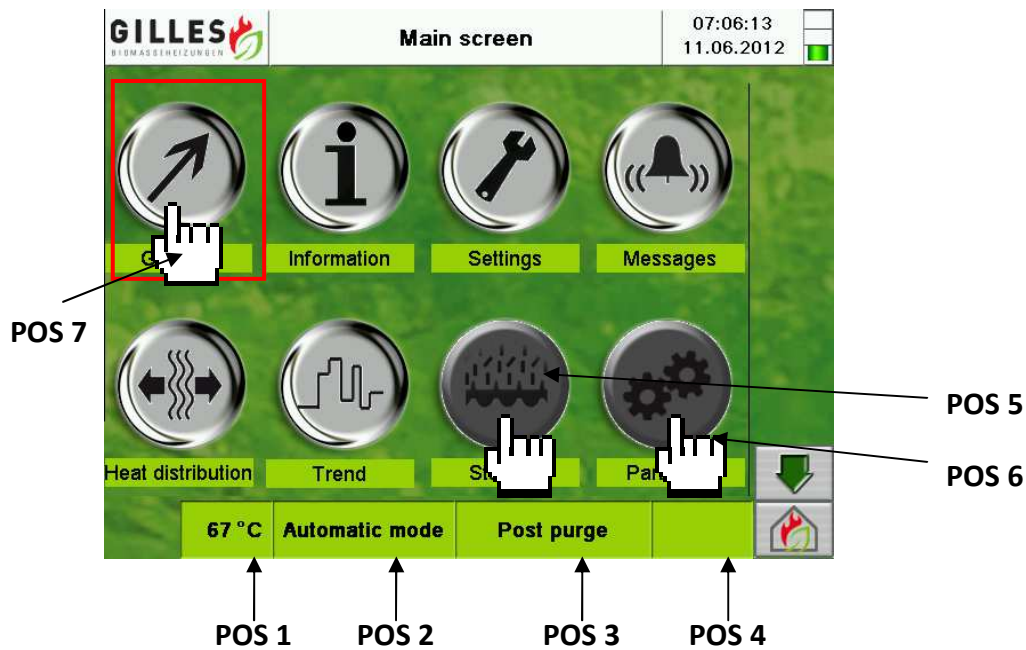
➔ If you have selected the required language, press the button  to exit the window.

## 2.6 Return to the main screen



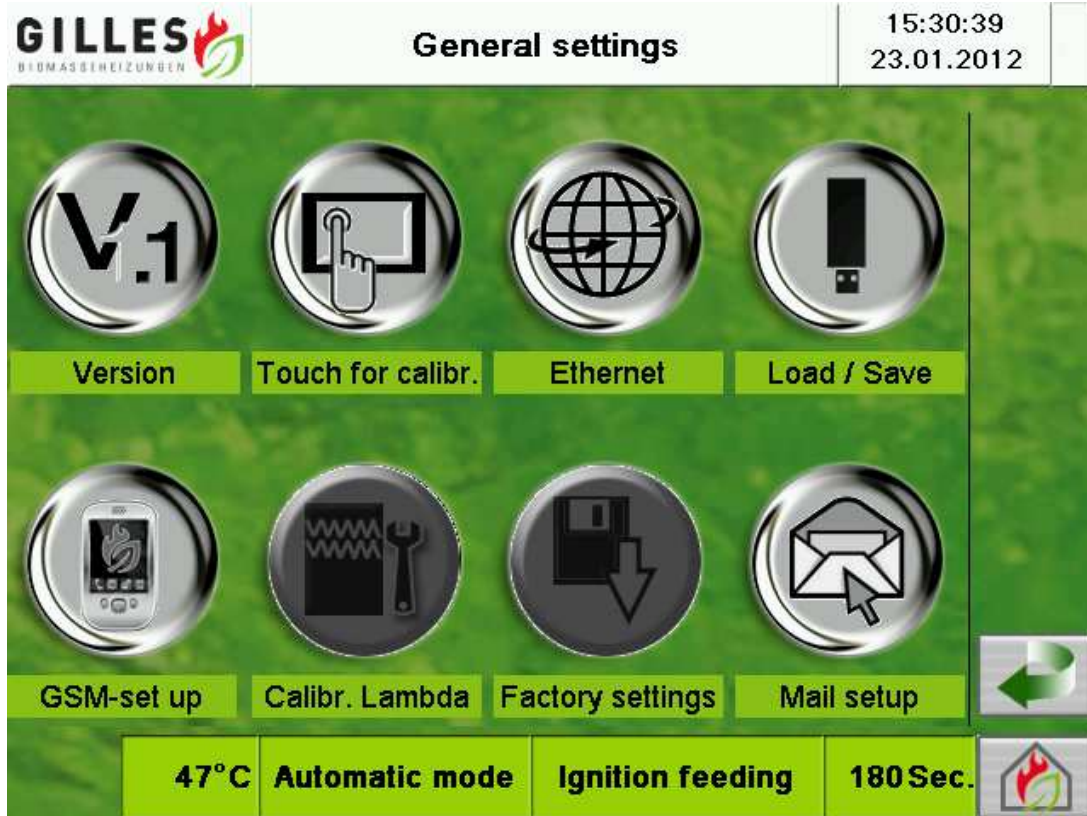
➔ Press in this area (**POS 1**) on the main screen to move forward one level in the system.

### 3. Main screen



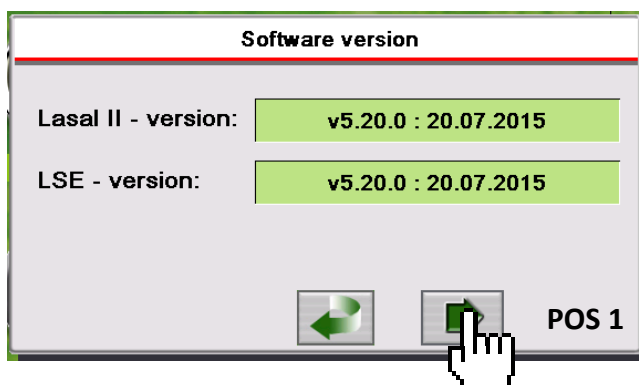
- ➔ The following parameters appear in each submenu:
  - Boiler temperature (**POS 1**)
  - Boiler status (**POS 2**)
  - Burner status (**POS 3**)
  - Time remaining until the boiler status changes (**POS 4**)
- ➔ Areas with a dark grey such as **POS 5 & POS 6** are inactive. They also have no effect when pressed.
- ➔ Press "**General**" (**POS 7**) to switch to the general settings.

#### 4. General settings



→ You can make general settings such as network settings, load/save parameters, etc. in this level.

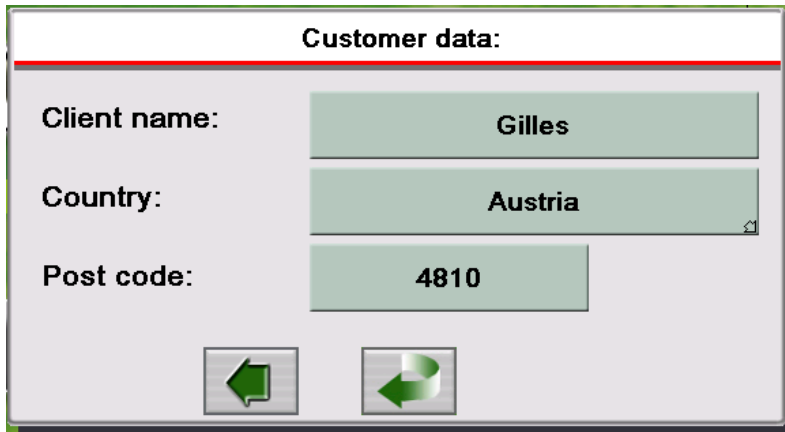
##### 4.1 Version



→ 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.

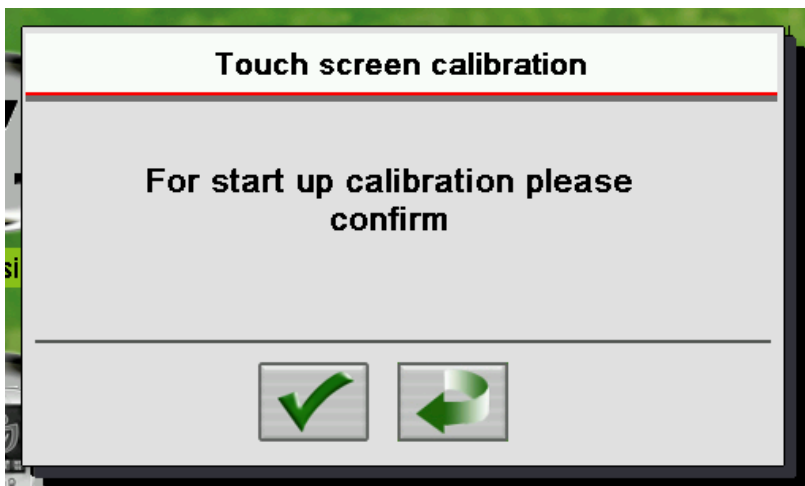



→ With these buttons customer data can be changed.

#### 4.2 Touch calibration (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.

→ Press the  button to abort 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 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) **192.168.1.1 (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 192.168.1.2 – 192.168.1.253 are allowed and work.**

**The address 192.168.1.1 may not be used because it is already used by the internet router.**

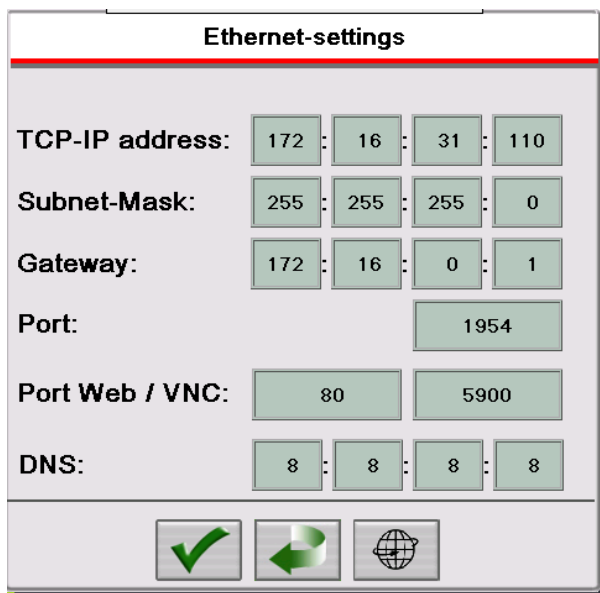
The **subnet mask** is usually always **255.255.255.0**.

For the **standard gateway & DNS**, enter the address of the internet router.  
In our case, the address is now **192.168.1.1**.


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


#### INFO:

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



Press on any window to change figures.

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 => **"Save to USB"**

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

##### 4.4.1 Save to USB (save boiler parameters to USB flash drive):

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

**"Saving parameter successful"**



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

However, if the following message appears ...

**"Fault saving parameters"**

... no data has been saved to the USB flash drive.

##### **Possible error causes:**

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

#### 4.4.2 Load from USB (restore file saved on the USB flash drive to the controller)

1. Plug the USB flash drive (where the backup is saved) into the USB port.
2. Press the "**Load from USB**" button.
3. If the data is successfully restored, the following message appears:

**"Loading parameter successful"**

All boiler parameters have now been replaced by the backup.

However, if the following message appears:

**"Fault loading parameters"**

the data was not successfully restored.

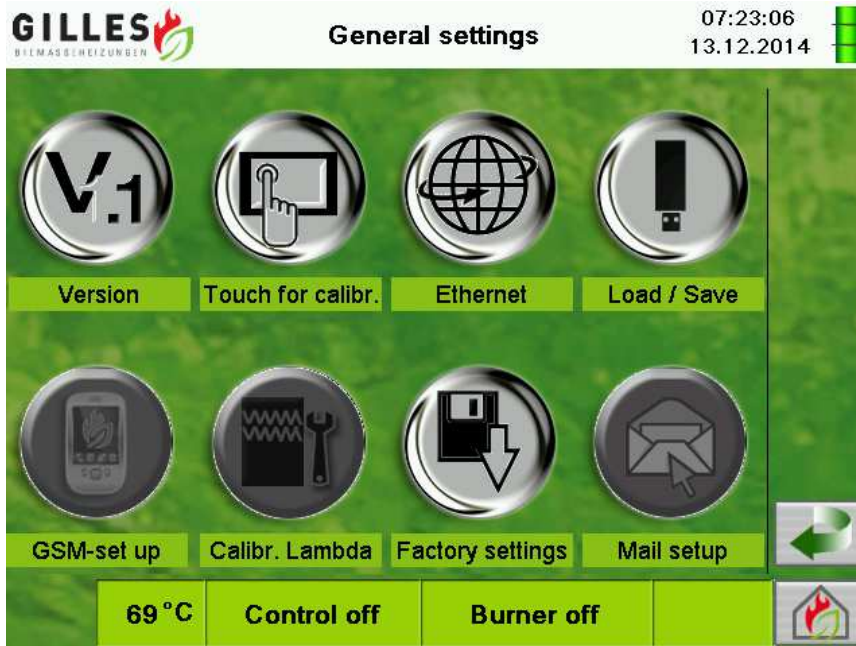
#### **Possible error causes:**

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



#### 4.5 Factory Settings

A very simple way to set the standard parameters is by loading the factory settings. With this feature it is possible to load predefined parameters for a certain boiler type.



→ First type in password and press “Factory settings”.



→ Press the confirm button.



**GILLES**  **Factory settings** 18:14:28  
BIOMASS HEIZUNGEN 24.09.2015

Client name:  
Gilles

Boiler type:  
HPK-RA

Boiler selection:  
Woodchip - HPK-RA 15-25

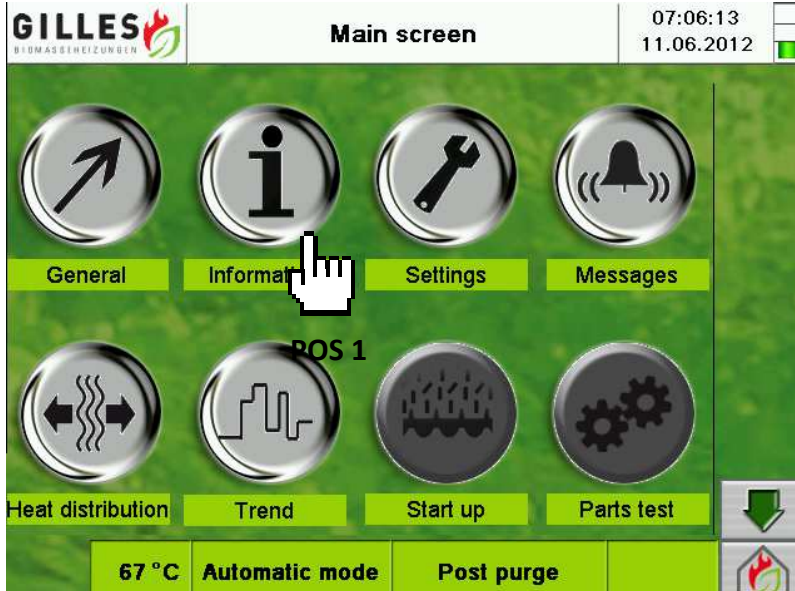
Country: Austria Post code: 4810



- In this window you can change customer data as well as the boiler selection.
- By pressing "Boiler selection" a menu opens with the different predefined boiler types.
- Choose boiler type and press the confirm button.

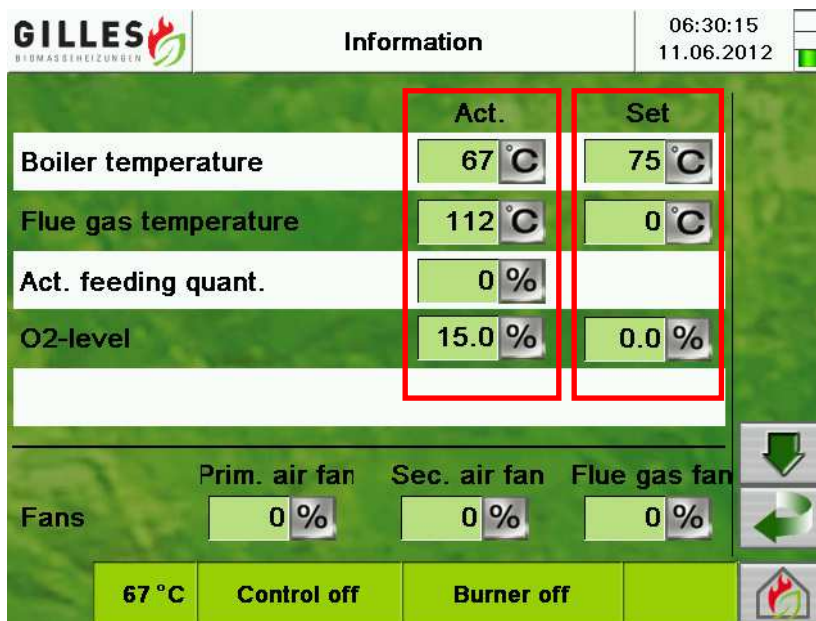
**Important:** Always make sure to choose the boiler type and the boiler selection accordingly!

**5. Information**

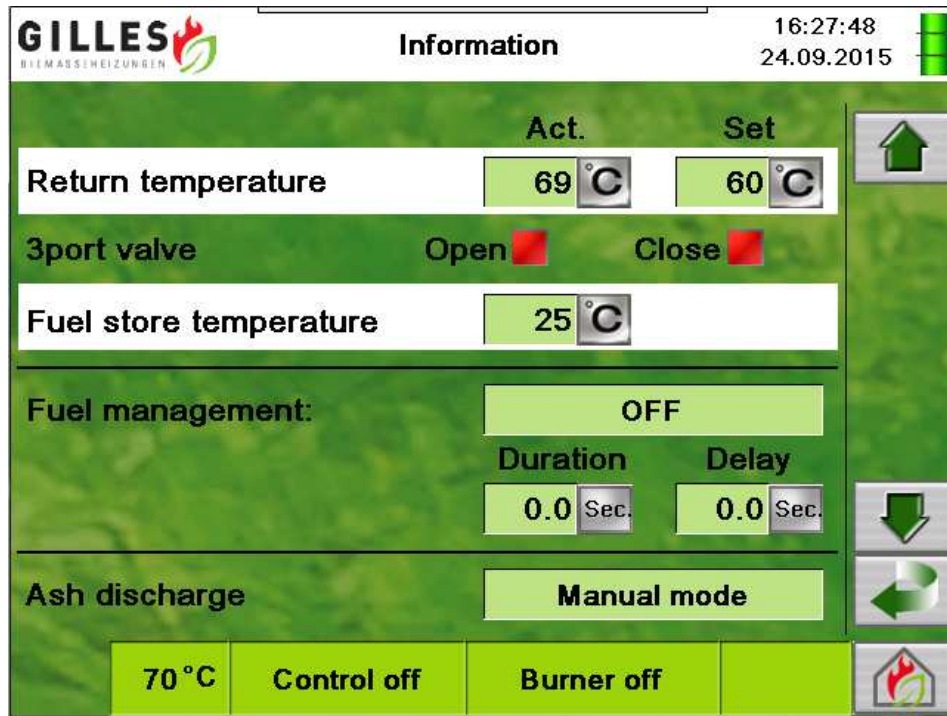


- ➔ Press this button on the main screen (**POS 1**) to open the “**Information**” screen for the boiler.
- ➔ The current status of the boiler and the status to be attained (**ACT / SET**) appear on the information screen.

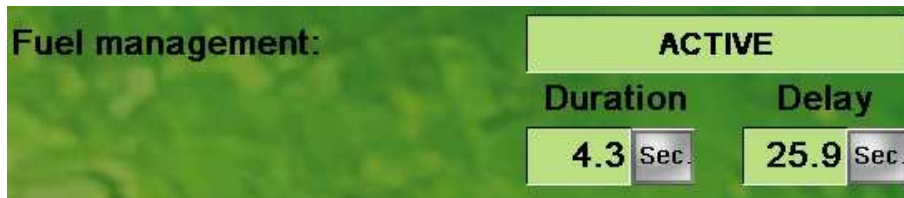
**5.1 Information page**



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



### 5.1.1 Fuel management & ash discharge



#### Fuel management:

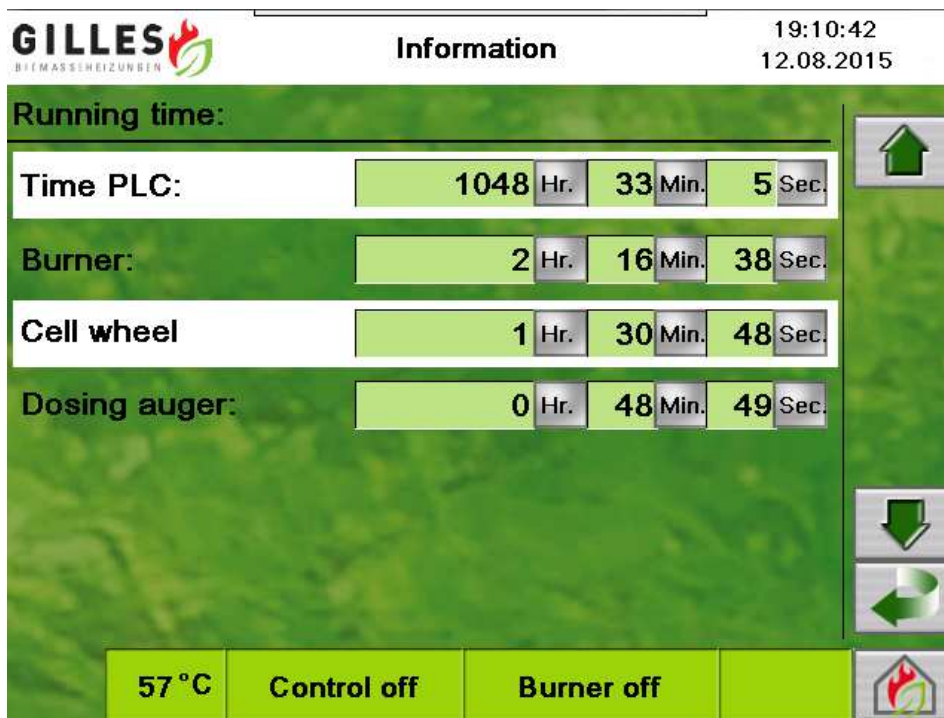
→ The current duration / delay ratio is displayed when feeding material.

**Example:**      Duration =                      4,3 seconds  
                          Delay =                      25,9 seconds

**Ash discharge:**

The following operating status are available for ash discharge:

1. **Manual mode** => Ash discharge is manually operated from the touch display.
2. **Automatic pause** => The 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** (Thermo ash discharge).








Various running times are logged on this page.






**Time PLC:** This counter runs from the first time power is applied to the controller.

**Burner:** This counter refers to the operating time of the burner. This counter is running when the burner status is "Heating Mode".

**Cell wheel:** This counter always refers to the operating time of the Stoker auger before the cell wheel.

**Dosing auger:** This counter refers to the operating time of the dosing auger.

GILLES  <b>Information</b>		12:59:10 14.08.2015	
X28-Lambda heating	<input checked="" type="checkbox"/>	            	
X30-External enable	<input type="checkbox"/>		
X32-Thermal overload cell wheel	<input type="checkbox"/>		
X35-Thermal overload dosing auger	<input type="checkbox"/>		
X31-Thermal overload auger 1	<input type="checkbox"/>		
X37-Thermal overload auger 2	<input type="checkbox"/>		
X33-Thermal overload ash auger	<input type="checkbox"/>		
58 °C	Control off	Burner off	

GILLES  <b>Information</b>		20:17:55 12.08.2015	
X34-Thermal overload heat exch. clean.	<input type="checkbox"/>	            	
X36-Cover switch transport syst.	<input type="checkbox"/>		
X38-Key switch	<input type="checkbox"/>		
X39-Light sensor 1	<input checked="" type="checkbox"/>		
X40-Light sensor 2	<input checked="" type="checkbox"/>		
X41-Proximity sensor	<input checked="" type="checkbox"/>		
X29-Boiler door switch	<input type="checkbox"/>		
58 °C	Control off	Burner off	

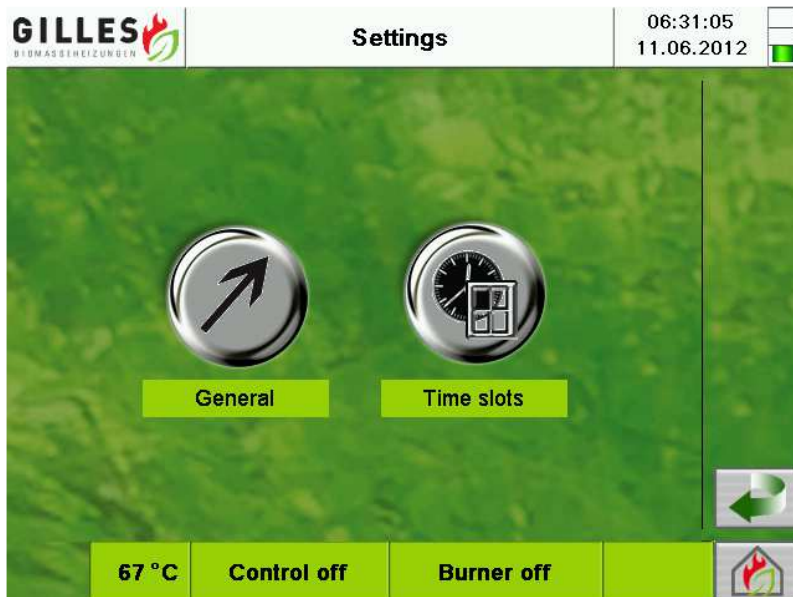
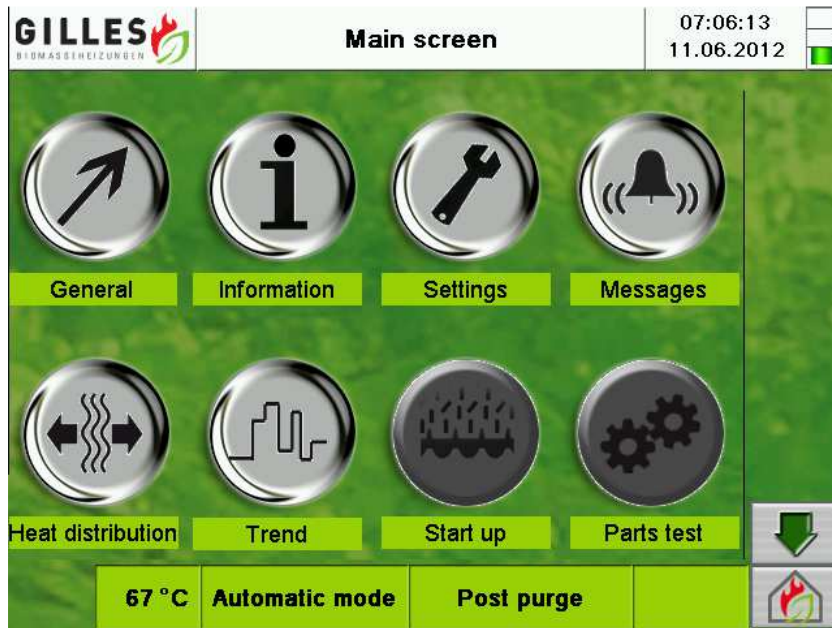
The information pages above show all the digital inputs of the circuit board.

Green: ON

Red: OFF

**5.2 General boiler settings**



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



To set the customer parameters press the **"General"** button

### 5.2.1 General boiler settings

#### 5.2.1.1 Parameters, page 1 (general, times)

GILLES 		Settings		16:30:13
BIOMASSEHEIZUNGEN				24.09.2015
<b>General/times:</b>				
Percent dosing auger to stoker	20	%		
Ignition feeding duration	45	Sec.		
Ash discharge duration	30	Sec.		
Ash discharge pause	8	Min.		
Heat. exch. cleaning starts at	17	o'cl.		
Runtime heat exch. cleaning	1	Min.		
70 °C	Control off	Burner off		

**Parameter:                      Percent dosing auger to stoker**

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

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

If the value is set too low, less material is transferred 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 the fuel feeding for the ignition phase.

If the boiler needs to be started when cold, it has to be reignited.

This parameter specifies how much fuel should be transported to the boiler before the ignitor lights the fuel.

**NOTICE:** This parameter depends on the operating time of the dosing auger (dosing auger = first auger before cell wheel).  
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 ember 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.

(Start with low setting and increase only if ash builds up significantly in boilers comb. chamber)

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

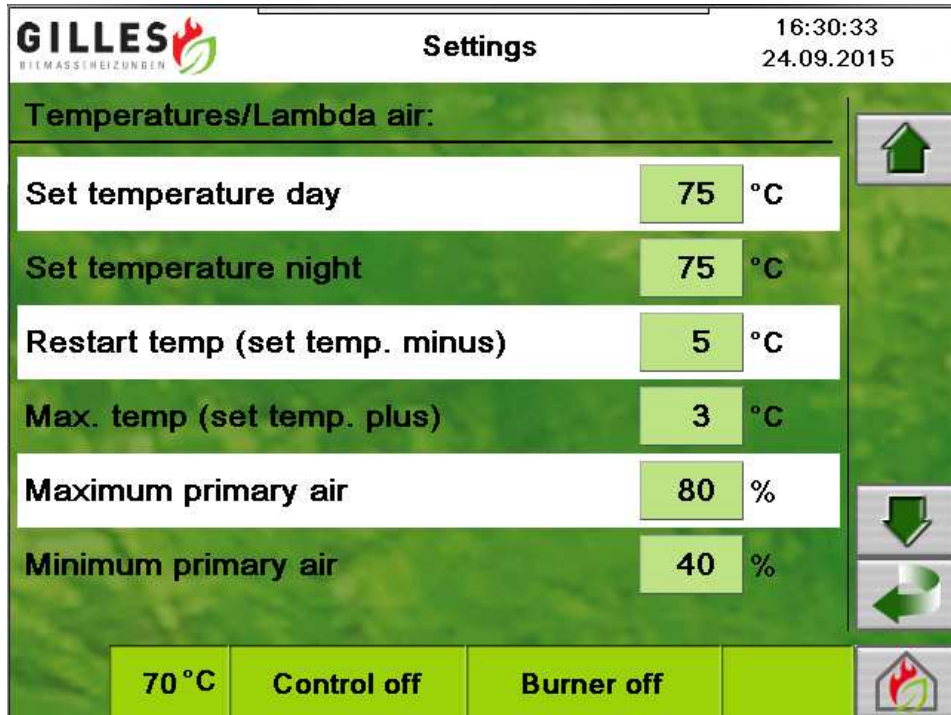
**Responsibility:**            **This parameter is set when a basic cleaning of the heat exchanger should be performed.**

Deactivated at boilers HPK-RA 12,5 – 25.

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

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

5.2.1.2 Parameters, page 2 (temperatures)



**Parameter:**                      **Set temperature day**

**Responsibility:**                      **Operating mode = automatic mode, time mode, emergency mode**

**Automatic mode, time mode, emergency mode:**

This temperature specifies when the boiler should have reached set temperature and when it goes into slumber mode.

**Parameter:**                      **Set temperature 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 set boiler temperature.**

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

**Parameter:** **Restart temp (set temp. minus)**

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

Example: Boiler temperature DAY = 80°C  
Restart temperature = 5°C

The boiler switches on at a boiler temperature of  
"80°C - Restart temperature".

It only gets enabled for heating mode if  
the boiler temperature is lower than  
"Boiler temperature DAY – Restart temperature"

**Parameter:** **Max. temp (set temp. plus)**

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

Example: Boiler temperature DAY = 80°C  
Max. temperature = 3°C

The boiler only switches off when the boiler temperature is  
"80°C + Max. temperature".

**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 the combustion in the burner!

5.2.1.3 Parameters, page 3 (configurations)



**Parameter:** ***Ignore external enable***

**Responsibility:** If the boiler is not enabled by an external signal e.g. a heating circuit the "Ignore external enable" parameter must be activated.

**Parameter:** ***Heat exchanger cleaning present***

**Responsibility:** For boilers from HPK-RA/VR 30 – 160 this parameter must be activated. For boilers from HPK-RA 12,5 – 25 deactivated.

**Parameter:** ***Intermittent ignition feeding***

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

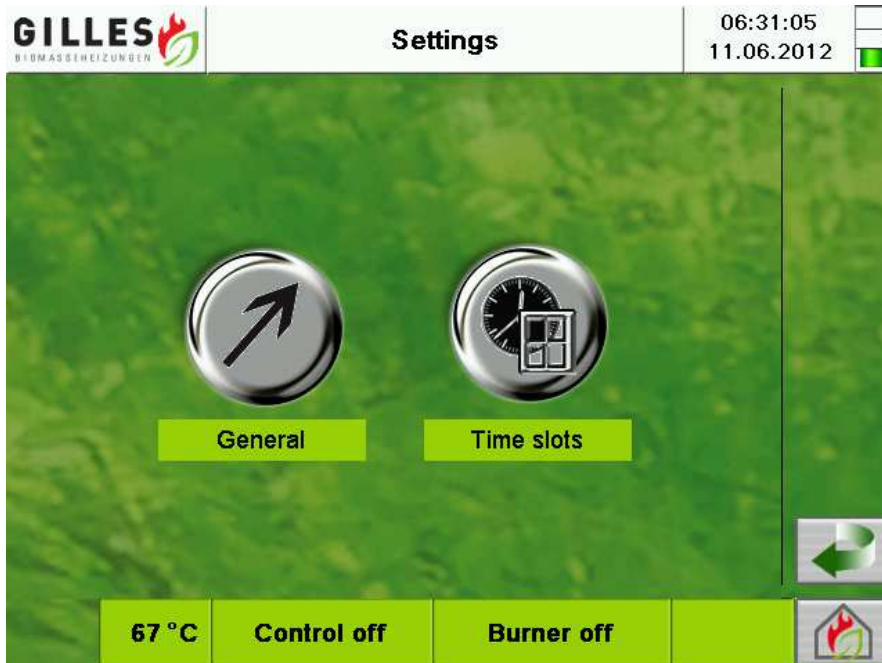
**Parameter:** ***GSM Module present***

If a SMS interference device is linked to the controller, this parameter must be activated.

Only after it has been activated you can configure this device from the touch display.

The "GSM setup" option is now enabled in the "General settings" (see P.15).

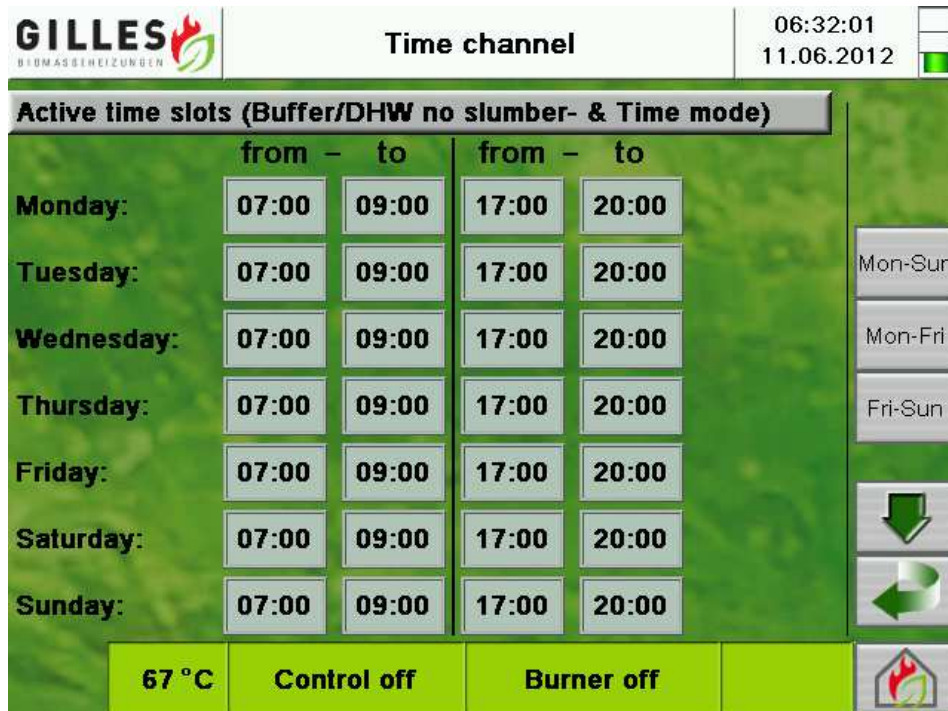
5.3 Time slot / Night economy



- ➔ To set a time slot (for operating mode: time mode & buffer/DHW mode) and night economy mode, press the “Time slots” button.

**5.3.1 Time mode**

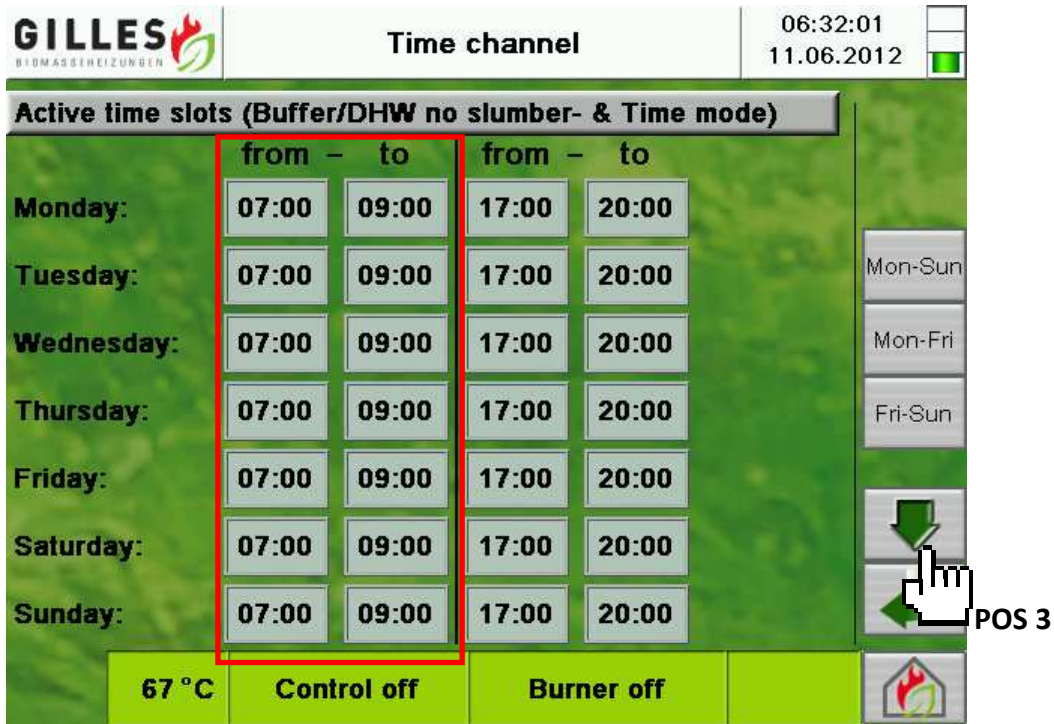
The times for "Buffer/DHW" and "Time mode" are set in the first screen.



- ➔ 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.
- ➔ 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 to Sunday  
 Mon-Fri    =    Monday to Friday  
 Sat-Sun    =    Saturday to Sunday

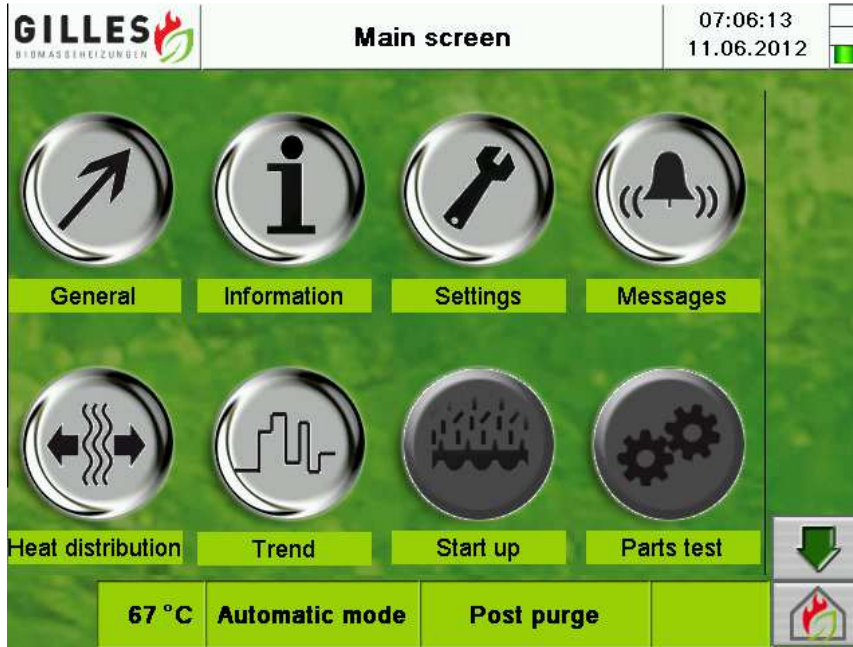
**NOTICE:** Should the boiler be enabled for **24 hours** continuously, only **one row** of the time slots must be enabled. The enable time must now be set to **from 00:01 – 23:59**.



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

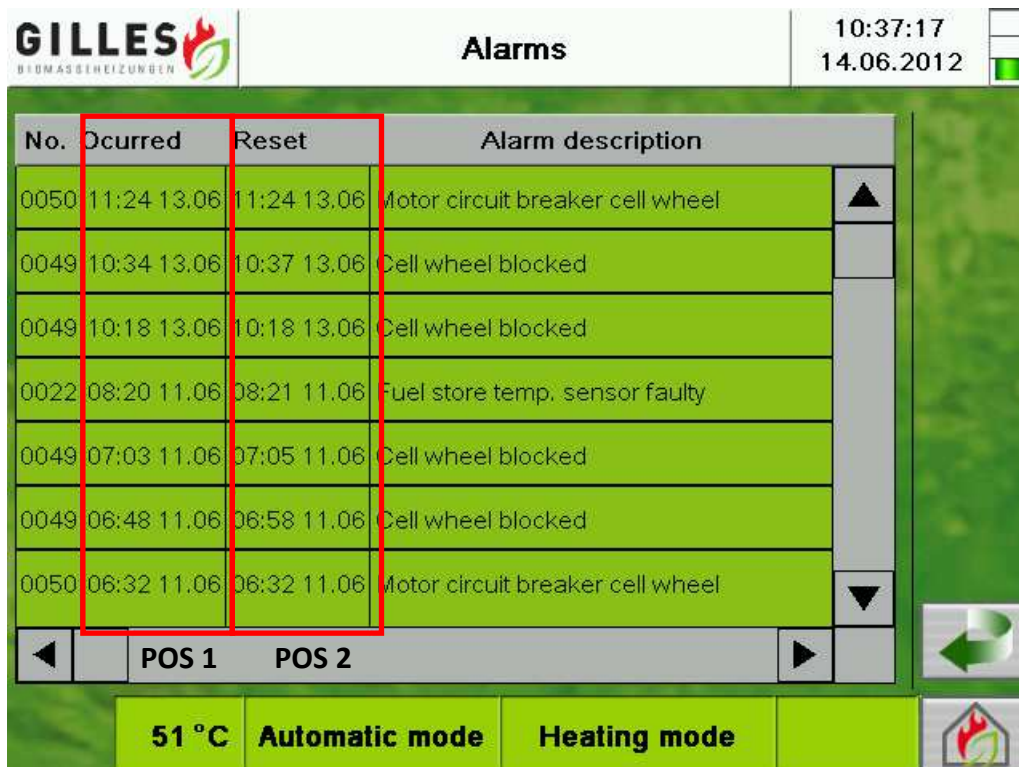


6. Messages



The boiler events or alarm messages appear under “Messages”

6.1 Messages



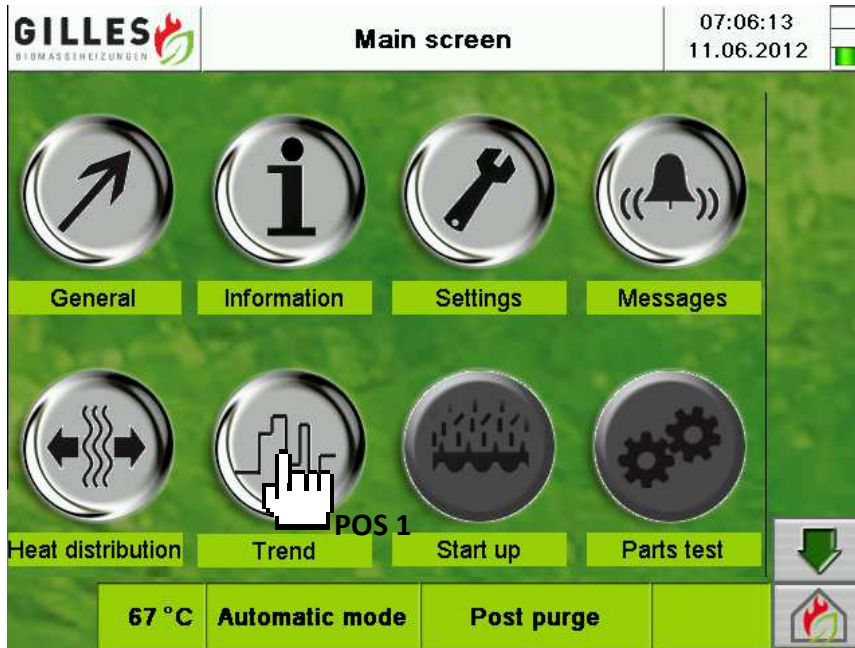
→ 5000 messages and alarms are stored in this window. The 5001st alarm is added again at the very top.

When **it occurred (Occurred)** and when **it was acknowledged (Reset)** appears for each alarm.

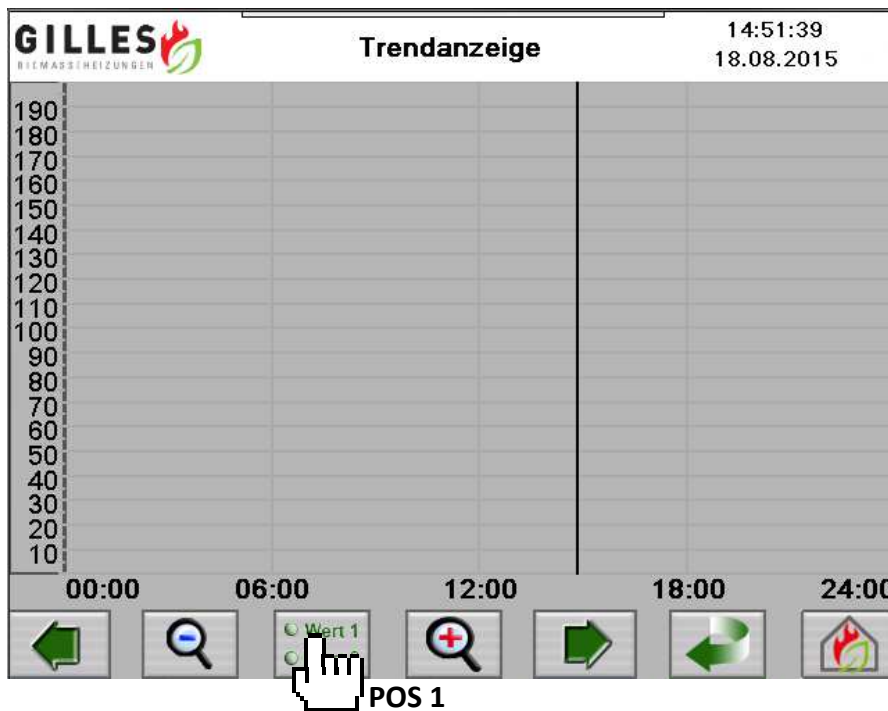
**Colour identification:** Messages/alarms in red are current messages that have not been acknowledged yet.

Messages in green have already been acknowledged.

**7. Trend display**



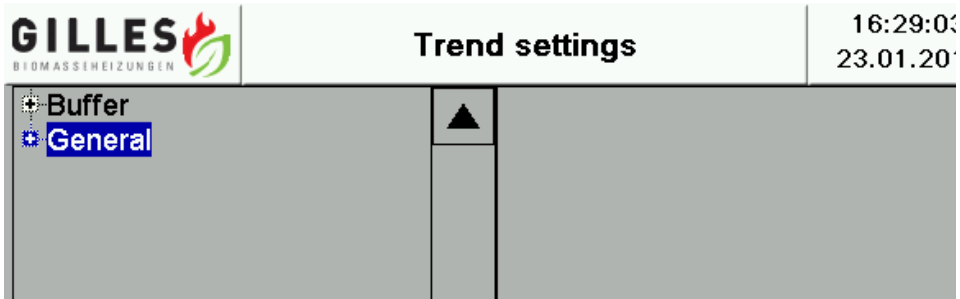
➔ To observe the control behaviour and temperature behaviour of the boiler, go to the "Trend display" (POS 1) window.



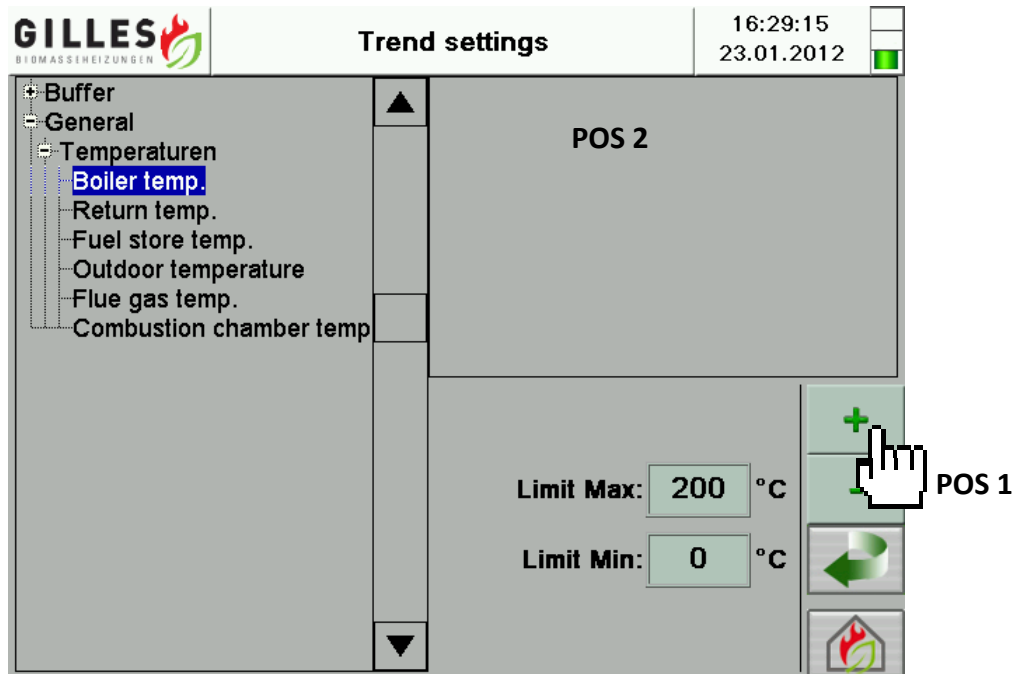
➔ To display a curve diagram, press the (POS 1) BUTTON.

7.1 Creating a trend curve

1.

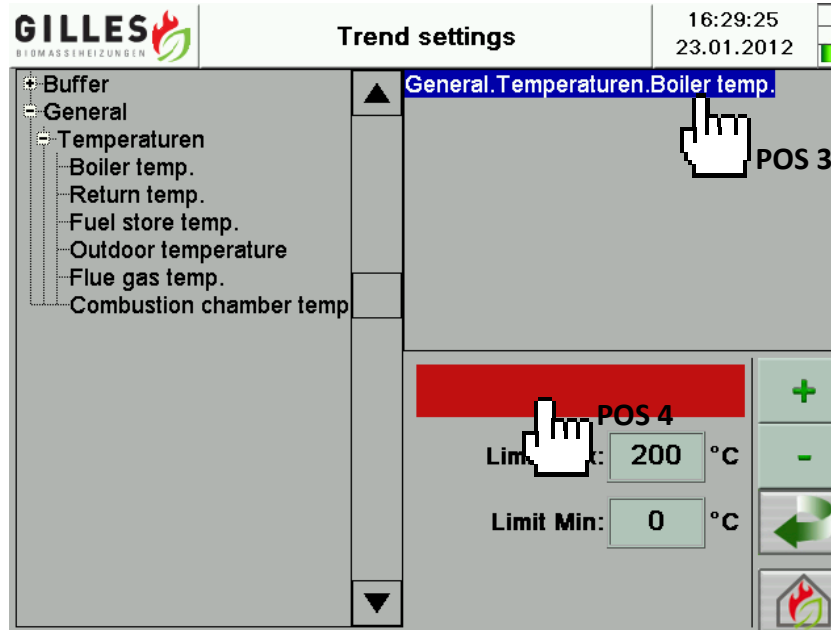


2.



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

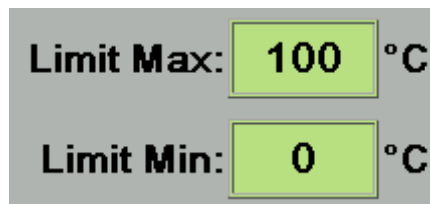
3.



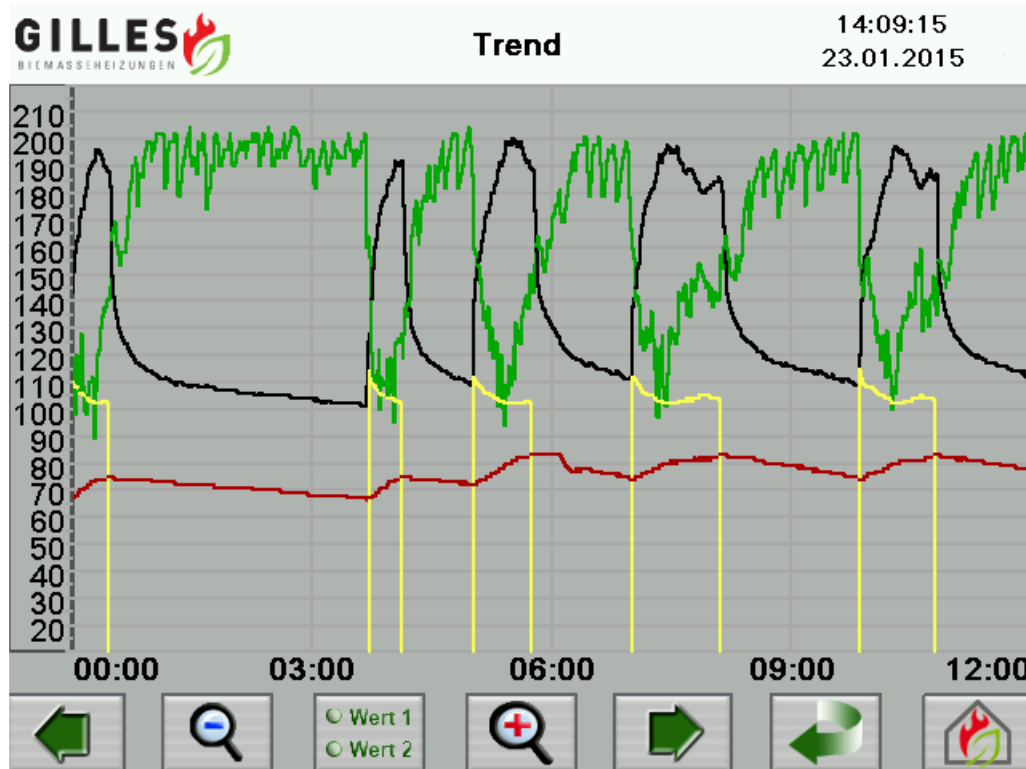
→ If you now select this parameter in the (POS 3) apply window, you can also assign a colour (POS 4) to it.



→ 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.



**7.2 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



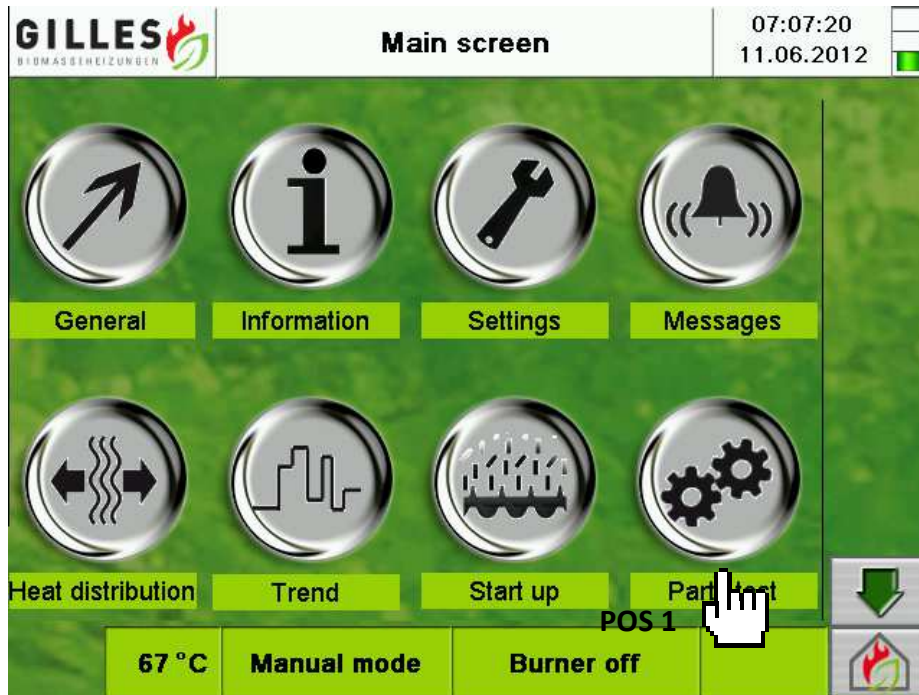
Zoom in (time scales in)



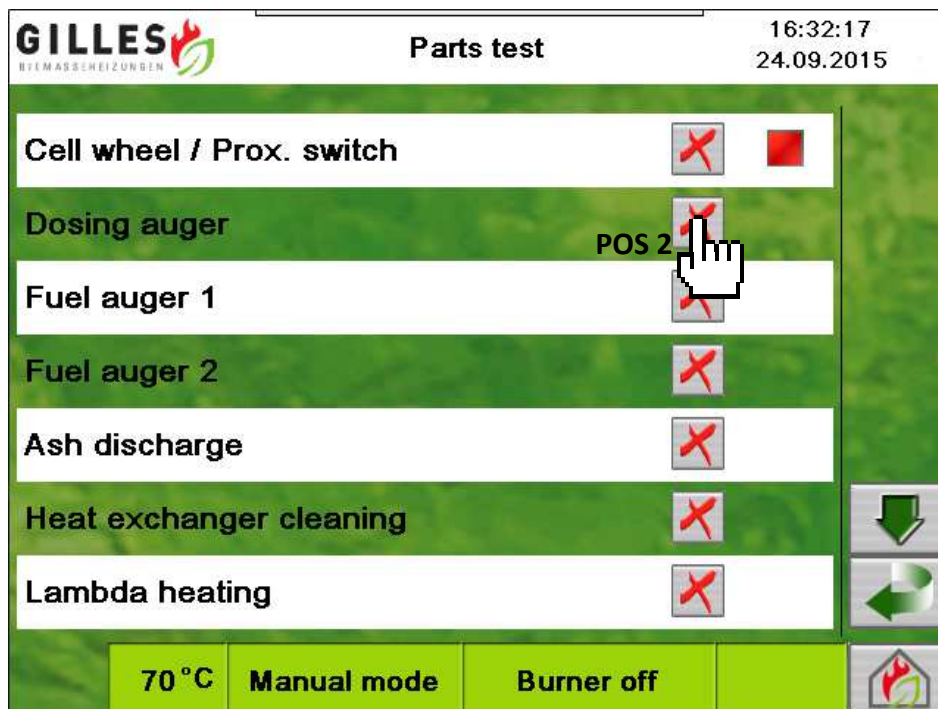
Move right in the diagram (in the time curve).

## 8. Parts test & Start up

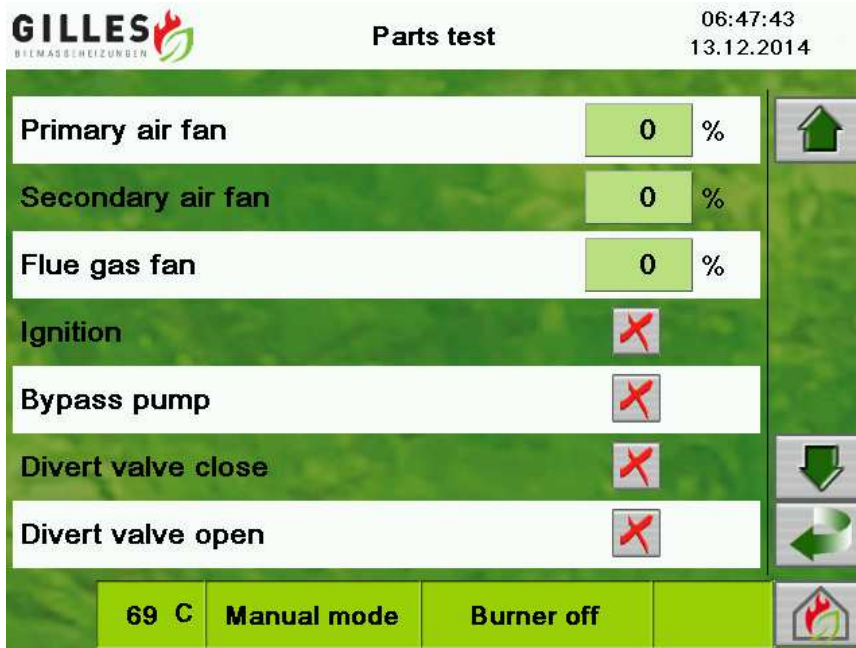
### 8.1 Parts test



➔ 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 run them.  
Press again to stop them.



GILLES BIOMASS HEIZUNGEN		Parts test		06:47:43 13.12.2014	
Primary air fan	0 %			↑	
Secondary air fan	0 %				
Flue gas fan	0 %				
Ignition	X				
Bypass pump	X				
Divert valve close	X			↓	
Divert valve open	X			↺	
69 C	Manual mode	Burner off	🔥		

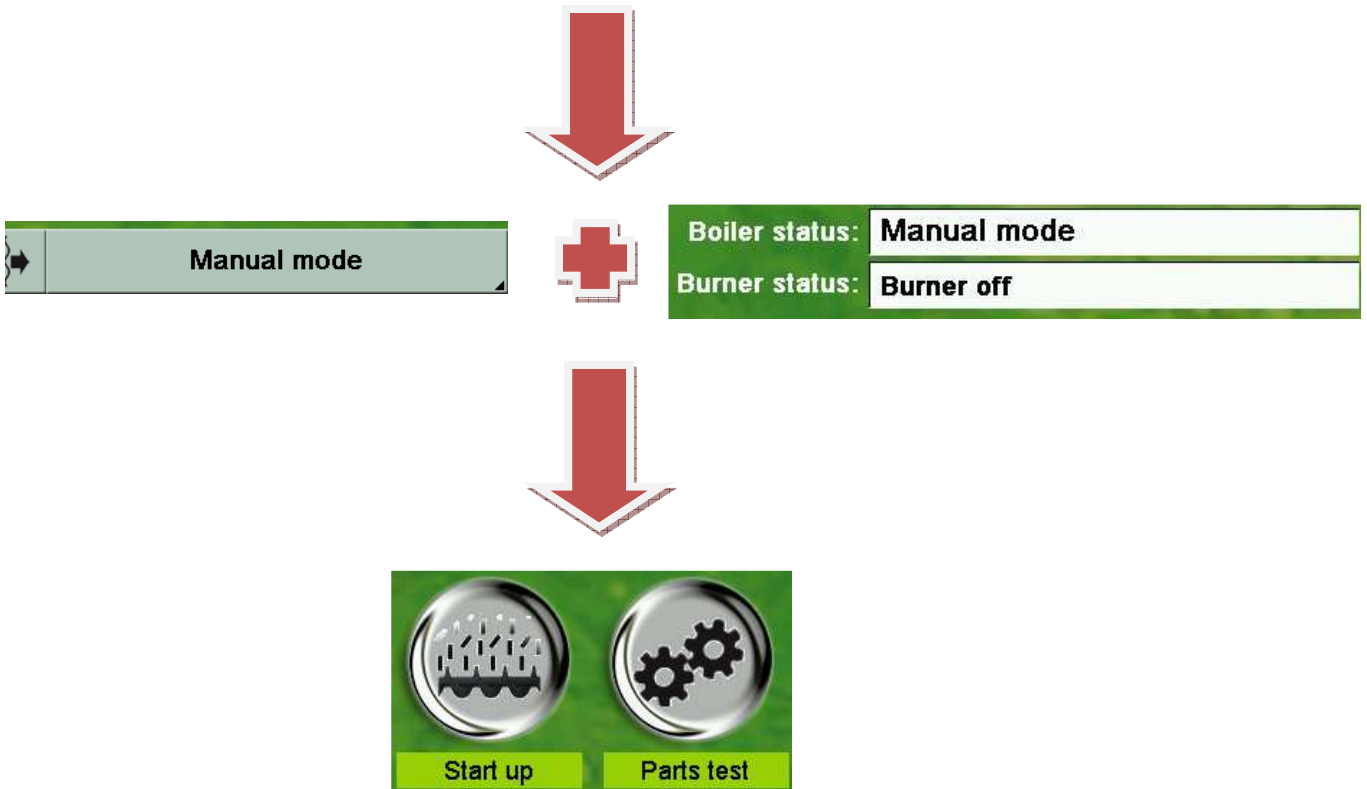
- ➔ For running the air fans (primary, secondary, flue gas) enter a value between 0% and 100%

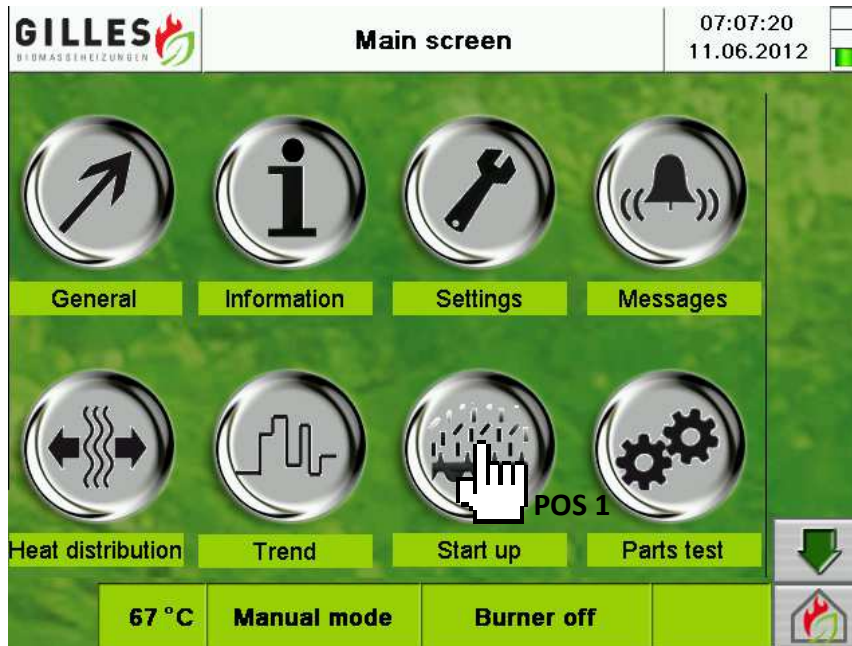
**8.2 Start up**



These icons 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"**, they are activated.





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

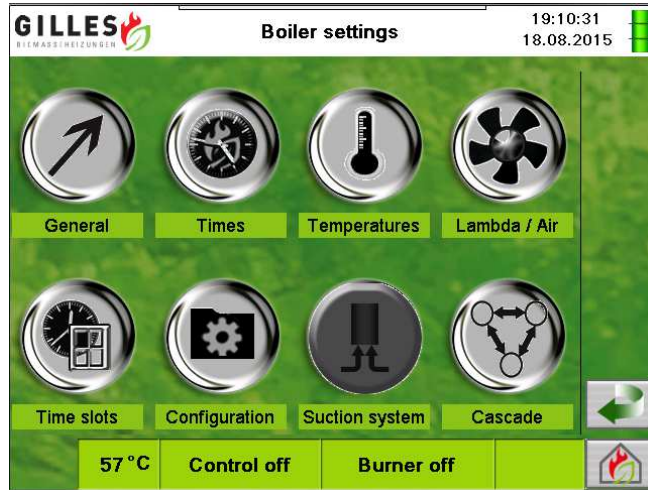


→ **The customer only uses the start up window for filling the burner if empty.**

Pressing "Start ignition feeding" (**POS 1**) starts the entire transport system incl. stoker auger. Auger filling is stopped by pressing **POS 1** again.

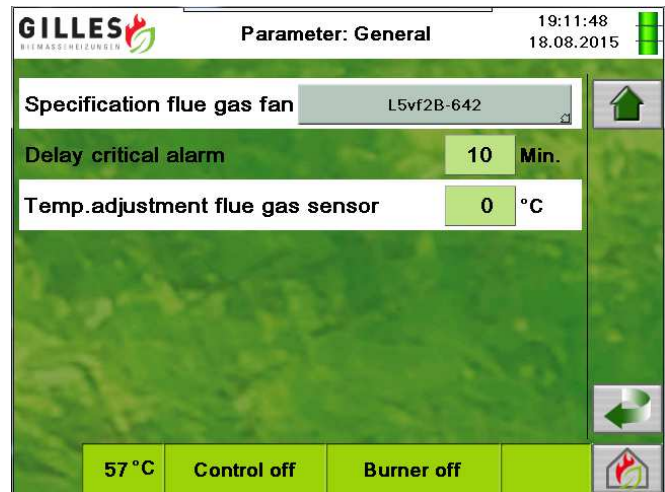
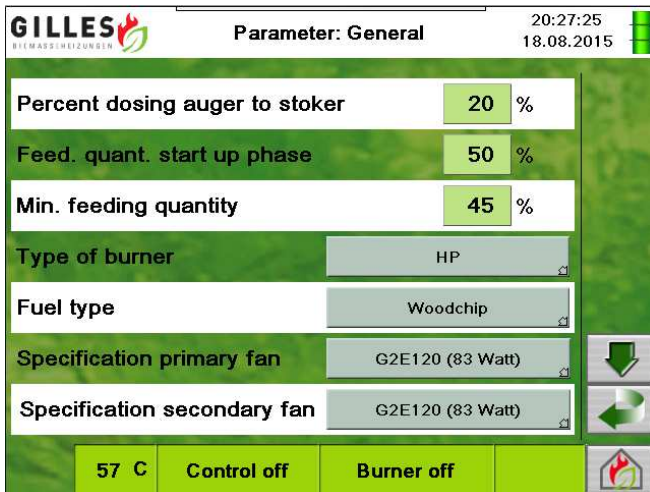
## 9. Service Engineer settings

In this chapter all the parameters are described which are only changeable with the service engineer password.



### 9.1 General

In menu "General" the following parameters are changeable.



**Parameter:**      **Percent dosing auger to stoker → Page 27**

**Parameter:**      **Feed. quant. start up phase**

Responsibility:

When the burner is in "start up phase" this parameter describes the feeding quantity during that period.

Factory setting for this parameter is 50%.

Unless a special fuel is used this parameter doesn't have to be changed

**Parameter: Min. feeding quantity**

Responsibility: This parameter describes the least amount of fuel which is transferred into the burner during "Heating Mode".  
Default setting for this parameter is 45%

**Parameter: Type of burner**

Responsibility: Parameter describes if a burner for pellets or woodchips is used.

**Parameter: Fuel type**

Responsibility: Parameter describes fuel type (woodchip or pellets)

**Parameter: Specification primary fan**

Responsibility: Depending on the motor used for the primary air fan.

**Parameter: Specification secondary fan**

Responsibility: Depending on the motor used for the secondary air fan.

**Parameter: Specification flue gas fan**

Responsibility: Depending on the motor used for the flue gas fan.

**Parameter: Delay critical alarm**

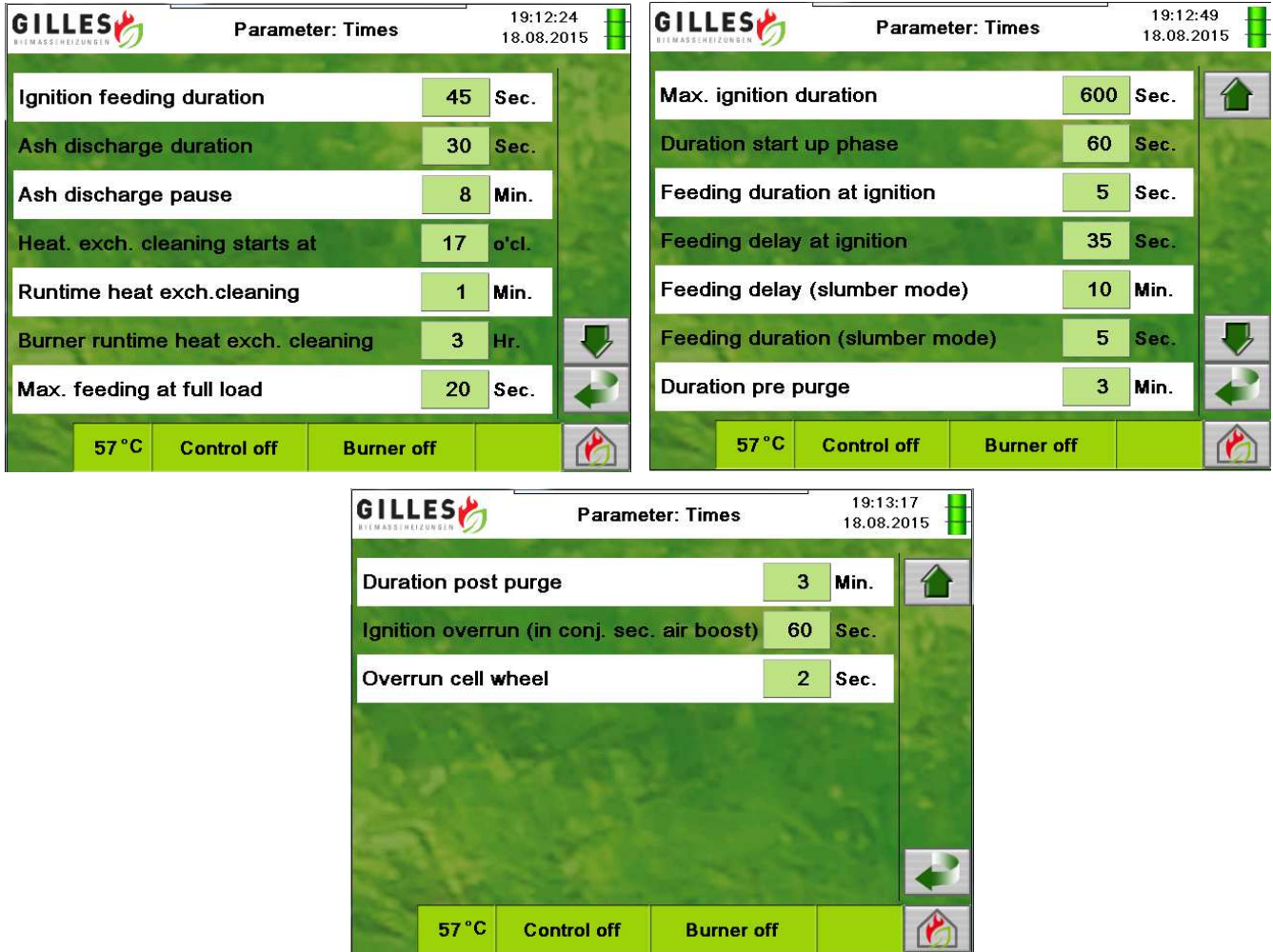
Responsibility: When an error occurs this parameter delays the output "critical alarm" for the adjusted time.

**Parameter: Temp. adjustment flue gas sensor**

Responsibility: In some cases the flue gas sensor shows an offset.  
To counter this offset the temperature can be adjusted by this parameter.

**9.2 Times**

In the menu “Times” the following parameters are changeable.



**Parameter:            Ignition feeding duration → Page 27**

**Parameter:            Ash discharge duration → Page 27**

**Parameter:            Ash discharge pause → Page 27**

**Parameter:            Heat. exch. cleaning starts at → Page 27**

**Parameter:            Runtime heat exch. cleaning**

Responsibility:            This parameter describes the runtime of the heat exchanger cleaning motor when the boiler starts cleaning.

**Parameter: Burner runtime heat exch. cleaning**

Responsibility: This parameter describes the time the burner status has to be “Heating mode”, before the boiler starts the heat exchanger cleaning.

**Parameter: Max. feeding at full load**

Responsibility: This parameter describes the max. runtime of the dosing auger during a feeding cycle.

**Parameter: Max. ignition duration**

Responsibility: This parameter describes the duration of the “Ignition” phase. If during that phase none of the conditions for a successful ignition are achieved, the boiler displays an error “Ignition fault” (Page 69).

**Parameter: Duration start up phase**

Responsibility: This parameter describes the duration of the “start up” phase after a successful ignition.

**Parameter: Feeding duration at ignition**

Responsibility: This parameter describes the feeding duration per feeding cycle of the dosing auger during the “ignition” phase.

The feeding cycle only kicks in when the O2 value already fell below 17% during the “ignition” phase once.

**Parameter: Feeding delay at ignition**

Responsibility: This parameter describes the feeding delay per feeding cycle of the dosing auger during the “ignition” phase.

The feeding cycle only kicks in when the O2 value already fell below 17% during the “ignition” phase once.

**Parameter: Feeding delay (slumber mode)**

Responsibility: This parameter describes the feeding delay of the dosing auger when the boiler is in “slumber mode”.

**Parameter: Feeding duration (slumber mode)**

Responsibility: This parameter describes the feeding duration of the dosing auger when the boiler is in “slumber mode”.

**Parameter: Duration pre purge**

Responsibility: This parameter describes the duration of the pre purge phase.

**Parameter: Duration post purge**

Responsibility: This parameter describes the duration of the overrun flue fan phase.

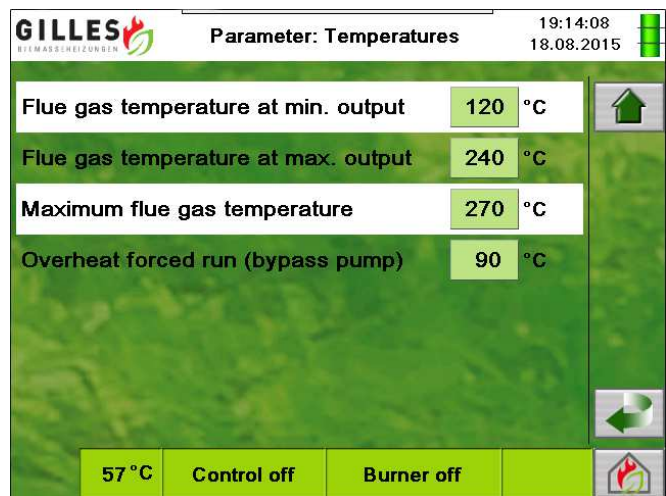
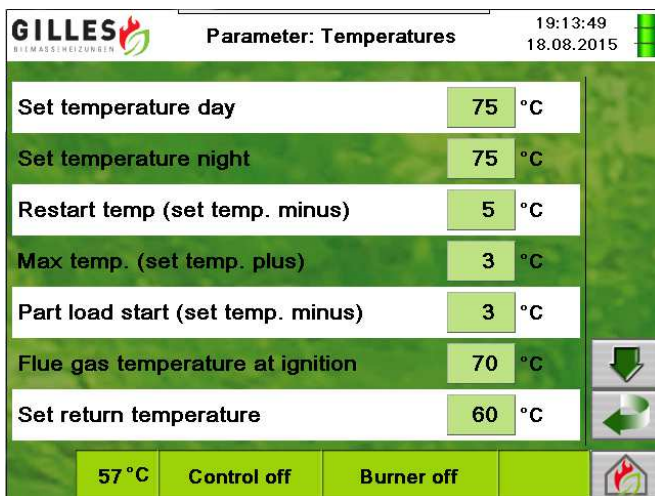
**Parameter: Ignition overrun**

Responsibility: This parameter describes the overrun of the ignition fan after a successful ignition.

**Parameter: Overrun cell wheel**

Responsibility: This parameter describes the overrun of the cell wheel after each feeding cycle.

**9.3 Temperatures**



**Parameter: Set temperature day → Page 30**

**Parameter: Set temperature night → Page 30**

**Parameter: Restart temp (set temp. minus) → Page 30**

**Parameter: Max temp. (set temp plus) → Page 30**

**Parameter: Part load start (set temp. minus)**

Responsibility: This parameter describes the temperature when the boiler changes from full to part load.

E.g.: "Set temperature day" = 80°C & "Part load start" = 3°C  
Boiler temp < 77°C → Boiler is in full load  
Boiler temp > 77°C → Boiler is in part load

**Parameter: Flue gas temperature at ignition → Page 69**

**Parameter: Set return temperature**

Responsibility: This parameter describes the return temperature to which the mixing valve is regulating.

E.g.: "Set return temperature" = 60°C  
Return temperature > 60°C → Mixing Valve opens  
Return temperature < 60°C → Mixing Valve closes

**Parameter: Flue gas temperature at min. output**

Responsibility: This parameter describes the flue gas temperature the boiler tries to reach in part load.

**Parameter: Flue gas temperature at max. output**

Responsibility: This parameter describes the flue gas temperature the boiler tries to reach in full load.

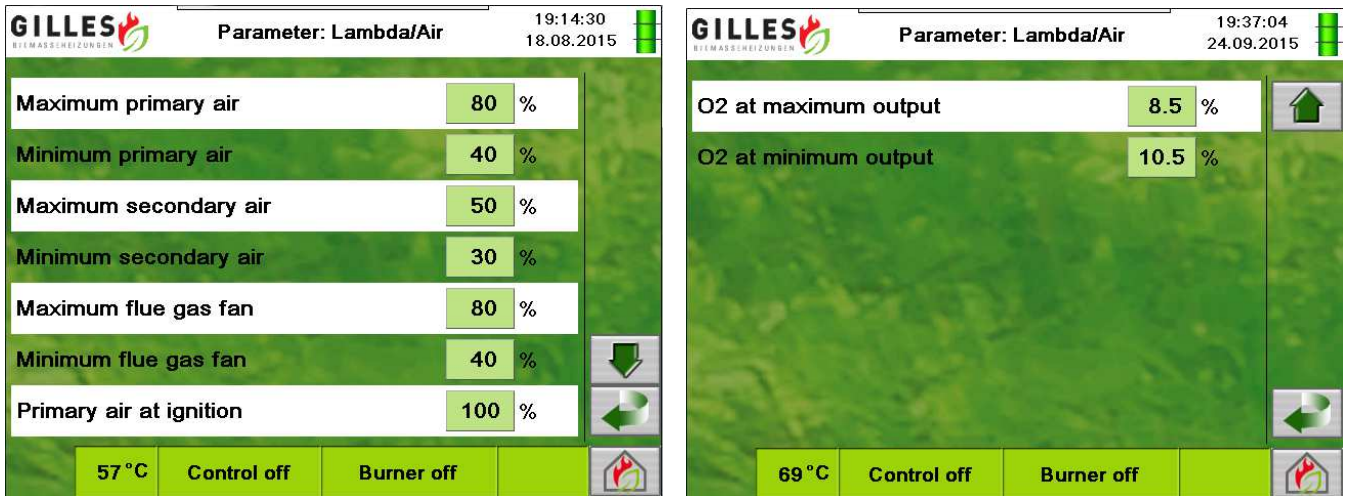
**Parameter: Maximum flue gas temperature**

Responsibility: When this flue gas temperature is exceeded the boiler starts to reduce the feeding quantity until the flue gas temperature drops below this limit.

**Parameter: Overheat forced run (bypass pump)**

Responsibility: This parameter describes the boiler temperature at which the bypass pump starts running independently of the operation mode of the boiler.

**9.4 Lambda/Air**



**Parameter:      Maximum primary air**

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

**Parameter:      Minimum primary air**

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

**Parameter:      Maximum secondary air**

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

**Parameter:      Minimum secondary air**

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

**Parameter:      Maximum flue gas fan**

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

**Parameter:      Minimum flue gas fan**

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

**Parameter:      Primary air at ignition**

Responsibility:      This parameter describes the primary air fan performance during “ignition” phase.


**Parameter: O2 at maximum output**



Responsibility: This parameter describes the O2 level the boiler tries to reach in full load.


**Parameter: O2 at minimum output**


Responsibility: This parameter describes the O2 level the boiler tries to reach in part load.




9.5 Configurations


**GILLES** Biomass Heating **Boiler configuration** 19:15:21 18.08.2015 


Heat exchanger cleaning present	<input checked="" type="checkbox"/>	
Heat exchanger cleaning only at day	<input checked="" type="checkbox"/>	
Heat exchanger cleaning forced run	<input checked="" type="checkbox"/>	
Heat exchanger intermittent cycling on	<input checked="" type="checkbox"/>	
Ash discharge only during day	<input checked="" type="checkbox"/>	
Lambda probe present	<input checked="" type="checkbox"/>	
Secondary air fan present	<input checked="" type="checkbox"/>	




57 °C Control off Burner off 


**GILLES** Biomass Heating **Boiler configuration** 19:15:40 18.08.2015 


Ignition during ignition feeding	<input checked="" type="checkbox"/>	
Intermittent ignition feeding	<input checked="" type="checkbox"/>	
Cell wheel non-stop at full load	<input checked="" type="checkbox"/>	
Light sensors present	<input checked="" type="checkbox"/>	
Oper. mode light sensors	Fuel level	
Audible alarm	<input checked="" type="checkbox"/>	
Suction system present	No	




57 °C Control off Burner off 


**GILLES** Biomass Heating **Boiler configuration** 19:16:10 18.08.2015 


Time impulse proximity switch	0.0	Sec.	
No. of fuel augers (excl. dosing auger)	0	Pc.	
Ignore external enable	<input checked="" type="checkbox"/>		
BMS control active	<input checked="" type="checkbox"/>		
Cascade present	<input checked="" type="checkbox"/>		
GSM-Module present	<input checked="" type="checkbox"/>		
E-Mail present	<input checked="" type="checkbox"/>		


57 °C Control off Burner off 


**GILLES** Biomass Heating **Boiler configuration** 19:16:43 18.08.2015 

NGK Lambda probe present	<input checked="" type="checkbox"/>	
Multiple circuit control	<input checked="" type="checkbox"/>	
Forced post-purge	<input checked="" type="checkbox"/>	
Customer contact	Inactive	
3port valve present	<input checked="" type="checkbox"/>	
Fuel store temp. sensor present	<input checked="" type="checkbox"/>	
Service password	0	

57 °C Control off Burner off 

**GILLES** Biomass Heating **Boiler configuration** 19:17:03 18.08.2015 

Key switch present	<input checked="" type="checkbox"/>	
--------------------	-------------------------------------	---

57 °C Control off Burner off 

**Parameter: Heat exchanger cleaning present**

Responsibility: This configuration enables the heat exchanger cleaning.

**Parameter: Heat exchanger cleaning only at day**

Responsibility: This configuration disables the heat exchanger cleaning during “night economy” mode.

**Parameter: Heat exchanger cleaning forced run**

Responsibility: This configuration forces the heat exchanger cleaning to run at a specific time (Parameter “Heat exch. cleaning starts at”).

**Parameter: Heat exchanger intermittent cycling on**

Responsibility: This configuration forces the boiler to run the heat exchanger cleaning every hour for 5 seconds.  
This makes sure that the heat exchanger cleaning doesn’t get stuck due to too little runtime. Only used with HPK-RA boilers.

**Parameter: Ash discharge only during day**

Responsibility: This configuration disables the ash discharge during “night economy” mode.

**Parameter: Lambda probe present**

Responsibility: This configuration is set when a lambda probe is used.  
If the lambda probe is broke it can be deactivated.

**Parameter: Secondary air fan present**

Responsibility: This configuration is set when a secondary air fan is used.

**Parameter: Ignition during ignition feeding**

Responsibility: This configuration turns on the ignition fan already during the “ignition feeding” phase. Only use with woodchips

**Parameter: Intermittent ignition feeding**

Responsibility: This configuration is set to fill up the burner in several small time intervals instead of one big time interval.

**Parameter: Cell wheel non-stop at full load**

Responsibility: This configuration is set when the cell wheel should run non-stop during full load (Parameter “Act. feeding quant.”)

**Parameter: Light sensor present**

Responsibility: This configuration is set when light sensors are used. It is possible to use up to two light sensors (Auger1 & Auger2).

**Parameter: Oper. mode light sensors**

Responsibility: Operation mode of the light sensors.  
Fuel level → Whenever the light sensors are free, feeding system starts.

**Parameter: Audible alarm**

Responsibility: When this configuration is set the digital output (Fuel store temp. alarm) is switched on whenever there is a critical error.

**Parameter: Suction system present**

Responsibility: This configuration is set when a suction system is used.

**Parameter: Time impulse proximity switch**

Responsibility: This parameter is set to 2,5 sec. when a proximity switch for the cell wheel is used. If there is no proximity switch this parameter is set to 0 sec.

**Parameter: No. of fuel augers (excl. dosing auger)**

Responsibility: This parameter is dependent on the number of additional augers. It is possible to control up to two additional augers (Auger1 & Auger2).

E.g.: No. of fuel augers = 0                      No. of fuel augers = 1  
Stoker auger – Dosing auger              Stoker auger–Dosing auger–Auger1

**Parameter: Ignore external enable**

Responsibility: This configuration is set when an external signal is used to turn on and turn off the boiler via the digital input “External enable”.

**Parameter: BMS control active**

Responsibility: This configuration is set when a BMS is used.

**Parameter: Cascade present**

Responsibility: This configuration is set when a cascade control is used.

**Parameter: GSM-Module present**

Responsibility: This configuration is set when an internal GSM Module is used.

**Parameter: E-mail present**

Responsibility: This configuration is set when a mail client is used on the control.

**Parameter: NGK Lambda probe present**

Responsibility: This configuration is set when a NGK lambda probe is used. This is the standard lambda probe type which is used nowadays.

**Parameter: Multiple circuit control**

Responsibility: This configuration is set when a multiple circuit control is used. Used especially for district heating.

**Parameter: Forced post- purge**

Responsibility: This configuration is set when after the “post purge” the boiler switches to “overrun flue fan” instead of “burner off”.

**Parameter: Customer contact**

Responsibility: This menu can be used for several purposes. Basically all options switch on/off the potential free contact (Customer contact)

**Inactive:** No function

**Operation status:** When boiler reaches set temperature → Customer contact switched on

**Ext. boiler control:** External boiler control via Customer contact

**Burner status:** Whenever burner is running → Customer contact switched on

**Parameter:                    3port valve present**

Responsibility:                    This configuration is set when an electrical 3port is used.

**Parameter:                    Fuel store temp. sensor present**

Responsibility:                    This configuration is always set when the fuel type is wood chips.

**Parameter:                    Key switch present**

Responsibility:                    This configuration is set when a key switch is used.

**9.6 Suction system**



Suction system present has to be set to “Yes” in the Configurations menu

**Parameter:                    Run time suction system**

Responsibility:                    This parameter defines the duration for each feeding cycle of the suction system.

**Parameter:                    Overrun suction unit**

Responsibility:                    This parameter defines the overrun time for the suction unit after a cycle.

**Parameter:                    Run time fuel auger 1**

Responsibility:                    This parameter defines the runtime of the fuel auger during a cycle.

**Parameter:                    Delay fuel auger 1**

Responsibility:                This parameter defines the delay of the fuel auger during a cycle.

**Parameter:                    Number overflow cycles**

Responsibility:                This parameter defines the number of overflow cycles after the level sensor triggers.

**Parameter:                    Time before refill**

Responsibility:                This parameter defines the runtime of the dosing auger before the suction system starts filling up again.

**Parameter:                    Sensor flap present**

Responsibility:                This configuration defines if there is a flap sensor in use or not.  
(New suction systems from 2014 always use a flap sensor)

## 9.7 Cascade control

With this configuration it is possible to control either 1 foreign boiler or up to 3 Gilles Touch boilers. In both configurations one master boiler starts up or shuts down the other slave boilers according to the heat demand.

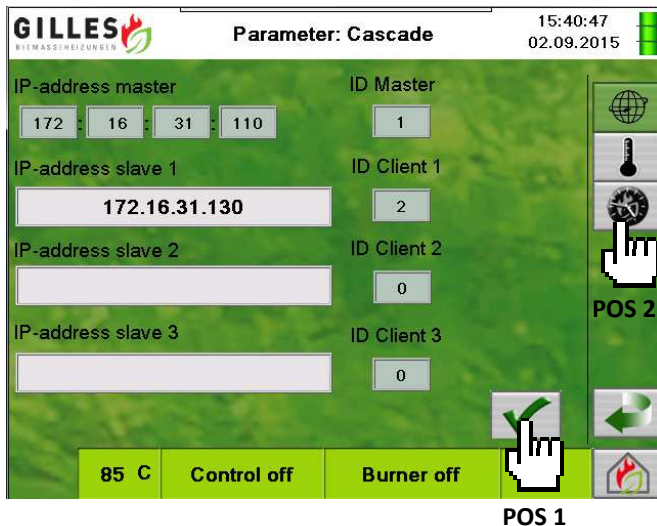
To enable the menu for the cascade control, activate the configuration “Cascade present”.

There are 3 different operation modes for the cascade control.

- Automatic
- Buffer
- External Boiler

**Important:** Boiler is not able to run two operation modes simultaneously!

### 9.7.1 Cascade Control – Buffer / Automatic



In the cascade menu the first step is to set up the TCP/IP connection to the slave boilers.

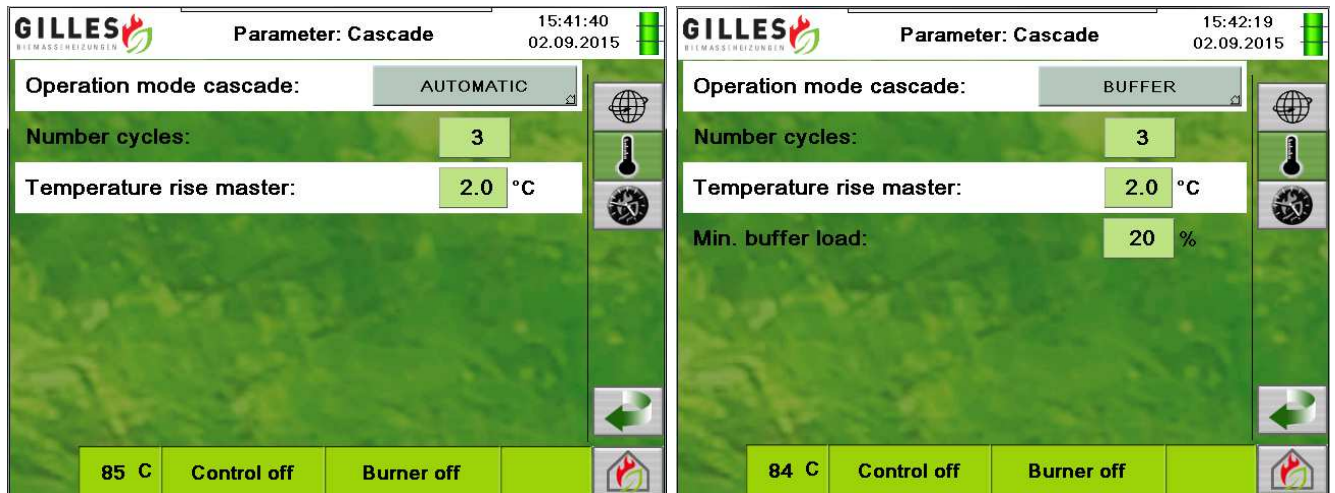
Type in the IP address of the slave boilers and confirm it. (POS1)

If the IP address is correct and the connection is enabled the menu points at POS2 are visible.

The ID describes the boiler priority. The boiler with the lowest ID is switched on first.

Depending on the heat demand the additional boilers will be switched on according to their ID.

**Important:** The configuration for the cascade control is only allowed on 1 boiler!



**Parameter:                    Operation mode cascade**

Responsibility:                    This parameter defines the operation mode of the Cascade control.

**AUTOMATIC:**

The boiler with the lowest available ID is always in Automatic Mode. If this boiler doesn't reach its boiler temperature within a certain period of time, the boiler with the next higher available ID is switched on.

**BUFFER:**

All boilers are in control off as long as the buffer vessel doesn't set up a heat demand. In case of a heat demand the boiler with the lowest available ID is switches on. If this boiler doesn't reach its boiler temperature within a certain period of time, the boiler with the next higher available ID is switched on.

**Parameter:                    Number cycles**

Responsibility:                    This parameter describes the number of cycles á 10 min in which the boiler temperatures are monitored. After this time period the average boiler temperatures are compared.

**Parameter:                    Temperature rise master**

Responsibility:                    This parameter describes the minimum temperature rise of all boiler temperatures. If this temperature rise isn't reached within the time period (Number cycles á 10min) an additional available boiler will be switched on.

**Parameter: Min. buffer load**

Responsibility: When the cascade control is activated and the buffer load is below this parameter all available boilers are started up simultaneously.



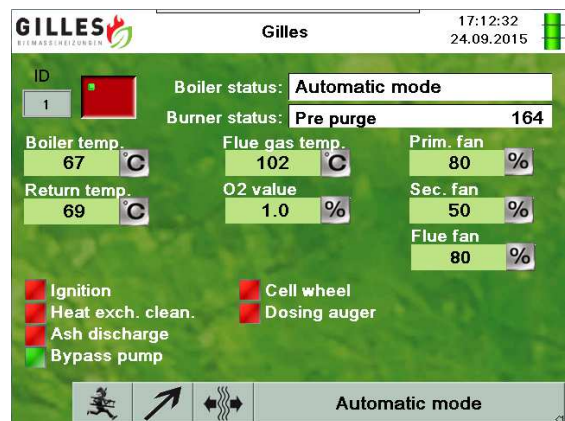
**Parameter: Activate Master rotation**

Responsibility: This configuration enables the master rotation. After a configurable time the boilers change the IDs.

**Parameter: Time until rotation**

Responsibility: This parameter defines the runtime of the control until the next Master rotation takes place.

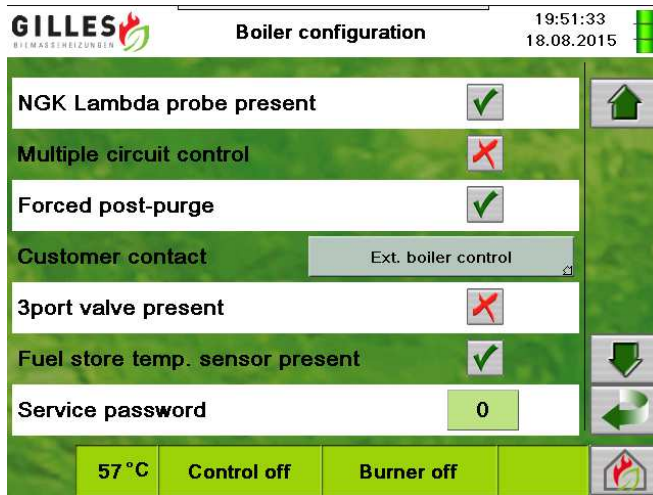
If the configuration of the Cascade was successful a button shows up on the top left corner of the main screen. After pressing the button the cascade control is up and running.



**9.7.2 Cascade Control External boiler**

It is also possible to control an external boiler via the customer contact. With this potential free contact a foreign boiler can be switched on/off according to the heat demand.

To activate the operation for the external boiler control, enable the parameter “Cascade present” and change the parameter “Customer contact” to “Ext. boiler control”.



When the configuration was successful you should see a button in the left top corner of the main screen. The colour shows whether the boiler is ON or OFF

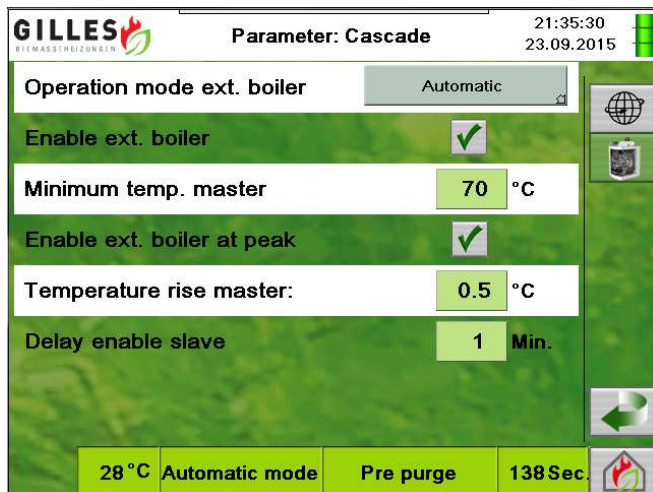


External boiler → ON



External boiler → OFF

In the cascade menu you can now change the following parameters



**Parameter:**                    **Operation mode ext. boiler**

Responsibility:                    This parameter defines the operation mode of the Ext. boiler control.

- OFF:                    External boiler always OFF
- ON:                    External boiler always ON
- Automatic:                    External boiler ON / OFF according to heat demand

**Parameter:**                    **Enable ext. boiler**

Responsibility:                    This configuration activates the ext. boiler control.

**Parameter:**                    **Minimum temp. master**

Responsibility:                    This parameter defines the temperature at which the master boiler either shuts down or won't turn on the external boiler.

**Parameter:**                    **Enable ext. boiler at peak**

Responsibility:                    This configuration activates the temperature rise control of the master.

**Parameter:**                    **Temperature rise master**

Responsibility:                    This parameter defines the temperature rise the master has to achieve within the time "Delay enable slave". If not, the external boiler will be switched on.

**Parameter:**                    **Delay enable slave**

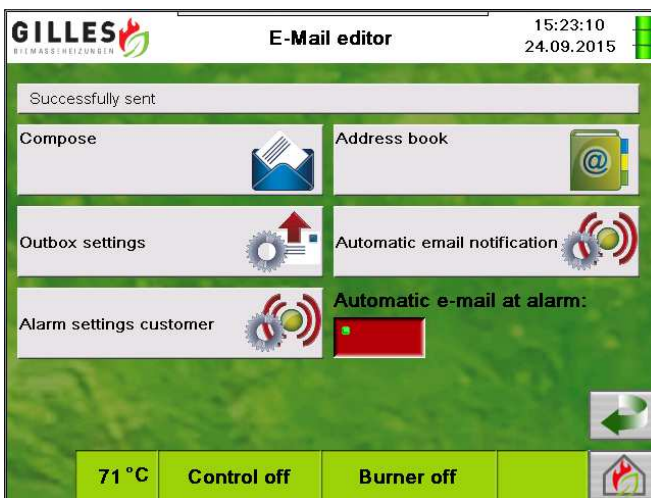
Responsibility:                    This parameter defines the time in which the master has to achieve its temperature rise.

## 9.8 Email error notification

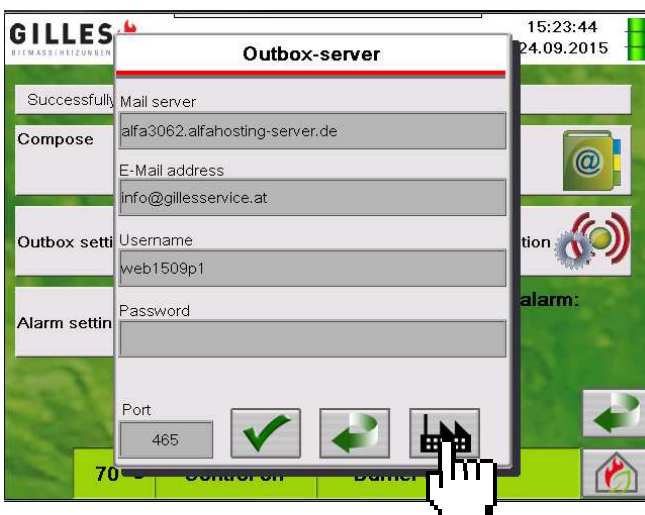
With the Gilles Touch it is also possible to activate an email error notification for emergency messages when a critical error occurs. The message contains the error number and an error description and can be sent to several recipients.

To enable the email error notification the configuration “E-mail present” has to be activated.

**Important:** An internet connection has to be provided and a DNS has to be configured in the “Ethernet” menu.



### Outbox settings



Load the factory values by pressing this button.

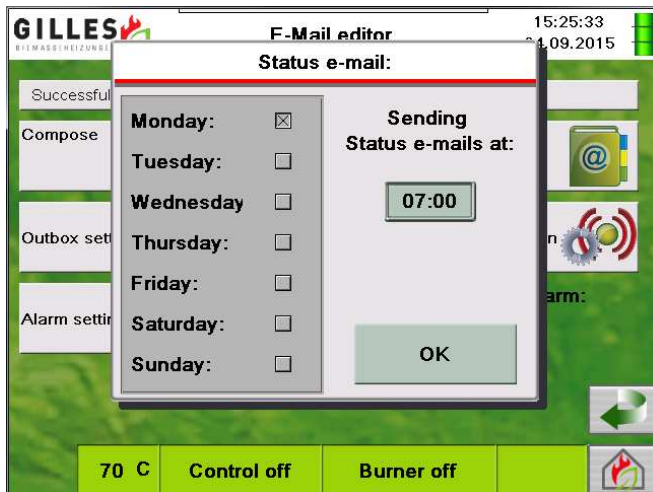
### Alarm settings customer



In this menu the recipient of the notification email can be set.  
To use more than one recipient separate the two email addresses by a semi-colon.

E.g.: [service@gilles.at](mailto:service@gilles.at);[info@gilles.at](mailto:info@gilles.at)

### Automatic email notification



In this menu it is possible to setup a cyclic notification for the customer, if everything is working properly.

## 10. 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
  - Contact service department (supplier / customer service)
  
- 2. Error message:** **Emergency stop activated**

Cause: An external EMERGENCY stop switch (heating switch) has been pressed.

Remedy:

  - Find out why emergency stop switch has been pressed
  - 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 safety thermostat (high limit) triggers.  
 It has to be manually reset on the boiler after triggering.

Remedy:

  - Reset the high limit stat on the boiler directly
  - High limit stat defective
  - Input on the board is defective
  - Contact service department (supplier / customer service)
  
- 4. Error message:** **Boiler temp. sensor faulty**

Cause: The control does not receive any value for the current boiler temperature.  
 On the display, **#NV** appears on the main screen.

Remedy:

  - Boiler temp. sensor is faulty
  - Input on the board is defective
  - Sensor was disconnected on the board
  - Contact service department (supplier / 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, **#NV** appears on the main screen.
- Remedy:
- Flue gas sensor is defective
  - Input on the board is defective
  - Sensor was disconnected on the board
  - Contact service department (supplier / 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, **#NV** appears on the main screen.
- Remedy:
- Return sensor is defective
  - Input on the board is defective
  - Return sensor is not connected
  - Contact service department (supplier / 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, **#NV** appears in the information window.
- Remedy:
- Fuel store sensor is defective
  - Input on the board is defective
  - Fuel store sensor is not connected
  - Contact service department (supplier / customer service)
8. **Error message:** **Cover switch open**  
Cause: The cover on the fuel auger has been opened
- Remedy:
- 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 in the event of a fire
  - Fuel store sensor defective
  - Input on the board is defective
10. **Error message:** **Ignition fault**  
**Cause:** After ignition feeding, the ignition did not execute properly because the flue gas temperature during this time did not increase by 10°C and the lambda value was not below 16,5% O<sub>2</sub>.
- Remedy:**
- Increase the duration of the ignition feeding
  - Increase the feeding duration parameter during ignition *(with engineer password only)*
  - Decrease the feeding pause parameter during ignition *(with engineer password only)*
  - Increase the "maximum ignition time" value *(with engineer password only)*
  - "Flue gas temperature at ignition" parameter was set too high *(with engineer password only)*.
11. **Error message:** **Therm. overl. heat exch. clean.**  
**Cause:** The thermal overload in the control cabinet with the designation **(22K3)** triggered.
- Remedy:**
- Thermal overload is defective
  - Motor is defective => over current
  - Ampere on the electronic thermal overload set incorrectly
  - Contact service department (supplier / customer service)
12. **Error message:** **Thermal overload ash discharge 1**  
**Cause:** The thermal overload in the control cabinet with the designation **(22K2)** triggered.
- Remedy:**
- Thermal overload is defective
  - Motor is defective => over current
  - Ampere on the electronic thermal overload set incorrectly
  - Contact service department (supplier / customer service)

- 13. 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** (400V supply only) 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
  - Contact service department (supplier / customer service)
- 14. 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** (400V supply only) 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
  - Contact service department (supplier / customer service)
- 15. Error message: Motor circuit breaker auger 1 or 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
  - Contact service department (supplier / customer service)
- 16. Error message: Flue temp. too high**  
 Cause: The maximum flue gas temperature set was exceeded.
- Remedy:
- The "Maximum flue gas temperature" parameter is set too low (*with engineer password only*).
  - Flue gas temp. sensor is defective (displays an incorrect value)
  - Contact service department (supplier / customer service)

- 17. Error message: Fire is gone**  
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
- 18. Error message: Boiler door open**  
Cause: The boiler door was opened and no longer closed
- Remedy:
- Door contact switch defective
  - Close door
  - Input on control defective
  - Contact service department (supplier / customer service)
- 19. Error message: Cell wheel blocked**  
Cause: The cell wheel was blocked by e.g. a large piece of fuel, direction reversal (10x) has also been performed unsuccessfully.
- Remedy:
- Cell wheel clogged or a large piece of fuel is blocking the cell wheel.
  - Proximity switch defective
  - The "Time pulse cell wheel" parameter set too high (*with engineer password only*)
- 20. Error message: High temp. burner (for pellet system ≤ 45kW only)**  
Cause: The Klixon (temperature switch for feeding) triggered
- Remedy:
- **Controlled by the control:**
    - ⇒ Cell wheel runs continuously
    - ⇒ 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

- 21. Error message: Bridge X26 is missing**  
Cause: No additional auger 1 is used, a thermal overload is missing. Therefore the safety chain is incomplete and this error occurs.
- Remedy: - Put in a wire bridge at X26
- 22. Error message: Bridge X27 is missing**  
Cause: No additional auger 2 is used, a thermal overload is missing. Therefore the safety chain is incomplete and this error occurs.
- Remedy: - Put in a wire bridge at X27

## 11. Messages

**1. Message: Boiler temperature reached**

Cause: The boiler set temperature has been reached.

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

**2. Message: Buffer temp. reached**

Cause: The buffer set temperature has been reached.

Parameter: Buffer set temperature (Please find more information in the manual for the heat distribution)

**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 the boiler isn't enabled, this message appears.

Parameter: Ignore external enable

## 12. Control description

### 1. Burner OFF

→ The boiler is in an idle state and all augers are off.

### 2. Pre purge

→ The combustion chamber is ventilated for approx. 3 minutes.

<b>Fan:</b>	Primary	Max. primary air
	Secondary	Max. secondary air
	Flue gas fan	Max. ID performance

**Parameter: Duration pre purge**  
*(engineer 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° AND O2 content in the boiler falls below 16,5%, 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 fuel.

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

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

Current flue gas temperature  $\geq$  Set flue gas temperature at ignition **OR**  
current temperature has increased by 10°C **AND**  
current O2 content in the flue gas  $<$  16,5%

**NOTICE:** If the lambda value falls, but not below 16,5% 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  
(*engineer password required*)  
**Feeding pause during ignition**  
(*engineer password required*)

## 5. Start up phase

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

- During the start up phase, the feeding quantity is by default 50%. However, this value can be adjusted.

**Parameter:** Start up phase feeding quantity  
(*engineer 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 part load, i.e. set boiler temp. DAY / NIGHT – Difference in temp. part load, it reduces its output, so that it can slowly reach the set temperature => reduces overshooting of the set boiler temperature.

**7. Overrun flue fan**

**Parameter: Duration post purge**  
*(engineer 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 higher** in the boiler. Otherwise, the fans run until the **"Duration post purge "** has elapsed.

<b>Fan:</b>	Primary	=	Min. primary air
	Secondary	=	Min. secondary air
	Flue gas	=	Min. flue gas fan

**8. Post Purge**

**Operating mode: Buffer mode**

The remaining fuel still in the boiler is going to be burned out.  
 As long as an O2 value above 19% is reached.

**9. Slumber mode**

**Parameter: Feeding delay (slumber mode)**  
(engineer *password* required to change parameter)  
**Feeding duration (slumber mode)**  
(engineer *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 on demand without ignition.