Log boiler for 1/2 m logs

englisch

BMK

Operating instructions

BMK-A-00-00-00-02-BAEN

EN-B30-004-V06-0412-V3.0

GUNTAMATIC

Information on this documentation

Please read through this documentation carefully.

It is intended as a reference document and contains important information on the design, safety, operation, maintenance and care of your heating system.

We are always looking to improve our products and documentation. Any ideas and suggestions you may have will be gratefully received.

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It is important that you pay particular attention to the safety issues highlighted in the text by these symbols.

Subject to printing errors and technical amendments.

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1 Introduction

BS-01-00-00-00-01-BAEN

You have made an excellent choice with the purchase of your GUNTAMATIC boiler.

It is a product of many year's experience in boiler-making and it is our sincere wish that your heating system provides you with many years of satisfaction.

These instructions are intended as a guide to operation and maintenance. Even the best boiler cannot operate effectively without proper care and maintenance, so please read through these instructions carefully and have your appliance commissioned by an engineer authorised by GUNTAMATIC. Most importantly, you should follow the safety instructions in Section 2.

1.1 Brief description

BMK-01-01-00-00-01-BAEN

The BMK log boiler is a modern boiler available with power outputs of 20, 30, 40 or 50 kW. The boiler is stoked manually. The fuel can be ignited automatically if required. The automatic ignition feature is an optional extra (which can also be retrofitted).

1.2 Type approval

BS-01-02-00-00-02-BAEN

The firing is pursuant according to the category 3 according to EN 303-5 and the agreement of the provinces. Article 15a BVG protection measures for small combustion plants and energy savings made. The original typenprüfzeugnisse lie on the manufacturer.

1.3 Further information

BS-01-03-00-00-01-BAEN

The documentation consists of the following documents:

- Planning Document
- Installation instructions
- Operating instructions

If you have any questions, please consult our Customer Support.

2 Important notes

BS-02-00-00-00-01-BAEN

Your boiler has been designed and produced in accordance with the latest technical advances and all applicable safety regulations. Nevertheless incorrect operation, the use of unapproved fuels or the failure to carry out necessary maintenance and repairs can result in personal injury or damage to property. You will avoid dangerous situations by only using the boiler for the purpose for which it was designed and by operating, cleaning and maintaining it correctly. Only start up the heating system when it is in perfectly safe working order.

2.1 Intended use

BS-02-01-00-00-01-BAEN

The boiler is designed for heating central heating water and for use as a central heating boiler.

Caution:

Do not use the boiler to burn rubbish!

Burning rubbish will cause extensive corrosion and consequently a substantial reduction in the service life of the boiler.

2.2 Operating the heating system

BS-02-02-00-00-01-BAEN

The heating system may only be operated and cleaned by demonstrably trained persons (as per check-list). Children, unauthorised persons or persons with a mental impairment may only enter the boiler room under the supervision of an authorised person. When unsupervised, the boiler room/fuel store must be locked and the key kept in a place where it is inaccessible to such persons.

Caution: even if the opposite is requested, servicing and repair work may only be carried out by authorised specialists.

2.3 Guarantee and liability

BS-02-03-00-00-01-BAEN

Guarantee and liability claims for personal injury and/or property damage are inadmissible if they are attributable to one or more of the following causes:

- use of the boiler for purposes other than that intended
- failure to follow the instructions, guidance and safety precautions given in the documentation
- incorrect commissioning, operation, maintenance or repair of the boiler
- operation of the boiler when safety systems are inoperative
- unauthorised modifications

2.4 Safety instructions

BS-02-04-00-00-01-BAEN

To prevent accidents, small children should not be allowed into the boiler room or the fuel storeroom. Please follow the safety instructions below. By doing so, you will protect yourself and prevent damage to your heating system.

Power switch

BS-02-04-00-01-01-BAEN

Note: The power switch must remain switched on at all times and may only be switched off when the system is not in operation.

Mains plug

BS-02-04-00-02-01-BAEN

Danger: **Risk of fatal injury from electric shock.**

The mains power supply is brought to the boiler via the plug marked Mains. That plug and other components of the system remain live even when the Power switch on the control panel is switched off.

Repair work

BS-02-04-00-03-01-BAEN

Danger: **Repair work may only be carried out by authorised technicians.**

Touching live electrical components can cause fatal injury.

Even when the Power switch is "OFF" some components of the system are still live.

Therefore, when carrying out repair work it is imperative that the power supply to the heating system is disconnected by means of the "mains plug" or a circuit breaker.

In an emergency: In the event of electric shock, disconnect the power supply immediately.
Administer first aid. Call the duty doctor.

Fault rectification

BS-02-04-00-04-01-BAEN

Note: If faults occur, the causes must first be eliminated on the basis of the information message on the display (F0...) before resuming operation by means of the "Quit" button.

Unauthorised modifications

BS-02-04-00-05-01-BAEN

Note: do not make any unplanned changes to the settings or any modifications to the heating system.

Loss of guarantee entitlement

Servicing work

BS-02-04-00-06-01-BAEN

Note: Service the boiler regularly or make use of our Customer Service.

Emptying ash

BS-02-04-00-07-01-BAEN

Danger: **Glowing embers can cause fires.**

The ash should only be removed from the boiler or stored in non-combustible containers.

Boiler cleaning

BS-02-04-00-08-01-BAEN

Caution: **Touching hot components can cause skin burns.**

The boiler must only be cleaned when it is cold (flue gas temperature < 50°C)

Flue gas fan

BS-02-04-00-09-01-BAEN

Danger: **Risk of injury from rotating parts.**

The fan must only be removed when it is disconnected from the power supply (unplugged).

Gaskets

BS-02-04-00-10-01-BAEN

Danger: **Risk of gas poisoning.**

It is possible that flue gas could escape if gaskets are damaged.

Have defective gaskets replaced by an authorised technician.

In an emergency: Take the person affected into the open air immediately. Call the duty doctor.

Air supply

BS-02-04-00-11-01-BAEN

Danger: **Risk of suffocation**

Inadequate air supply can be fatal.

Make sure there is an adequate supply of air.

Note: If there is more than one boiler in the same room, a greater supply of fresh air must be provided.

Heating operation

SY-02-04-00-01-01-BAEN

Danger: **Risk of detonation.**

During normal heating operation of the boiler, the boiler doors and the inspection cover must not be opened.

In an emergency: Cool skin burns with cold running water. Administer first aid. Call the duty doctor.

Flue draught regulator

BS-02-04-00-12-01-BAEN

Danger: **Risk of detonation.**

A flue draught regulator with a pressure surge compensator is an essential requirement.

Safety clearances

BS-02-04-00-13-01-BAEN

Danger: **Fire risk.**

Do not store any flammable items in the close vicinity of the boiler.

Follow the local regulations.

Protection against freezing

BS-02-04-00-16-01-BAEN

Note: **Anti-freeze function.**

The system can only perform its freezing prevention function if sufficient fuel is available and there are no faults.

Fire extinguisher

BS-02-04-00-17-01-BAEN

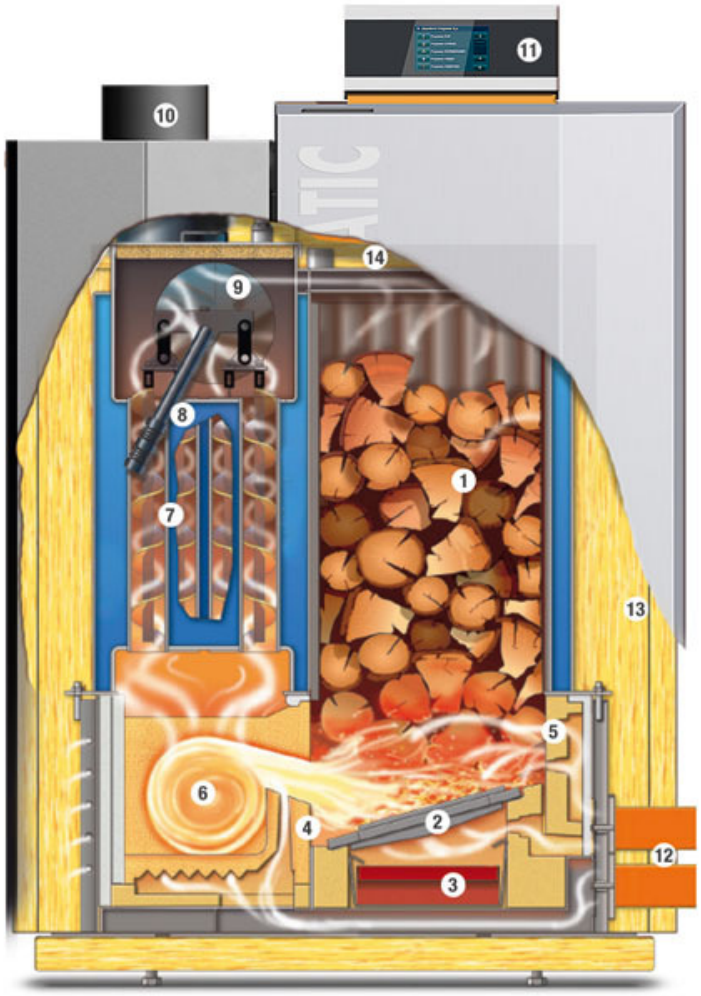
Note: **Provide a fire extinguisher.**

There must be a fire extinguisher placed immediately outside the boiler room door.

3 System components

3.1 Cutaway diagram of BMK

BMK-03-01-00-00-01-BAEN



1. Large fuel box
2. Close-mesh hot grate
3. Ash box
4. Regulated, preheated secondary air
5. Regulated, preheated primary air
6. Turbo combustion chamber
7. Helix baffles
8. Cleaning lever
9. Flue draught fan
10. Flue pipe
11. Boiler control panel
12. Servo motors for primary and secondary air
13. Thick overall insulation
14. Gas expansion duct

Optional feature: automatic ignition

4 Safety systems

BS-04-00-00-00-01-BAEN

To prevent the boiler overheating, the controller reduces the heat output in certain situations. If the boiler still threatens to overheat, the controller responds according to a set of defined safety levels.

Safety level 1

SY-04-00-00-01-01-BAEN

Boiler temperature 87°C
The flue draught fan stops and the combustion air supply is shut off.

Safety level 2

SY-04-00-00-02-01-BAEN

Boiler temperature 95°C
The boiler is cooled by letting cold water into the temperature-relief heat exchanger via the temperature-relief valve.

Safety level 3

SY-04-00-00-03-01-BAEN

Boiler temperature 100°C
All heating pumps and the cylinder charging pump are switched on to carry heat away from the boiler.

Safety level 4

SY-04-00-00-04-01-BAEN

Boiler temperature above 100°C
The STL (safety temperature limiter) trips and switches all boiler control functions off while the heating circulation pumps continue to run. The system remains switched off even if the boiler temperature drops back below 90 °C. The system must not be started up again until any faults have been rectified and the boiler has been checked.

Power failure

SY-04-00-00-05-01-BAEN

The controller, the flue draught fan and all circulation pumps switch off due to lack of electricity if there is a power cut. The glowing fuel bed on the grate continues burn with the natural draught of the flue. As this operating mode is not ideal, a larger amount of ash collects on the grate as well. In addition, the combustion air supply should be manually shut off on the ash box door. To do so, open the ash box door from the right, press the black release button on the relevant servo motor and turn the air flap control anticlockwise as far as the stop. As soon as the electricity supply is restored, the controller takes control of the heating system again.

SY-04-00-00-06-01-BAEN

Danger: **Risk of detonation.**

Do not open any boiler doors during these operating modes.

Opening fuel box door

SY-04-00-00-07-01-BAEN

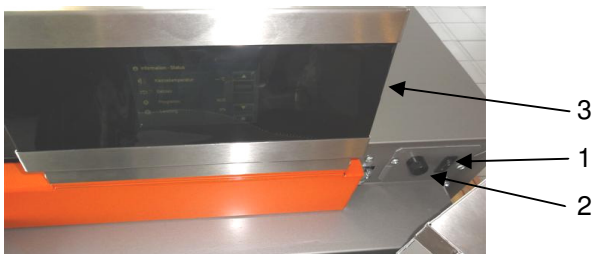
- The flue draught fan switches to maximum speed
- The supply of combustion air is shut off
- After the fuel box cover is closed, resumption of operation is initiated

5 Control panel description

BS-05-00-00-00-01-BAEN

The appliance has a large touch-screen control panel with a menu-based interface. All setting and query options are shown on the display. All settings can be entered by pressing the "buttons" on the touch screen. Any system messages are displayed on the screen.

BMK-05-00-00-01-01-BADE



Power switch (1)

BS-05-00-00-02-01-BAEN

Normally remains permanently switched on. The power switch may only be switched off when the system is not in operation.

Note:	The system must also be disconnected from the mains by unplugging the power lead when carrying out repairs or servicing work.

STL (2)

BS-05-00-00-03-01-BAEN

Excessive temperature (approx. 100°C) trips the safety temperature limiter (STL) located under the cap (2); → appliance operation is suspended; → if the STL has tripped, identify and eliminate the cause and then press in the STL (button) with a thin object.

Note:	The system must not be started up again until any faults have been rectified and the boiler has been checked. If necessary, a heating engineer must be called in.

Touch-screen display (3)

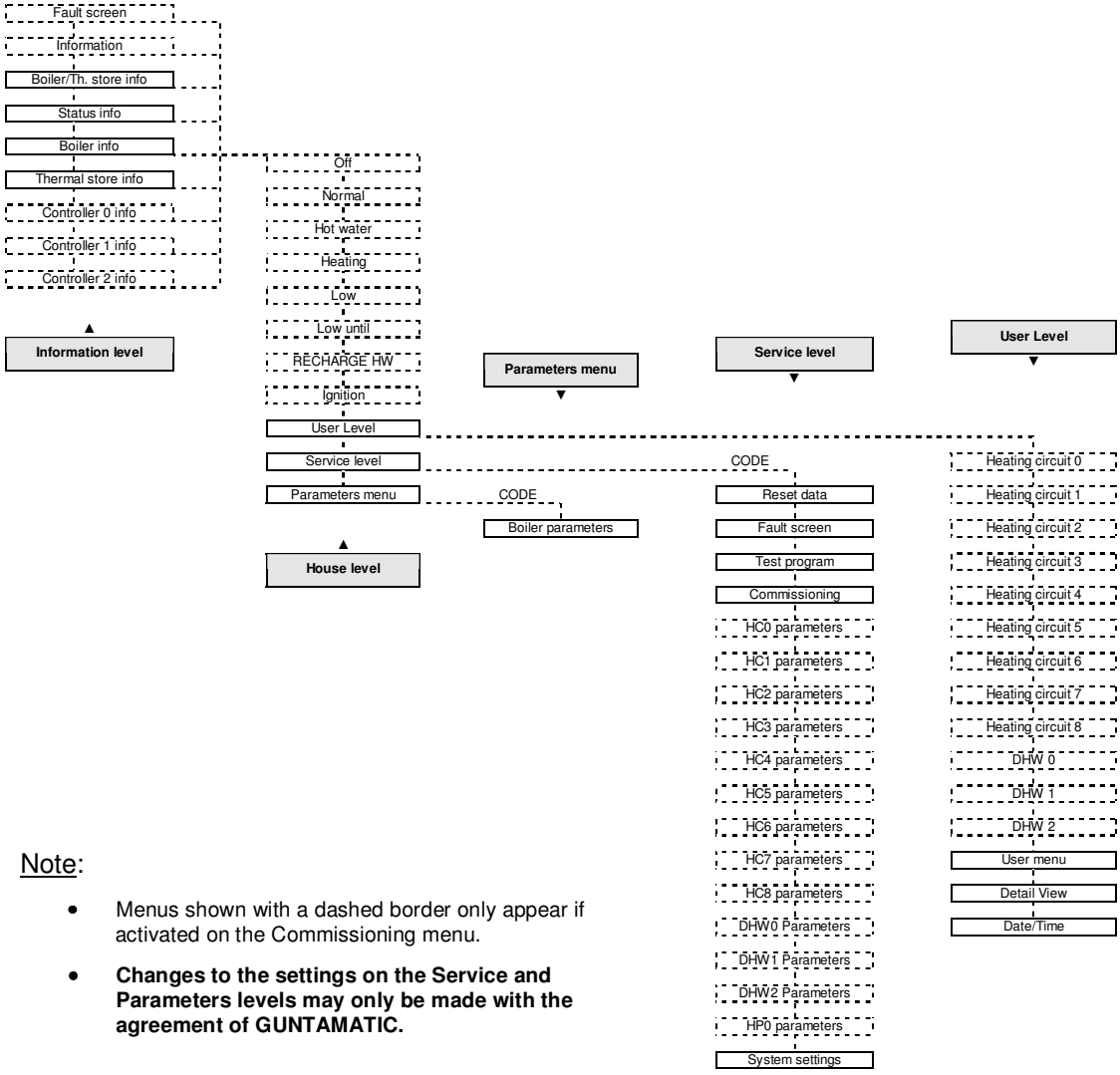
BS-05-00-00-04-01-BAEN

Pressing lightly with your fingertip on the relevant buttons on the display opens the various program levels, menus and submenus. All settings are made directly on the touch-screen display.

Note:	Never use sharp objects such as ball-point pens or the like to operate the touch screen.

6 Overview of menu and levels (menu structure)

BMK-06-00-00-00-01-BAEN

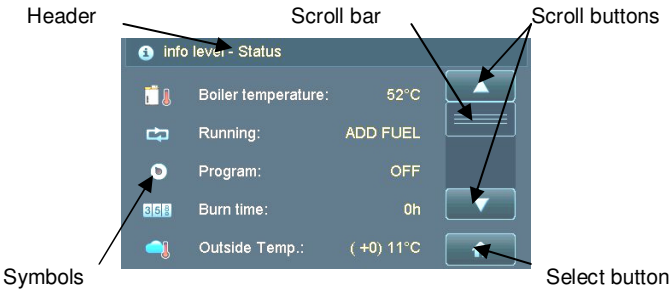


Note:

- Menus shown with a dashed border only appear if activated on the Commissioning menu.
- **Changes to the settings on the Service and Parameters levels may only be made with the agreement of GUNTAMATIC.**

Layout of touch-screen display

BS-06-00-00-01-01-BAEN



The header contains information about the level or menu selected. Operating statuses, sensor readings and switch conditions can be queried in the Selection window. The various buttons can be used to change and save settings or switch to different levels or menus, for example. You switch between the levels and menus by touching the buttons directly on the display screen.

6.1 Information level (User)

BMK-06-01-00-00-01-BAEN

You use the "DOWN" ▼ and "UP" ▲ buttons to navigate through the **Information Level** menu.

Fault → highest priority

Plain-language fault messages are displayed showing date and time of occurrence

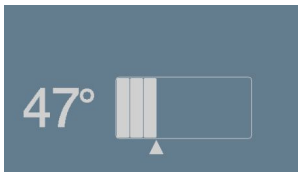
Fault is acknowledged by pressing "Quit" button

1)

Information level → Only shown if the programme "Low until" has been activated

Disappears after the set time has elapsed

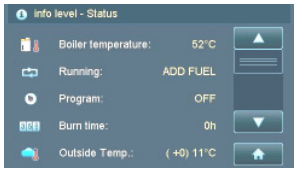
Can be prematurely deactivated by pressing "Quit" button



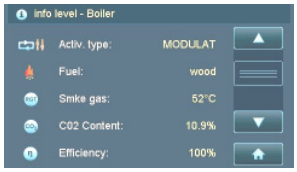
Info level – Boiler/Th. store → Standard display on boiler

Shows boiler temperature
Thermal store charge level → Bar indicator filled to right = Thermal store fully charged
Refill threshold → Do not restoke boiler until level is below refill threshold (▲)

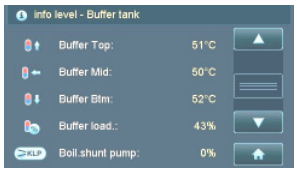
1)



Info level – Status → Shows boiler status
Shows boiler temperature
Shows boiler operating mode
Shows selected programme
Shows combustion time → Opening the fuel box door resets the time to 0 h
Shows outside temperature



Info level – Boiler → Shows boiler data
Shows boiler mode
Shows fuel setting
Shows flue gas temperature
Shows CO2 level
Shows efficiency



Info level – Th. store → Shows thermal store data
Shows thermal store temperature at top
Shows thermal store temperature at middle
Shows thermal store temperature at bottom
Thermal store charge level
Shows boiler charging pump speed → Standard setting = Speed not controlled

1)

Info level – Controller 0 → Heating circuit controller 0 (HCC 0)
Shows domestic hot water temperature and operating mode for cylinder 0
Shows operating mode for heating circuit 0
Shows operating mode for heating circuit 1
Shows operating mode for heating circuit 2

▼

Additional information levels are displayed if multiple heating circuit controllers have been activated on the Commissioning menu.

1) Only shown if one or more heating circuit controllers are activated.

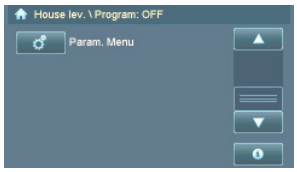
6.2 House level (User)

BMK-06-02-00-00-01-BAEN

All heating programmes and menus are listed and described below:

Central heating and hot water switched off
Heating and hot water on as per timer programme
Hot water as per timer programme DHW summer → Heating mode switched off
Heating mode → Day and night (hot water heating as per timer programme)
Low-temperature mode → Day and night (hot water heating as per timer programme)

Low-temperature mode until a specified time → Hot water as per timer programme
Hot water heating outside programmed charging times → Max. duration 90 min
2) → Takes you to Ignition menu → (automatic ignition available as an option)
2) → Takes you to User level
2) → Takes you to Service level → CODE required



2) → Takes you to Parameters menu → CODE required

2) Pressing the buttons takes you to the relevant programme/level

6.2.1 Automatic Ignition (User)

BMK-06-02-01-00-01-BAEN

All heating programmes and menus are listed and described below:

3) → Takes you to Immediate Ignition programme
3) → Takes you to Delayed Ignition programme
3) → Takes you to Temperature Dependent Ignition programme

6.2.2 Ignition programme options (User)

BMK-06-02-02-00-01-BAEN

3) → Immediate Ignition option

For ignition at any time of your choice, e.g. "Now"
Press "**Ignition ON**" button and save setting by pressing "**OK**" button.

3) → Delayed Ignition option

For ignition on a specified day at a specified time
Set date and time using "**+/-**" buttons and save setting by pressing "**OK**" button.

3) → Temperature Dependent Ignition option

For ignition when the temperature at the top of the thermal store falls below a specified level.
Set desired temperature using "**+/-**" buttons and save setting by pressing "**OK**" button.

3) Only displayed if the boiler is equipped with the optional automatic ignition feature.

6.3 User level (user)

BMK-06-03-00-00-01-BAEN

Depending on the system configuration, the menu levels and submenus may contain different items.

Heating Circuit 0 menu → Timer controlled pump heating circuit on HCC 0
Heating Circuit 1 menu → Timer controlled mixer heating circuit on HCC 0
Heating Circuit 2 menu → Timer controlled mixer heating circuit on HCC 0
Hot Water 0 menu → on HCC 0
4) User Level menu → User settings

5) Detail View menu → Boiler data and operating modes are shown
6) Date/Time menu

4) Important settings on User menu

5) Facility for querying operating modes, sensor readings and switch conditions on Detail View menu

6) Facility for viewing/setting date and time on Date/Time menu

6.3.1 **Heating Circuit** menu (User)

BS-06-03-01-00-01-BAEN

The Heating Circuit menu allows you to enter the settings for the various heating circuits.

7) Heating circuit control status
Facility for setting heating and low-temperature times
8) Facility for setting daytime required temperature
9) Facility for setting night-time required temperature
10) Facility for setting room effect/thermostat function

11) Facility for setting heating characteristic
12) Changeover from low-temperature mode to night-time set temperature
13) Outside temperature mode cut-off for heating circuits

7) Options → **Auto** Heating circuit is switched ON/OFF according to demand and timer programme.
→ **Off** The heating circuit is switched off.
→ **Constant** The pump runs continuously; with mixer-valve heating circuits, the mixer valve is not operated

8) Modulation to "daytime required temperature" is only possible in conjunction with a room stat or room controller; raising or lowering the required temperature shifts the heating curve up or down accordingly.

9) Modulation to "night-time required temperature" is only possible in conjunction with a room stat or room controller; in addition, the outside temperature must be below that set in menu option "Night OFF OT" (hysteresis 2°C)

10) Options → **0**% No room effect programmed
→ **25**% Modulation of room temperature based 25% on room temperature and 75% on outside temperature.
→ **50**% Modulation of room temperature based 50% on room temperature and 50% on outside temperature.
→ **75**% Modulation of room temperature based 75% on room temperature and 25% on outside temperature.
→ **100**% Modulation of room temperature based 100% on room temperature.
→ **T 1°C** If the required room temperature is exceeded by 1°C the heating circuit pump is switched off.
→ **T 2°C** If the required room temperature is exceeded by 2°C the heating circuit pump is switched off.
→ **T 3°C** If the required room temperature is exceeded by 3°C the heating circuit pump is switched off.

11) A higher heating characteristic figure produces a higher required flow temperature at the same outside temperature

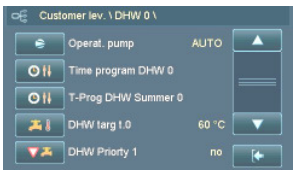
12) If the temperature drops below the set temperature during the low-temperature phase, the boiler heats to the required night-time temperature.

13) The set outside temperature is exceeded during the heating phase, the heating circuits are switched off.

6.3.2 **Hot Water** menu (User)

BS-06-03-02-00-01-BAEN

The Hot Water menu allows you to enter the settings for the various domestic hot water circuits.



14) Hot water circuit control status
15) Facility for setting hot water charging times
16) Facility for setting summer hot water charging times
Facility for setting required hot water temperature
17) Facility for setting hot water priority

14) Options → **Auto** Charging pump is switched ON/OFF according to demand and timer programme.
→ **Off** The charging pump is switched off.
→ **Constant** The charging pump runs continuously

15) All charging times programmed in the "DHW timer programme" are active when the programme is set to "Normal".

16) All charging times programmed in the "DHW summer timer programme" are active when the programme is set to "Hot Water".

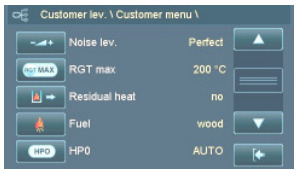
17) Options → **No** During charging of DHW cylinder, heating circuits **can be enabled**.
→ **Yes** During charging of DHW cylinder, heating circuits **cannot be enabled** (factory setting = recommended).

6.3.3 **User** menu (User)

BMK-06-03-01-00-02-BAEN

Depending on the system configuration, the menus may contain different items.

18) For selecting operating mode
Required boiler temperature→ 75 °C – 85 °C
19) For selecting flue draught mode
19) For selecting boiler charging pump mode
20) For selecting Ember conv.



21) For selecting maximum flue draught fan speed
22) Facility for setting maximum flue gas temperature
23) Facility for setting residual heat utilisation
24) Facility for setting Fuel
25) Facility for setting special output HP0

Menu language setting

18) Options → **Controller** Servo A1 (primary air) controlled according to FGT, Servo A2 (secondary air) controlled according to oxygen sensor reading
→ **Emergency** Flue draught fan runs at 100 %; Servo A1/A2 (primary/secondary air) powered off; Manually open Servo A1 clockwise to approx 50%, Servo A2 to approx. 70%

19) Options → **Auto** Output is controlled automatically
→ **Off** Output is switched off
→ **Constant** Output is continuously on

20) Options → **Optimum** Keep In mode if FGT is below 130 °C for longer than 10 min (RBT min 2/Timer 2)
→ **O2 Sensor** Keep In mode if FGT is below 130 °C for longer than 10 min and the oxygen sensor reading has dropped below 4% (RBT min 2/Timer 2/CO2)

21) Options → **Optimum** Maximum flue draught fan speed = 100% (FD max-rpm)
→ **Quiet** Maximum flue draught fan speed = 75% (→ reduces boiler maximum output!)

22) Maximum boiler output is available with "FGT max" at factory setting!

23) Options → **No** No residual heat utilisation
→ **Yes** Precondition is "Keep in" mode → the boiler charging pump runs until the boiler temperature is below the temperature set on service menu "System settings" for the parameter "Residual heat utilisation"

24) Options → **Logs** You are burning logs or logs mixed with coarse woodchips
→ **Woodchips** You are burning coarse woodchips, brush, ultra-dry twigs or woodworking waste

25) Output HP0 is programmed for the desired special function on the service menu "Commissioning"
Options → **Auto** Output is controlled automatically
→ **Off** Output is switched off
→ **Constant** Output is continuously on

6.3.4 **Detail View** menu (User)

BS-06-03-05-00-01-BAEN

All possible system operating statuses, sensor readings and switch conditions can be queried in Detail View. No settings can be made on this menu. Its primary purpose is to aid telephone diagnosis of possible fault causes and to assist the GUNTAMATIC engineer with fault rectification.

6.3.5 **Date/Time** menu (User)

BS-06-03-06-00-01-BAEN

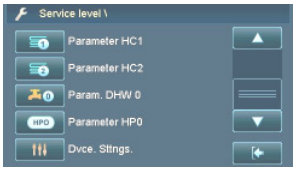
6.4 **Service Level** (Expert)

BS-06-04-00-00-01-BAEN

CODE entry required.

Changes to the settings on the Service Level may only be made with the agreement of GUNTAMATIC or an authorised GUNTAMATIC engineer.

Service menu Reset data → **Caution:** All system settings may be lost.
Service menu Fault screen → Fault memory
Service menu Test program → Function test of all system components
Service menu Commissioning → Activation of all system components
Service menu HC0 Parameters → Parameters for HC0



Service menu HC1 Parameters → Parameters for HC1
Service menu HC2 Parameters → Parameters for HC2
Service menu DHW0 Parameters → Parameters for DHW cylinder 0
Service menu HP0 Parameters → Parameters for HP0
Service menu System settings→ System parameters

6.4.1 Service menu **Reset Data** (Expert)

BS-06-04-01-00-01-BAEN

Caution: If the service menu option "Reset Data" is incorrectly used, reconfiguration of the entire system may be necessary.

For importing stored customer data if necessary
For saving changes to system configuration in customer data
26) Imports only the modified parameters of a new software version
For resetting duty hours counter is to 0
For resetting service interval timer to 0

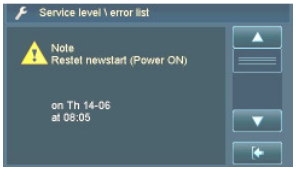
27) Loads factory settings → The system then has to be reconfigured!
For resetting calibration after replacing the oxygen sensor

26) After a change of software version, only those parameters that have changed or been added in the new version are imported.

27) **Caution:** → All system settings including hours of duty and service interval timer readings are lost;
→ after a controller reset, the system is in the as-delivered condition;
→ the system then has to be reconfigured;

6.4.2 Service menu **Fault Screen** (Expert)

BS-06-04-02-00-01-BAEN



Plain-language fault messages are displayed showing date and time of occurrence

6.4.3 Service menu **Commissioning** (Expert)

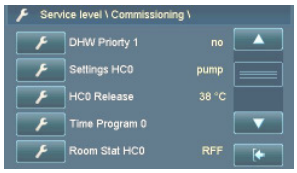
BMK-06-04-01-00-01-BAEN

All system components present can be programmed and activated from the service menu Commissioning.

28)

For setting boiler type
For setting boiler output → stated on rating plate
For setting speed control → Can be set for BCP and TSCP
For setting Thermal Store mode
For activating automatic ignition → available as an option

For activating heating circuit controller 0
For activating DHW cylinder 0
For programming DHW cylinder 0 charging times → for NORMAL programme
For programming DHW cylinder 0 charging times → for HOT WATER programme
For setting required temperature for DHW cylinder 0



For setting hot water priority for DHW cylinder 0
For activating heating circuit 0
Enabling temperature for Heating circuit 0 → effective for sensor T3 (thermal store top)
For setting heating times for heating circuit 0
For activating room stat or room controller for heating circuit 0

29)

For activating heating circuit 1
Enabling temperature for Heating circuit 1 → effective for sensor T3 (thermal store top)
For setting maximum flow temperature for heating circuit 1
Setting for heating characteristic for heating circuit 1
For setting heating times for heating circuit 1

30)
29)

For activating room stat or room controller for heating circuit 1
For activating heating circuit 2
Enabling temperature for Heating circuit 2 → effective for sensor T3 (thermal store top)
For setting maximum flow temperature for heating circuit 2
Setting for heating characteristic for heating circuit 2

For setting heating times for heating circuit 2
30) For activating room stat or room controller for heating circuit 2
For activating heating circuit controller 1 → external wall controller
For activating heating circuit controller 2 → external wall controller
31) For activating special output HP0

After completing system configuration → save customer data

28) Options
- → **Off** Speed control deactivated (= Factory setting)
- → **BCP** Boiler charging pump speed is controlled
- → **BCP+TSCP** Boiler charging pump speed and thermal store charging pump speed are controlled
- → **TSCP** Thermal store charging pump speed is controlled

Note: Speed of energy-saving pumps must not be controlled.

29) Options
- → **None** Heating circuit is deactivated
- → **Pump** The heating circuit pump can be controlled by the timer programme
- → **Mixer** The heating circuit pump and the mixer valve can be controlled by the timer programme

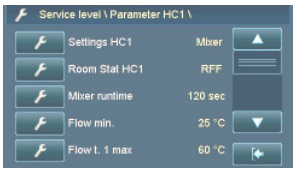
30)	Options	→ **None**	No room stat connected
		→ **RFF**	Analogue room stat is connected
		→ **RS Full**	Digital room controller is connected (facility for setting all heating circuits)
		→ **RS HC**	Digital room controller is connected (facility for setting assigned heating circuit only)
31)	Options	→ **CP**	Charging pump function with diff. control based on sensor T3 (thermal store top) and T5 (oil/gas boiler)
		→ **FP**	The feeder pump also runs as soon as a heating circuit in the system calls for heat
		→ **RFI**	Refill indicator; the output is active if the temperature at the top of the thermal store (T3) is lower than the temperature required by the heating or hot water circuits and the thermal store charge level is below 40 % (= fixed setting)
		→ **Burner**	Output is enabled if the temperature at the top of the thermal store (T3) is lower than the temperature required by the heating or hot water circuits; once the temperature at the top of the thermal store (T3) has increased by 10°C (= fixed setting), the output switches to "OFF" again.
		→ **Interlock**	Function for outside-temperature based control of an oil/gas boiler in conjunction with a changeover valve (3-way mixer or zone valve) for interlocking the thermal store; for implementing system configuration diagram BMK-16-X

Note: **The function "Interlock/FP" can only be activated in conjunction with an outside-temperature based heating circuit controller.**

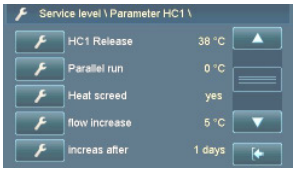
6.4.4 Service menu **Heating Circuit/Screed Drying Programme Parameters** (Expert)

BS-06-04-04-00-01-BAEN

Options for setting the heating circuit and screed drying parameters:



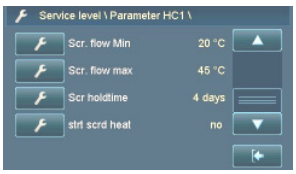
Heating circuit operating status
Room stat setting
For setting mixer valve running time
For setting minimum flow temperature
For setting maximum flow temperature



Enabling temperature for Heating circuit 1
For setting heating characteristic parallel shift
For activating screed drying programme

32)

Screed prog. → For setting the flow temperature increment
Screed prog. → For setting time until next flow temperature increase



Screed prog. → For setting minimum flow temperature
Screed prog. → For setting maximum flow temperature
Screed prog. → For setting holding time for maximum flow temperature
Screed prog. → For starting the screed drying programme

CAUTION: **The screed drying parameters must be set in consultation with the floor layer.**

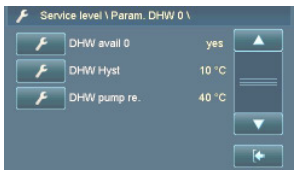
Maintaining the specified temperatures is not possible in modulating control mode but only when using automatic mixer valves. Maintenance of the specified temperatures cannot be 100% guaranteed – due to various safety circuits and special boiler functions, in exceptional cases the temperatures can be significantly exceeded. If that is a problem in terms of damage to building work, the screed drying function should be operated manually.

32) After activation of the screed drying programme, the menu expands to reveal the screed programme parameters.

6.4.5 Service menu **Hot water parameters** (Expert)

SY-06-04-02-00-01-BAEN

Facility for setting hot water parameters



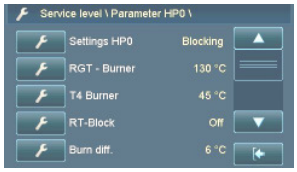
33) Hot water circuit operating mode
Facility for setting hot water hysteresis → Hot water cylinder recharging
Enabling temperature for cylinder charging pump → CCP 0

33) If the temperature in the hot water cylinder falls 10°C (hysteresis) below the required temperature, the hot water cylinder is heated up again; the precondition is that the charging time is enabled in the timer programme on the "Hot water" menu.

6.4.6 Service menu **HP0 parameters** (Expert)

SY-06-04-03-00-01-BAEN

Facility for setting the parameters for special output HP0



34) Operating status of special output HP0
Facility for setting the OFF temperature for output HP0
Facility for setting the temperature for switchover from sensor T3 to sensor T4
35) Facility for setting the changeover valve running time
36) Facility for setting the burner switching difference

37) Facility for setting the burner ON delay
Facility for setting the thermostat function

34) Function → **CP** Charging pump function with diff. control based on sensor T3 (thermal store top) and T5 (oil/gas boiler)

→ **FP** The feeder pump also runs as soon as a heating circuit in the system calls for heat

→ **RFI** Refill indicator; the output is active if the temperature at the top of the thermal store (T3) is lower than the temperature required by the heating or hot water circuits and the thermal store charge level is below 40% (= fixed setting)

→ **Burner** Output is enabled if the temperature at the top of the thermal store (T3) is lower than the temperature required by the heating or hot water circuits; once the temperature at the top of the thermal store (T3) has increased by 10°C (= fixed setting), the output switches to "OFF" again.

→ **Interlock** If the thermal store top temperature (T3) is lower than the temperature required by the heating or hot water circuits and the flue gas temperature on the BMK/SYNCHRO boiler is less than 130 °C (FGT, burner), the oil/gas boiler is started up via output HP0 (Interlock). At the same time, the mixer/motorised valve (changeover valve) is operated via output HP1 ("Mixer closed" command) for the period specified in the parameter "Interlock RT". As soon as the oil/gas boiler temperature exceeds 45°C (T4, burner), the T4 sensor reading (sensor in oil/gas boiler) is used as the enabling variable for the heating circuits. If the temperature at the top of the thermal store (T3) is higher than the required temperature, or the oil/gas boiler temperature (T4) is higher than the required temperature +6 °C (burner diff.), or the flue gas temperature on the log boiler is higher than 130 °C (FGT, burner), output HP0 (Interlock) is switched off again. If the temperature in the oil/gas boiler (T4) falls 3 °C below the parameter "T4 burner", output HP2 ("Mixer open" command) is operated for the period specified in the parameter "Interlock RT" provided the flue gas temperature on the log boiler is higher than the parameter "FGT burner" (130 °C) or the temperature at the top of the thermal store is greater than the required temperature. At the same time, if the oil/gas boiler temperature drops 3 °C below the temperature set for the parameter "T4 burner", the T3 sensor reading (thermal store top) is referred to again for enabling the heating circuits.

35) "Off" is preset. Set running time for the mixer or changeover valve. Running time can be set to from 1-5 minutes. Set spring-loaded motorised valves to "Constant".

Important → Use only limit-stopped Triac-compatible mixer valve motors.

36) If the oil/gas boiler temperature exceeds the required temperature by the amount specified in the parameter "Burner diff", output HP0 is switched off. The oil/gas boiler switches off.

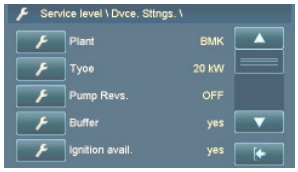
37) Preset to 0°C = Function "OFF". The temperature at the top of the thermal store (T3) must be below the figure specified in the parameter "TP0 Interlock" for the output HP0 (oil/gas boiler) to be activated. The effect of this function is to force discharge of the thermal store until a desired temperature is reached.

Example → Param. "TP0 Interlock" is programmed as 50°C. Output HP0 (oil/gas boiler) is not activated until the temperature falls below "TP0 Interlock".

6.4.7 Service menu **System Settings** (Expert)

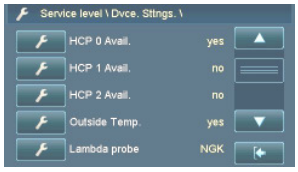
BMK-06-04-04-00-01-BAEN

Facility for setting special boiler and system parameters



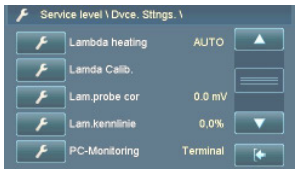
28)

For setting system type → stated on rating plate
For setting boiler type → stated on rating plate
For setting speed control → for BCP and TSCP
For setting thermal store mode
For setting automatic ignition options → available as an option



38)

For setting heating circuit controller 0 → external wall controller
For setting heating circuit controller 1 → external wall controller
For setting heating circuit controller 2 → external wall controller
For setting outside temperature sensor
For setting oxygen sensor

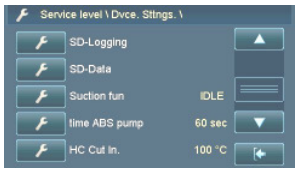


39)

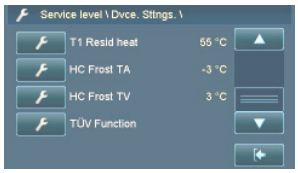
Oxygen sensor heater operating status
For activating oxygen sensor calibration
Facility for entering oxygen sensor compensation
Facility for setting oxygen sensor characteristic → only during operation

40)

For activating monitoring mode



Facility for data recording on SD memory cards
Facility for reading data from SD memory cards
Facility for setting flue draught fan control
Facility for setting duration of pump anti-jamming function → once a week
Facility for setting temperature for forced activation of all heating circuit pumps



Facility for setting temperature for forced activation of all heating circuit pumps

41)

Facility for setting boiler residual heat temperature

42)

Facility for setting activation temperature for anti-freeze function

42)

Facility for setting required flow temperature for anti-freeze function
Increases boiler temperature until switched off by STL

38) Options → **None** No oxygen sensor or oxygen sensor is deactivated
→ **NGK** Oxygen sensor type fitted is NGK
→ **BOSCH** Oxygen sensor type fitted is BOSCH

39) Options → **Auto** The oxygen sensor heater is switched on/off according to operating mode
→ **Constant** The oxygen sensor heater is permanently switched on
(Oxygen sensor heater does not switch off until boiler has been in "OFF" mode for more than 50 h)

40) Options → **Terminal** Data querying via Windows hyper terminal/display
→ **DAQ** Data querying via online recorder (only usable at factory)
→ **GSM module** Data querying, information messages and boiler control via GSM module

41) In "Keep in" mode, the boiler charging pump continues running until the boiler temperature is below the set temperature

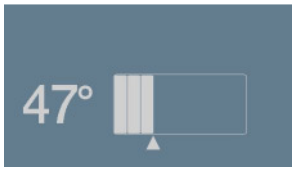
42) The anti-freeze function for all heating circuits is only active in "OFF" mode.
If the outside temperature falls below the anti-freeze temperature set in the parameter "HCP A/F outside", the heating circuit switches to "Anti-freeze" mode. Then the flow temperature is controlled according to the required temperature specified in "HCP A/V flow" for the pump anti-freeze function and the heating circuit pump is activated. The anti-freeze function is only active if the parameter "Outside sensor pres." (service menu "System Settings") is set to "Yes" and the heating circuit is in "OFF" mode. If "Outside sensor pres." is set to "No", the pump anti-freeze function and subsequently the heating circuit anti-freeze function as described above are not performed.
Important: → Ensure there is sufficient energy in the thermal store!

7 User Settings

7.1 Activating a heating programme

SY-07-01-00-00-01-BAEN

To set the "NORMAL" programme, proceed as set out below, step by step:



1) → Touch the touch screen with your finger

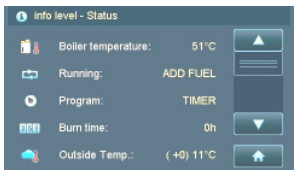
2) → Press the "**House level**" button 

The programme currently selected, "**Off**", is shown in the header

3) → Press the "**Normal**" button 

The new programme selected, "**Normal**", is now shown in the header

4) → Press the "**Info**" button 



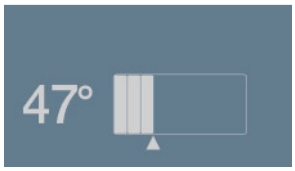
5) → The "**Normal**" programme is now shown on the "Status information" screen

After activating the "NORMAL" heating programme, check the selected programme on the "Status information" screen. As soon as heat is called for and there is sufficient heat in the thermal store, the heating circuits start up fully automatically.

7.2 Deactivating a heating programme

SY-07-02-00-00-01-BAEN

To set the "NORMAL" programme to "OFF", proceed as set out below, step by step:



1) → Touch the touch screen with your finger

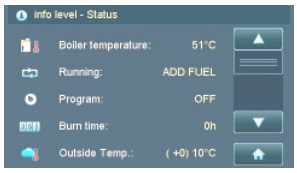
2) → Press the "**House level**" button 

The programme currently selected, "**Normal**", is shown in the header

3) → Press the "**Off**" button 

The new programme selected, "**Off**", is now shown in the header

4) → Press the "**Info**" button 



5) → The "**Off**" programme is now shown on the "Status information" screen

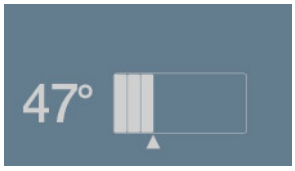
After deactivating the "NORMAL" heating programme, check the selected programme on the "Status information" screen.

7.3 Setting a timer programme

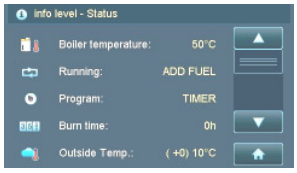
SY-07-03-00-00-01-BAEN

The heating circuits/charging pumps can only be called into action during the times enabled in the timer programme.

The example set out below illustrates programming the timer programme for heating circuit 1.



1) → Touch the touch screen with your finger

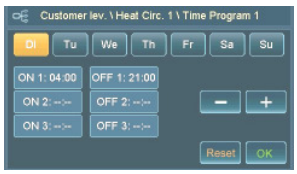


2) → Press the "**House level**" button 

3) → Press the "**User level**" button 

4) → Press the "**Heating circuit 1**" button 

5) → Press the "**Timer programme 1**" button 

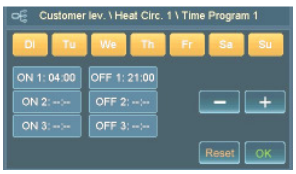


6) → Press the button for the day of the week to be set
7) → Press the "ON" or "OFF" time to be altered
8) → Use the  and  buttons to set the time
9) → To save the setting, press the  button

7.3.1 Programming en bloc

BS-07-03-01-00-01-BAEN

En bloc programming can be used to programme the same on and off times for every day of the week.



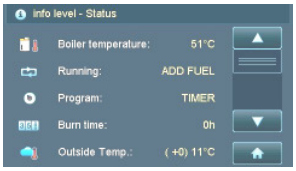
To activate programming en bloc, press the **same weekday button twice in succession**; all days are then highlighted and can be programmed collectively to the same times

7.4 Changing the heating characteristic

BS-07-04-00-00-02-BAEN

The heating circuits/charging pumps can only be called into action during the times enabled in the timer programme.

The example set out below illustrates programming the heating characteristic for heating circuit 1:

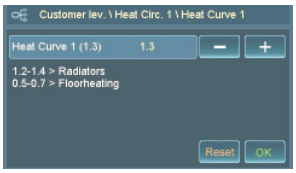


1) → Press the "**House level**" button 

2) → Press the "**User level**" button 

3) → Press the "**Heating circuit 1**" button 

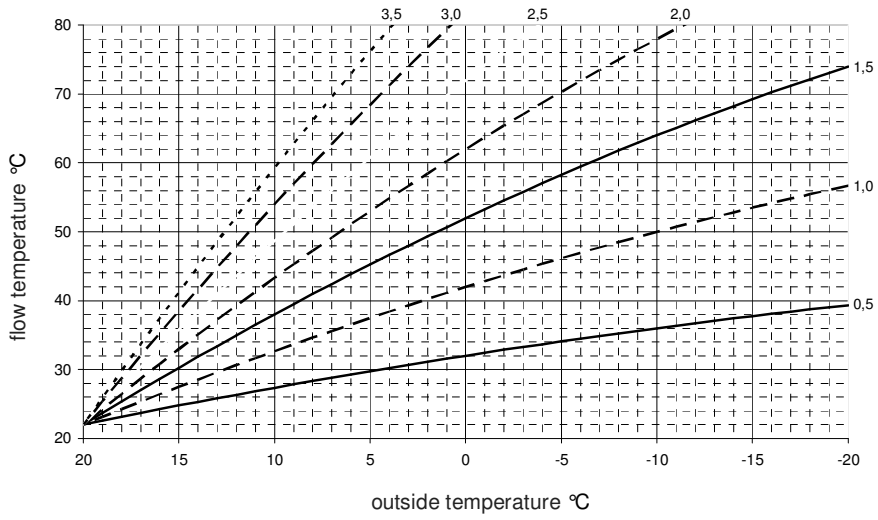
4) → Press the "**Heating characteristic 1**" button 



5) → Use the  and  buttons to set the heating characteristic

6) → To save the setting, press the  button

Heating characteristic graph

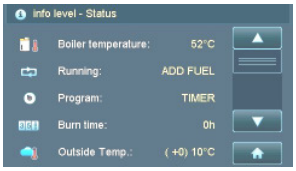


7.5 Changing the required hot water temperature

BS-07-05-00-00-01-BAEN

You can change the required hot water temperature on the Hot Water menu.

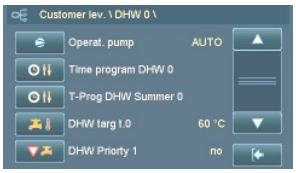
The example set out below illustrates programming the required temperature for DHW cylinder 0:



1) → Press the "**House level**" button 

2) → Press the "**User level**" button 

3) → Press the "**DHW cylinder 0**" button 



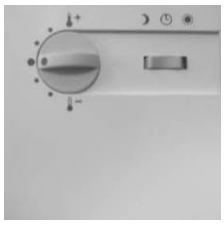
4) → Press the "**DHW required temp 0**" button 

5) → Use the  and  buttons to set the required temperature

6) → To save the setting, press the  button

7.6 Analogue room stat

BS-07-06-00-00-01-BAEN



If your system is fitted with an outside-temperature based heating circuit controller, each heating circuit can be equipped with an analogue room stat if desired.

The control knob on the room stat allows adjustment of the required room temperature preset on the Heating Circuit menu. Setting the control to a position in the positive range (+) raises the room temperature by up to 3°C. Setting it to a position in the negative range (–) lower lowers the room temperature by up to 3°C.

Note: This means that the room temperature shown in the Detail View will be inaccurate. The room temperature shown will only match the actual temperature when the control knob is in the centre position.

Operating modes

Low: Low-temperature mode → if, during the low-temperature phase, the outside temperature falls below the temperature set in the parameter "Night OFF OT", the system heats to the room temperature set in the parameter "Night-time Required Temperature".

Normal: Heating and low-temperature modes on as per timer programme

Heating: Continuous heating to "Required Daytime Temperature"

Installation site

Fix the room stat on an internal wall at a height of approx. 1m - 1.5m. The most effective room is the one that is most frequently occupied. In that room, the radiators must not be fitted with thermostatic radiator valves (valves must be fully turned on).

Note: The room stat should not be fitted in a position where it will be exposed to warm sunshine or the heat from a stove.

Connection

Pull off the control knob from the front, undo the fixing screw and remove the casing from the front.
Wire the room stat to terminals 1 and 2.

7.7 Digital room controller

BS-07-07-00-00-01-BAEN

An instruction manual is supplied with the room controller.

A maximum of 3 room controllers can be connected to the system.

Connection is established via the CAN bus.

8 Operating the heating system

8.1 Commissioning

BS-08-01-00-01-01-BAEN

Initial commissioning

Initial commissioning and basic adjustment of the system may only be carried out by GUNTAMATIC engineers or authorised GUNTAMATIC agents.

BS-08-01-00-02-01-BAEN

Restarting

Before starting up the system again in the autumn/winter, carry out the annual check of the control and safety systems to ensure they are safe and functional. We recommend that you take out a maintenance contract so that the system operates safely and economically.

BS-08-01-00-03-01-BAEN

Day-to-day operation

Clean the heating system precisely according to the instructions in the section Cleaning/Care. The amount of cleaning work required is heavily dependent on the quality of the fuel used and lower-quality fuels may necessitate more cleaning work.

8.2 Heating system checks

BS-08-02-00-01-01-BAEN

Checking system pressure

The operating pressure is normally between 1 bar and 2.5 bar. If the system pressure is too low, malfunctions may result. If necessary top up the water in the heating system.

Note: Completely draining and refilling the system or topping up a system filled with anti-freeze or treated water must only be carried out by a heating engineer.

Topping up the heating system water

- The heating system water must be cold when topping up → make sure the heating system water temperature is below 40°C.
- Add water slowly until the required system pressure is indicated on the system pressure gauge.
- Bleed the heating system.
- Check the system pressure again and add more water if necessary.

BS-08-02-00-02-01-BAEN

Pressure-relief valve

Turn the red knob on the safety set; → check for leaks and correct operation; → in the event of malfunctions or leaks, call in your installer or heating engineer.

SY-08-02-00-01-01-BAEN

Temperature-relief valve

Firmly press in the red knob on the relief valve: → cools the boiler using water from the domestic water system if the boiler overheats; → in the event of malfunctions or leaks, call in your installer or heating engineer.

BS-08-02-00-03-01-BAEN

Expansion vessel

If there are large pressure fluctuations between when the heating system is hot and cold, check the charge pressure in the expansion vessel; → in the event of malfunctions or leaks, call in your installer or heating engineer.

BS-08-02-00-04-01-BAEN

Boiler room ventilation

Check that the air supply vents/ducts are clear.

8.3 Fuel quality

BS-08-03-00-00-01-BAEN

To ensure trouble-free heating with the boiler, the fuel must be of the right quality.

Logs

SY-08-03-00-01-01-BAEN

- Logs should not be burned until they have been seasoned for at least 1.5 - 2 years.
- Ideal log length → 50 cm
- Maximum log size (thickness) → 12-15 cm
- Always split thicker logs
- Pack in 1/2-metre logs as tightly as possible so that the fuel box is completely full
- Make sure the logs are always closely packed. The logs should always be stacked against the rear panel.

Coarse woodchips

SY-08-03-00-02-01-BAEN

- Coarse woodchips should not be burned until they have been seasoned for at least 0.5 - 1.5 years.
- Always cover each load of coarse woodchips with a layer of logs.
- When refilling, if the fire is well established, always put in a layer of logs first before filling with coarse woodchips.

8.4 Fuel setting

BMK-08-04-00-01-01-BAEN

The fuel setting on BMK type boilers is an electronic function. You will find it on the "User menu".

On User menu

Logs setting

SY-08-04-00-02-01-BAEN

- You are burning logs
- You are burning logs mixed with layers of coarse woodchips

Woodchips setting

- You are burning extreme fuels such as coarse woodchips, brush, ultra-dry twigs or woodworking waste

8.5 Heating-up procedure

SY-08-06-00-00-01-BAEN

Carry out the heating-up procedure exactly according to the instructions.

8.5.1 Manual heating up

BMK-08-06-01-00-01-BAEN

- Switch on the power switch
- Select the desired heating programme
- Open the boiler casing doors and the fuel box door
- Operate the heat exchanger cleaning lever 5 - 10 times and then return it exactly to its resting position (align with sticker)
- Open the ash box door; empty the ash; if necessary carry out an interim cleaning procedure
- First place a layer of smallish logs in the fuel box with the split side facing upwards
- On the left-hand side, loosely stack twigs/brush/woodchips together with some paper and cardboard about 5 - 10 cm high
- Fill up the fuel box with logs or alternating layers of logs and coarse woodchips mixed with logs
- Close the fuel box door, ensuring it is properly sealed; open the ash box door and light the boiler with burning paper on the left through the grate
- Leave the ash box door open until the flue gas temperature has risen to approx. 150°C; then close the ash box door, the fuel box door (re-check) and the boiler casing doors; (to check FGT → Info level)

8.5.2 Automatic heating up

BMK-08-06-02-00-01-BAEN

- Switch on the power switch
- Select the desired heating programme
- Open the boiler casing doors and the fuel box door
- Operate the heat exchanger cleaning lever 5 - 10 times and then return it exactly to its resting position (align with sticker)
- Open the ash box door; empty the ash; if necessary carry out an interim cleaning procedure

Caution → **There must be no glowing embers on the grate!**

- First place a layer of smallish logs in the fuel box with the split side facing upwards; place several sheets of tightly screwed up paper/cardboard or 5 - 10 litres of coarse woodchips in front of the ignition opening; on the left-hand side, loosely pile some twigs about 10 cm high
- Fill up the fuel box with logs or alternating layers of logs and coarse woodchips mixed with logs
- Close the fuel box door, the ash box door and the boiler panel doors, select the desired ignition programme and save it
- The ignition programme will then start fully automatically

8.6 **Heating operation** (correct operation with thermal store)

SY-08-07-00-00-02-BAEN

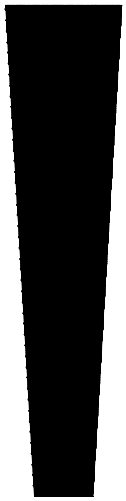
Modern woodburning boilers are always operated in conjunction with one or more thermal stores. The basic precondition for trouble-free heating is the correct fuel quality and correct operation with the thermal store. Carefully read through the following points and follow the directions precisely.

Important notes

- **The fuel box and the ash box door** must always be closed when the boiler is lit as otherwise combustion control will not function correctly or a boiler fire could occur.
- After manually lighting or after re-stoking the boiler, only "**fire up**" the boiler via the ash box door with the fuel box door closed.
- During heating operation, the inspection covers must on no account be opened.
- The fuel box and ash box doors must not be opened when the boiler is running at maximum output → Be sure to follow the information messages on the boiler control panel.
- Never open the fuel box and ash box doors at the same time when the boiler is in normal heating operation.

Heating correctly

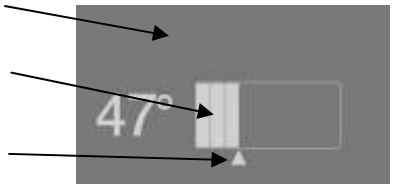
The fundamental rule is that the boiler should not be re-heated/re-stoked until the boiler has burned down to the **glowing fire bed** and the thermal store **is discharged or has cooled down to the recharging threshold shown on the display**. In the case of thermal stores smaller than 1,400 litres (with combination cylinders only the thermal store capacity excluding the DHW capacity counts), the refill threshold must be adjusted to suit the size of the thermal store. For example, thermal store capacity of 1,000 litres → hardwood → do not refill wood beyond middle of fuel box.



Boiler/Th. store info screen

indicator for thermal store charge level
(Bar filled to right – thermal store fully charged)

Recharge threshold indication



Caution

Failure to follow these instructions or too frequent refilling while fire is burning down can cause **damage** to the **fuel box protective lining**!

Caution

Failure to follow these instructions will lead to extreme contamination of the heat exchanger.

Afterwards check whether there is still an adequate fire bed present, then re-stoke → otherwise repeat the heating-up procedure.

Adjust the refuelling amount to suit the heat demand (check "Th. store/Boiler info" on the display and decide on the amount of fuel to add on that basis).

Immediately re-close the fuel box cover as combustion control is only active and the combustion process can only be effectively continued with the fuel box cover closed.

Observe the flame

The combustion chamber has a viewing window for observing the flame. If no flame is visible, the boiler has shut down or the viewing window is dirty.

Important notes

→ **Inspection covers must not be opened during boiler operation!**

→ **Never clean the viewing window while combustion is in progress!**

→ **Visual and audible warnings can be activated via the boiler control unit as additional safety features.**

8.7 Emptying the ash

SY-08-08-00-00-01-BAEN

The ash box has to be regularly emptied according to the amount of fuel used, its quality and heat output. So that the combustion system and grate cooling function properly, the ash box should not be full to higher than level with the top. With low-quality fuels and high dust content, the intervals at which the ash must be removed are shorter. The accumulated ash contains the residues of the fuel in concentrated form. If you only use environmentally safe fuels, the grate ash represents a high-quality mineral fertiliser.

Danger: **Glowing embers can cause fires.**

Only deposit or store the ash from the boiler in non-combustible sites.

9 Cleaning/Care

SY-09-00-00-01-01-BAEN

To obtain the greatest possible efficiency levels and optimum fuel burning characteristics, the boiler including the flue gas passages has to be regularly cleaned.

Thanks to the well thought-out boiler design, this can be done very quickly and easily.

BMK-09-00-00-01-01-BAEN

Cleaning the fuel box

Use only the stainless steel tools supplied to clean or stoke the fuel box. Do not damage the fuel box by using iron or steel items.

Iron must not be introduced into the stainless steel fuel box – risk of corrosion!

SY-09-00-00-03-01-BAEN

Tar formation

A small amount of wood tar formation in the fuel box is normal. If large amounts of tar are produced, it may be that the heat draw is insufficient, the fuel has been replenished too frequently or the fuel is not sufficiently dry.

BMK-09-00-00-02-01-BAEN

Cleaning the heat exchanger

Before starting up the boiler each time, the heat exchanger cleaning lever on the left of the boiler must be operated at least 5 - 10 times by moving it in both directions as far as the stops. The resting position for the heat exchanger cleaning lever is slightly to the left, in line with the "Resting position" sticker.

SY-09-00-00-05-01-BAEN

Cleaning the secondary air passage

To clean the ash box area and below the combustion chamber (secondary air passage) you should use the steel cleaning tool (painted black) supplied with the boiler.

SY-09-00-00-06-01-BAEN

Cracks

So-called stress cracks in the combustion chamber and also slight erosion in and on the combustion chamber are caused by temperature fluctuations and temperatures above 1,000 °C in the combustion chamber. What is decisive for the proper functioning of the appliance, however, is that the components retain their shape. Stress cracks do not impair function and efficiency during combustion in any way whatsoever and are, as with a stove heater for instance, entirely normal.

BS-09-00-00-03-01-BAEN

Care

If the casing panels or the controls become dirty, they are best cleaned with a soft, damp cloth. Use only gentle, solvent-free cleaners to dampen the cloth. On no account should solvents such as alcohol, white spirit or thinners be used as they will attack the surface of the boiler.

9.1 Interim cleaning

BMK-09-01-00-00-01-BAEN

Every 1- 2 weeks

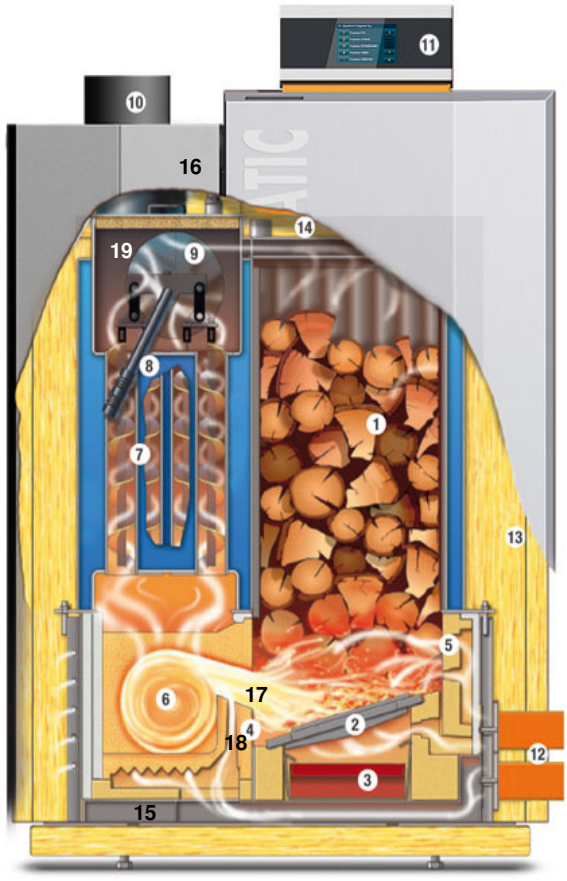
- Clean the ash out of the fuel box (1) and the grate area (2)
- Clean the ash out of the flame duct (17), combustion chamber (6) and the space above it
- Check the secondary air duct (18) (vertical air duct)
- Using the fire tool through the secondary air cleaning port, clean the ash out from the rear right to the front; repeat the operation several times
- Clean the ash out of the flue box (9)

9.2 Complete cleaning

BMK-09-02-00-00-01-BAEN

At least once a year — Carry out interim cleaning as described above and then perform the following checks/cleaning operations:

- Unplug and clean the flue draught fan; open the cover of the flue box (9); slide the intake baffle (19) upwards then pull forwards at the bottom to remove; clean the fan blades
- Vacuum clean the primary air jets (5) on the right above the grate
- Vacuum clean the primary air jets on the right below the grate
- If necessary, unscrew the primary air and secondary air servo motors (12) together with their mounting plates and vacuum clean the air ducts
- Clean the oxygen sensor (16) with a soft brush from below and check it is firmly seated; re-tighten it if necessary; with the flue draught fan box (9) open, vacuum clean the area around the oxygen sensor connection



10 Rectifying faults

BMK-10-00-00-00-01-BAEN

Fault	Cause/Function	Remedy
Control panel cannot be switched on	• Power supply disconnected • Fuse blown	• Check external mains plug and/or power supply lead between circuit boards • Check fuse in supply lead and on the control panel circuit board
Smoke escaping into boiler room	• Flue pipe leaking • Flue draught regulator unfavourably positioned • Flue not clear or not providing any draught	• Eliminate leaks • Consult flue installer • Check flue
Heat output too low	• Boiler very dirty • Heating system inadequately balanced • Boiler priority active • Flue draught in chimney flue too low	• Carry out complete cleaning • Balance heating system and heating pumps • Wait until boiler charging has finished or deactivate boiler priority • Increase flue draught in chimney flue if necessary
Detonation	• When burning very short and very dry fuel, detonations can occur	• On the User Level menu, set the parameter Fuel Type to "Woodchips"; in addition, you should stack 2 - 3 layers of logs in between
Primary or secondary air vent motor unable to attain position	• Air vent jammed • Check connection on controller and motor • Servo motor defective	• On User Level menu, set mode to "Emergency" • Manually set primary air vent motor to 50% and secondary air vent motor to 70% • Flue draught fan as per output control • Replace defective servo motor
STL high-temperature limiter tripped warning	• The amount of heat produced cannot be dissipated – ensure boiler charging pump switches on at 65°C; thermal store must be able to draw heat	• The cause of the boiler overheating must be identified (if it happens frequently a heating engineer should be called in). • Check fuses on the boiler circuit board
Oxygen sensor defective	• Oxygen sensor dirty • Oxygen sensor loose • Oxygen sensor defective	• Unscrew oxygen sensor, clean with soft brush → vacuum and screw back in • Tighten oxygen sensor • On User Level menu, set mode to "Synchronous" • Replace oxygen sensor
Fan too noisy	• Fan is dirty • Fan or blades loose • Noise created by bends or rigid connecting pipe junctions with chimney flue • Fan bearing defective	• Clean fan • Eliminate cause • Fit insulators/sleeves • Order replacement motor
Controller defective	• Damaged by high voltage • Damaged by voltage surge due to lightning • …	• On User Level menu, set mode to "Emergency" • Manually set primary air vent motor to 50% and secondary air vent motor to 70% • Flue draught fan as per output control • Replace defective controller

11 Replacing fuses

BS-12-00-00-00-01-BAEN

Danger: **Repair work may only be carried out by authorised technicians.**

Touching live electrical components can cause fatal injury.

Even when the Power switch is "OFF" some components of the system are still live.

Therefore, when carrying out repair work it is imperative that the power supply is disconnected by means of the "mains plug" or a circuit breaker.

Fuse function is indicated on the relevant electrical wiring diagrams in the installation instructions.

Replacing fuses

1. Set the system to the programme "OFF" and allow it to cool down for at least 10 minutes.
2. Switch the Power switch to "0" and unplug the mains plug on the back of the boiler to fully disconnect it from the power supply.
3. Unfasten the controller cover and remove it.
4. Locate the defective fuse with the aid of the wiring diagram in the installation instructions and replace it.
5. Press in the fuse holder 2-3 mm using a medium-sized screwdriver and turn it half a turn anticlockwise to release it. The holder and fuse will then pop out a few mm.
6. Remove the blown fuse and replace with a new one.
7. Insert the fuse holder, press it in 2-3 mm and secure it in position by turning it half a turn clockwise.

Notes

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