

Log boiler

englisch

**BMK**

Installation instructions

BMK-A-00-00-00-01-IAEN



EN-B31-004-V05-0411

**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.**

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# 1 Introduction

## 1.1 Safety instructions

BS-01-01-00-00-01-IAEN

GUNTAMATIC heating systems represent state-of-the-art technology and meet all applicable safety regulations. Incorrect installation can endanger life and limb. Heating boilers are combustion systems and are potentially dangerous if handled incorrectly. Installation, commissioning and servicing must, therefore, only be carried out by adequately qualified technicians observing all regulations and the manufacturer's instructions.

## 1.2 Guarantee and warranty

BS-01-02-00-00-01-IAEN

The manufacturer's guarantee is subject to correct installation and commissioning of the heating system. Defects and damage caused by incorrect installation, commissioning or operation are not covered by the guarantee. To ensure that the system functions as intended, the manufacturer's instructions must be followed. Furthermore, only genuine replacement parts or parts explicitly approved by the manufacturer may be fitted to the system.

## 1.3 Commissioning

BS-01-03-00-00-01-IAEN

Commissioning of the boiler must be carried out by an authorised GUNTAMATIC specialist or other qualified persons. They will check whether the system has been installed according to the plans, adjust the system settings as required and explain to the system operator how to use the heating system.

## 1.4 Site requirements

SY-01-04-00-00-01-IAEN

When establishing the site requirements, it is absolutely essential to take account of the locally applicable planning, building and implementation regulations and the dimensional specifications in the fitting guidelines, installation examples and technical data. Compliance with the locally applicable regulations and the correct implementation of the measures required on site are solely the responsibility of the system owner and are a requirement of the manufacturer's guarantee. GUNTAMATIC provides no guarantee of any kind for any type of site work.

## 1.4.1 Fire safety

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If the installation site is not subject to any other fire safety requirements, the GUNTAMATIC minimum fire safety requirements must always be observed. If the installation site is subject to stricter requirements than the minimum fire safety requirements specified here, then the stricter requirements must always be observed without exception.

**Caution:** Compliance with the GUNTAMATIC minimum fire safety requirements is subject only to verification by the operator. The operator alone is responsible for strict compliance. Verification during commissioning is not provided for.

**Caution:** **National regulations must also be complied with.**

### National regulations

**Austria:** F90/T30

State legislation of the federal states

**Germany:** No requirements for systems up to 50 kW

Standard boiler regulations (M-FeuVO)

Hessen and Saarland – in these states §16 FeuVO Hessen applies

**Switzerland:**

Fire safety regulations ([www.vkf.ch](http://www.vkf.ch))

**France:**

Relevant fire safety authority

**Italy:**

Relevant fire safety authority

### **Minimum fire safety requirements**

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#### Boiler room

Floor of concrete construction, either bare or tiled. All materials for floor, walls and ceiling must be fire-resistant to F60 rating. The boiler room door must be a Class T30 fire door which opens in the direction of escape and is self-closing. Connecting doors to the fuel storeroom must also be Class T30 fire doors, self-closing and lockable. There must be no direct connection to rooms in which flammable gases or liquids are stored (e.g. garage).

## 1.4.2 Boiler room requirements


|                                    |   |             |  |             |  |
|------------------------------------|---|-------------|--|-------------|--|
| <u>Combustion air supply</u>       | <p style="text-align: right; font-size: small;">SY-01-04-02-01-01-IAEN</p> <p>The pressure in the boiler room must not be less than 3 Pa (0.3 mm H<sub>2</sub>O). The air vents for boiler rooms must have a clear, net cross-sectional area of at least 400 cm<sup>2</sup> and must not be sealable. The air supply ducting must connect directly to the outside and if the ducting passes through other rooms, it must be jacketed to Class F90. On the outside of the building, air vents must be covered by a protective grille with a mesh size of &gt; 5 mm. The supply of combustion air should, if possible, enter at floor level in order to prevent cooling of the boiler room.</p> |             |  |             |  |
| <u>Electrical installation</u>     | <p style="text-align: right; font-size: small;">SY-01-04-02-02-01-IAEN</p> <p>The lighting and the electrical wiring in the boiler room must be permanently installed.</p>  |             |  |             |  |
| <u>Fire extinguisher</u>           | <p style="text-align: right; font-size: small;">BS-01-04-02-03-01-IAEN</p> <p>A hand-held fire extinguisher (6kg gross weight, EN3) must be mounted outside the boiler room near the boiler-room door.</p>  |             |  |             |  |
| <u>Protection against freezing</u> | <p style="text-align: right; font-size: small;">BS-01-04-02-04-01-IAEN</p> <p>The boiler room, pipes carrying water and any district heating pipes must be protected against freezing.</p>  |             |  |             |  |
| <b><u>Minimum room size</u></b>    | <table border="0"> <tr> <td data-bbox="663 1059 807 1088">BMK 20- 50</td> <td data-bbox="863 1059 1374 1088">at least 199 x 148 cm (W x L) (w/o igniter)</td> </tr> <tr> <td></td> <td data-bbox="863 1104 1318 1133">at least 209 x 148 cm (W x L) (with igniter)</td> </tr> </table>  | BMK 20- 50  | at least 199 x 148 cm (W x L) (w/o igniter)        |             | at least 209 x 148 cm (W x L) (with igniter)       |
| BMK 20- 50                         | at least 199 x 148 cm (W x L) (w/o igniter)   |             |  |             |  |
|                                    | at least 209 x 148 cm (W x L) (with igniter)  |             |  |             |  |
| <b><u>Minimum room height</u></b>  | <table border="0"> <tr> <td data-bbox="663 1189 807 1218">BMK 20 - 30</td> <td data-bbox="863 1189 1398 1218">at least 145 cm (space for removing helix baffles)</td> </tr> <tr> <td data-bbox="663 1227 807 1256">BMK 40 - 50</td> <td data-bbox="863 1227 1398 1256">at least 185 cm (space for removing helix baffles)</td> </tr> </table>   | BMK 20 - 30 | at least 145 cm (space for removing helix baffles) | BMK 40 - 50 | at least 185 cm (space for removing helix baffles) |
| BMK 20 - 30                        | at least 145 cm (space for removing helix baffles)  |             |  |             |  |
| BMK 40 - 50                        | at least 185 cm (space for removing helix baffles)  |             |  |             |  |
| <b><u>Clear access opening</u></b> | <table border="0"> <tr> <td data-bbox="663 1317 807 1346">BMK 20 - 30</td> <td data-bbox="863 1317 1366 1346">at least 80 x 140 cm (W x H) (w/o packing)</td> </tr> <tr> <td data-bbox="663 1355 807 1384">BMK 40 - 50</td> <td data-bbox="863 1355 1366 1384">at least 80 x 160 cm (W x H) (w/o packing)</td> </tr> </table>   | BMK 20 - 30 | at least 80 x 140 cm (W x H) (w/o packing)         | BMK 40 - 50 | at least 80 x 160 cm (W x H) (w/o packing)         |
| BMK 20 - 30                        | at least 80 x 140 cm (W x H) (w/o packing)  |             |  |             |  |
| BMK 40 - 50                        | at least 80 x 160 cm (W x H) (w/o packing)  |             |  |             |  |
| <b><u>Boiler dimensions</u></b>    |   |             |  |             |  |
| <u>With packing</u>                | <table border="0"> <tr> <td data-bbox="663 1456 807 1485">BMK 20 - 30</td> <td data-bbox="863 1456 1326 1485">at least 97.3 x 94 x 144 cm (L x W x H)</td> </tr> <tr> <td data-bbox="663 1494 807 1523">BMK 40 - 50</td> <td data-bbox="863 1494 1326 1523">at least 97.3 x 94 x 164 cm (L x W x H)</td> </tr> </table>   | BMK 20 - 30 | at least 97.3 x 94 x 144 cm (L x W x H)            | BMK 40 - 50 | at least 97.3 x 94 x 164 cm (L x W x H)            |
| BMK 20 - 30                        | at least 97.3 x 94 x 144 cm (L x W x H)   |             |  |             |  |
| BMK 40 - 50                        | at least 97.3 x 94 x 164 cm (L x W x H)   |             |  |             |  |
| <u>Without packing</u>             | <table border="0"> <tr> <td data-bbox="663 1538 807 1568">BMK 20 - 30</td> <td data-bbox="863 1538 1350 1568">at least 96.5 x 79.5 x 135 cm (L x W x H)</td> </tr> <tr> <td data-bbox="663 1576 807 1606">BMK 40 - 50</td> <td data-bbox="863 1576 1350 1606">at least 96.5 x 79,5 x 153 cm (L x W x H)</td> </tr> </table>   | BMK 20 - 30 | at least 96.5 x 79.5 x 135 cm (L x W x H)          | BMK 40 - 50 | at least 96.5 x 79,5 x 153 cm (L x W x H)          |
| BMK 20 - 30                        | at least 96.5 x 79.5 x 135 cm (L x W x H)   |             |  |             |  |
| BMK 40 - 50                        | at least 96.5 x 79,5 x 153 cm (L x W x H)   |             |  |             |  |

### 1.4.3 Flue requirements

The flue must be matched to the system in order to ensure economical and trouble-free operation.

SY-01-04-03-01-1AEN

Important

|   |  |
|---|--|
|  | <p><b>Use heat-insulated fireclay flues that are insensitive to damp.</b></p> <p>GUNTAMATIC accepts no liability where stainless steel flues are used.</p> |
|---|--|

BS-01-04-03-02-01-1AEN

The system must only be connected to the flue if the flue meets the legal requirements and the technical specifications. The flue must be matched to the boiler output and dimensioned in accordance with DIN 4705. In order to be able to accurately dimension the flue, the calculations must be based on the flue gas figures. When designing new flues, high thermal insulation chimneys (DIN 18160 T1 heat transmission resistance group I) or suitable **fireclay flues** that are insusceptible to damp and have general building regulation approval should be used. It is advisable to involve those responsible for approving the flue system early on in the planning phase.

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Flue height

The minimum flue height is 5 - 10 m depending on boiler output. The flue must terminate at least 0.5 m above the highest part of the building. In the case of flat rooves, the flue must terminate at least 1.5 m above the surface of the roof.

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Flue diameter

The flue must be matched to the boiler output. The following details are guide figures and can be used for planning purposes. However, we recommend that the flue dimensions are calculated precisely by an expert.

|                  |                        |     |                 |
|------------------|------------------------|-----|-----------------|
| <b>BMK 20/30</b> | eff. flue height over  | 6 m | <b>D=180 mm</b> |
|                  | eff. flue height under | 6 m | <b>D=200 mm</b> |
| <b>BMK 40/50</b> | eff. flue height over  | 6 m | <b>D=180 mm</b> |
|                  | eff. flue height under | 6 m | <b>D=200 mm</b> |

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Flue dimensioning data

Dimension the flue for rated output!  
(Averaged figures with used heat exchanger)

Rated output

| Type      | Flue gas temp. | CO <sub>2</sub> | Mass flow rate | Required draught |
|-----------|----------------|-----------------|----------------|------------------|
| BMK 20/30 | 200 - 220 °C   | 13 -14%         | 0.020 kg/s     | 20 pascals       |
| BMK 40/50 | 200 - 230 °C   | 13 -14%         | 0.034 kg/s     | 20 pascals       |

Sub-maximum output

| Type      | Flue gas temp. | CO <sub>2</sub> | Mass flow rate | Required draught |
|-----------|----------------|-----------------|----------------|------------------|
| BMK 20/30 | 170 – 200 °C   | 10 -12 %        | 0.011 kg/s     | 20 pascals       |
| BMK 40/50 | 170 – 200 °C   | 10 -12 %        | 0.013 kg/s     | 20 pascals       |

## 2 Installation and assembly

### 2.1 Delivery

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The boiler system is delivered packed in a wooden crate wrapped in foil. Please check that the delivery is complete according to the delivery note and in perfect condition.

#### Deficiencies

Please make a note of the deficiencies identified directly on the delivery note and contact the supplier, heating installer or our Customer Service.

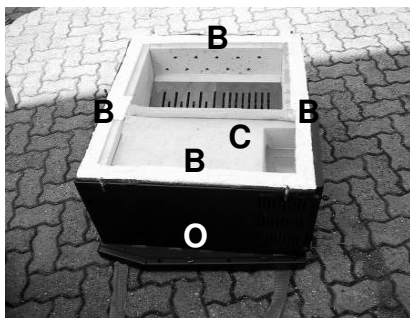
### 2.2 Carrying to installation site

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The system is delivered on a wooden pallet and can be lifted and carried to the installation site using a pallet truck.

#### Carrying in dismantled

The boiler body can be dismantled into parts for carrying in. If that is done, a person authorised by GUNTAMATIC must be consulted.

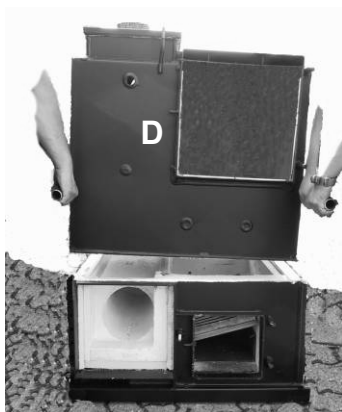


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To be able to undo the heat exchanger unions, all of the insulation must be removed from the boiler. Take care not to damage the gaskets (B) when lifting off the heat exchanger.

**Important:** damaged gaskets must always be replaced without exception.

Pull in carrying straps and position lower section (A) in boiler room; place gasket strips (B) precisely in position all the way round; place gasket cord (C) precisely in position on upper section

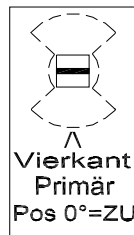
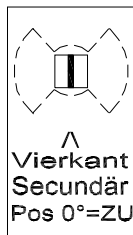


Bring upper section (D) into boiler room using carrying strap or 1" tubes and set down on lower section. Gasket strips (B) and gasket cord (C) must not slip out of position! Fit washers and connect up heat exchanger applying tightening torque of **no more than 30 Nm**.



Fitting servo motor

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- Switch power switch to "OFF";
- There is a coloured mark on the motor mounting plate;
- There is also slot with a coloured mark on the air baffle shaft;
- Place the servo motor in front of you with the orange side facing upwards; now press the black button on the servo motor and rotate the motor shaft anticlockwise until it reaches the stop;
- Now turn the coloured mark on the air baffle shaft so that it lines up with the coloured mark on the motor mounting plate;
- Slot the servo motor onto the air baffle;
- **Check:** → Boiler viewed from the right  
Air flaps in closed position (see diagram on left);  
electrical connections as per wiring diagram

## 2.3 Positioning and aligning the system

BMK-02-03-00-00-01-IAEN

Keep to the minimum wall clearances specified by the system planner and manufacturer. If important details are missing, please refer to the planning documentation or ask our Technical Support. Position the system as close as possible to the flue to avoid having a long flue connecting pipe. The system must be accessible from the left or right side.

Clearance on left at least 20 cm

Clearance on right at least 30 cm (clear space for servicing servo motor)

Clearance at front at least 70 cm (clear space for opening boiler doors)

Clearance at rear at least 35 cm (from boiler rear panel – w/o auto igniter)  
at least 45 cm (from boiler rear panel – with auto igniter)

Floor clearance Set the clearance between the boiler base and the floor to the required minimum of 30 mm by unscrewing the adjustable feet on the boiler base.

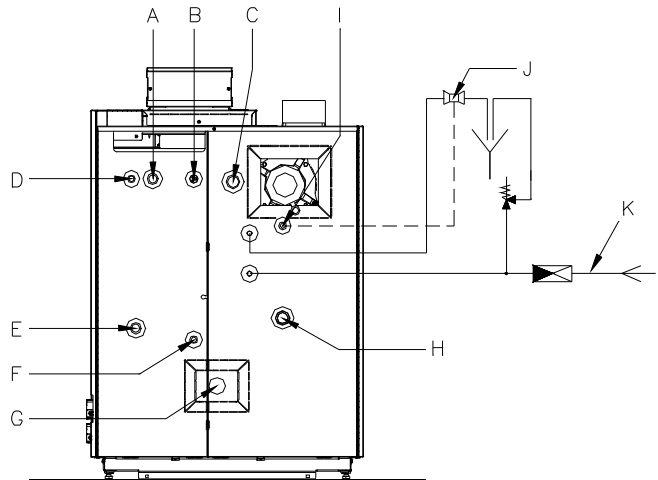
Set the boiler at a slant Unscrew the rear adjustable feet slightly further so that the boiler is slightly **higher at the rear**. That will allow the air inside the boiler to escape easily when the system is filled.

## 2.4 Plumbing connections

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- A** → Heating flow, 1" → (Reserve)
- B** → STL/Boiler sensor
- C** → Heating flow, 1¼"
- D** → Connection, 1/2" → (for external use)
- E** → Heating return, 1" → (Reserve)
- F** → Drain, 1/2"
- G** → Automatic igniter
- H** → Heating return, 1¼"
- I** → Temperature sensor, 1/2"
- J** → Temp. relief valve, 95°C
- K** → Cold water supply for temp. relief heat exchanger

BMK 20-50



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### Temperature-relief heat exchanger

A temperature-relief valve to ÖNORM B 8131 and DIN 4751 with an opening temperature of 95°C must be provided on site and connected to the temperature-relief heat exchanger. The supply pressure must be at least 2 bar but no more than 6 bar. The temperature-relief valve must be connected to the cold water mains supply by a connection that cannot be turned off. The outlet of the discharge pipe must be routed and installed in such a way that functional capacity cannot be impaired and no danger can arise when the temperature-relief valve responds. The instructions for the temperature-relief valve must be followed.

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### Thermal store

Installation of an adequately dimensioned thermal store is absolutely imperative. No guarantee liability is accepted for systems **with a thermal store capacity under 1,000 litres** (= 1,000 litres excluding DHW capacity in the case of combination cylinders).

- Min. thermal store capacity 1,000 litres
- Recommended thermal store capacity Over 1,400 litres
- Ideal thermal store capacity 2,000 - 3,000 litres



**Caution** →

Make sure any regulations regarding thermal store size are observed.

In system with a **pure thermal store capacity under 1,400 litres** (= 1,400 litres excluding DHW capacity in the case of combination cylinders) the boiler must be fuelled according to required output, i.e. it should only be loaded with as much wood as can be coped with by the system and the thermal store in the hours that follow.

SY-02-04-00-01-03-IAEN

Return boost

The boiler return temperature must be at least 55°C and must be held at the required level by a return boost set. Return-temperature regulators in the bypass are not allowed. If this requirement is not complied with, there is an increased risk of corrosion and guarantee entitlement will be lost as a result.

Connect the return boost set precisely as specified in our plumbing diagrams.



**Important** →

If additional components such as heat meters are incorporated in the system plumbing, or if the overall thermal store pipe run (flow and return) is more than 30 m, re-dimensioning of the boiler charging pump (BCP) may be necessary.

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Expansion vessel

The boiler operates in a sealed heating system and must be provided with an expansion vessel for pressure compensation. To calculate the expansion volume, the volume of the system when cold must be known. Please select the expansion vessel on the basis of the manufacturer's specifications. The expansion volume of the system is calculated as follows:

**System volume x Expansion factor x Additional allowance factor**

- Expansion factor for wood-fuel boilers = 0.03
- Additional allowance factor = 3.0 for systems under 30 kW
- Additional allowance factor = 2.0 for 30-150 kW systems
- Additional allowance factor = 1.5 for systems over 150 kW

Example calculation: 2500 litres x 0.03 x 3 = 225 litres

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Plastic piping

If plastic piping for underfloor heating or district heating pipes are connected, they must be protected against excessive temperatures by using a limiting thermostat for the circulation pumps.

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Pump selection

The choice of pump must be made by the installer or building technology planner on the basis of the friction data, the pipe cross-sectional area and the required delivery pressure for the piping system planned.

## 2.5 Filling and bleeding the system

BS-02-05-00-00-01-IAEN

The system is filled with water from the domestic supply. Please note the guidelines on "Corrosion and boiler protection in heating and domestic water systems".

### Water quality

The water quality of hot water systems with flow temperatures of max. 100°C is subject to VDI 2035. According to VDI 2035 Part 1, "Avoiding damage to hot water systems", which comply with EN12828, the first-fill and replenishment water, must be conditioned (preferably softened) if the following overall hardness limits [ $^{\circ}\text{dH}$ ] according to total heat output (kW) are exceeded:

- < 50kW: with circulating flow heaters, if  $^{\circ}\text{dH} > 16.8$
- 50 to 200 kW: if  $^{\circ}\text{dH} > 11.2$
- 200 to 500 kW: if  $^{\circ}\text{dH} > 8.4$
- > 500kW: if  $^{\circ}\text{dH} > 0.11$

### Water heater

If a water heater is also used in addition to the GUNTAMATIC boiler, it should be filled according to the installation instructions for it.

### Filling the system

- Match the pressure of the system when cold to the air charge pressure of the expansion vessel
- Check the operating pressure on the pressure gauge

### Bleeding the system

- Switch off and bleed circulation pumps.
- Bleed boiler by opening the bleed valve on the boiler and allowing air to escape until water runs out.
- Bleed radiator heating system (if present) by opening the bleed valve on every radiator and allowing air to escape until water runs out.
- Bleed underfloor heating system (if present) by opening each heating circuit and flushing through thoroughly until there are no more air bubbles in the heating circuit pipes.
- **Important:** perform sequence in the correct order!

Start bleeding in the cellar or on the ground floor and finish in the attic.

- Check the system operating pressure on the pressure gauge and add more water if necessary.
- Restart circulation pumps.



**Only systems that have been properly bled guarantee effective conveyance of heat.**

## 2.6 Connecting the flue

BMK-02-06-00-01-01-IAEN

The boiler is connected to the flue by means of a flue connecting pipe which must be gas-tight and insulated between the heating boiler and the chimney (insulation thickness 50 mm).

### Flue connecting pipe

The following diameters should be used:

- BC 20 - 50                      dia. = 150 mm

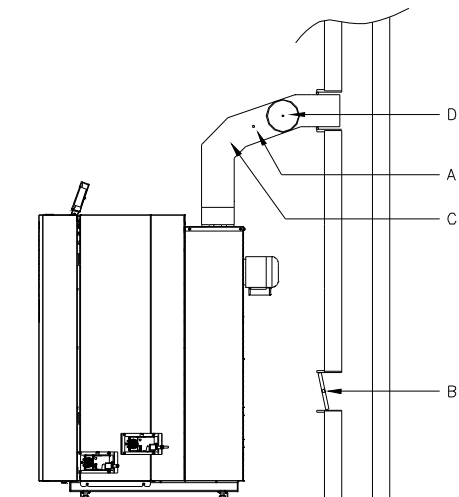
Flue connecting pipes longer than 4 m or with more than 3 bends:

- BC 20 - 50                      dia. = 180 mm

The hole in the wall for connecting the flue pipe must be lined with a built-in double-skinned lining tube or fireproof material. The flue connecting pipe must rise upwards from the boiler to the flue at an angle of at least 6° and be connected with gas-tight joints. An inspection cover must be provided for cleaning the flue connecting pipe.

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- A** → Testing point for flue draught
- B** → Flue draught regulator/pressure-surge compensator in flue  
(Preferred fitting arrangement)
- C** → Flue connecting pipe, min. gradient 6°
- D** → Alternatively: Flue draught regulator in flue connecting pipe  
(As close as possible to junction with the flue)



BS-02-06-00-03-01-IAEN



### Note

- The flue connecting pipe must be gas-tight
- An energy-saving flue draught regulator with pressure-surge compensator (Class RE) must be fitted
- Insulate the flue connecting pipe
- Do not brick in the flue connecting pipe (noise transmission)
- The flue connecting pipe must not extend into the flue

## 2.7 Energy-saving flue draught regulator and pressure-surge compensator

BMK-02-07-00-00-01-IAEN



Fitting an energy-saving flue draught regulator/pressure-surge compensator (Class RE) is absolutely imperative (200 mm dia. wherever possible)

### Purpose

- To ventilate the flue when the system is not in operation
- To compensate for pressure surges
- To regulate and limit the flue draught

### Fitting requirement

The energy-saving flue draught regulator must be fitted in accordance with the local regulations, preferably in the flue approx. 0.5 m below the point where the flue connecting pipe joins or alternatively in the flue connecting pipe close to its junction with the flue.

### Flue draught setting:

- Adjusting the flue draught is only of any use at outside temperatures below +5°C.
- The system must have been in operation for at least an hour
- Ensure there is sufficient demand for heat for the boiler to be run at rated output for at least 15 minutes
- Measure the flue draught between the boiler and the flue draught regulator (distance of measuring point from boiler ideally 3 x flue diameter from connection between boiler and flue connecting pipe).

### Flue draught

The flue draught should not differ by more than +/- 3 pascals from the figure specified in the flue dimensioning data. If the flue draught cannot be reduced to the required figure, either a larger draught regulator should be fitted or an additional flue baffle fitted between the flue and the draught regulator.

### Too much flue draught

May cause the flue gas temperature to increase and accelerate combustion as a result. Poor boiler output adjustability, increased dust discharge and malfunctions can result.

### Too little flue draught

Performance problems, incomplete combustion and malfunctions when operating below rated output can result.

### 3 Electrical connections

#### 3.1 Heating system electrical connections

BMK-03-01-00-00-01-IAEN

Mains connection

- 230V, 50Hz, 13A fuse
- Power surge conductor (lightning conductor recommended)

Standard specifications

- 1 Boiler control panel (BCE)
- 1 Boiler circuit board (230V AC)
- 1 Safety temperature limiter (STL)
- 1 Boiler sensor (KVT20 Ω)
- 1 Flue gas temperature sensor (thermocouple)
- 1 Oxygen sensor (12V DC)
- 1 Flue draught fan (230V AC)
- 1 Ignition fan (230V AC – optional)
- 1 Primary/secondary air vent motor (24V DC)
- 1 TKS 1 (right casing door switch, 24V DC)
- 1 Boiler charging pump output KLP (230V AC)
- 1 Special output HP0 (230V AC)
- 4 Pump outputs (230V AC)

Optional equipment

- 4 Pump outputs (230V AC)
- 2 Mixer valve outputs (230V AC)
- 1 Outside temperature sensor input (KVT20 Ω)
- 1 DHW cylinder sensor input (KVT20 Ω)
- 2 Flow temperature sensor inputs (KVT20 Ω)
- 3 Analogue inputs for room stats (RFF25)

KVT20 resistances

| Temperature in °C | KVT20 in kΩ |
|-------------------|-------------|
| -20 °C            | 1.383       |
| -16 °C            | 1.434       |
| -8 °C             | 1.537       |
| -4 °C             | 1.590       |
| 0 °C              | 1.644       |
| 10 °C             | 1.783       |
| 20 °C             | 1.928       |
| 30 °C             | 2.078       |
| 40 °C             | 2.234       |
| 50 °C             | 2.395       |
| 60 °C             | 2.563       |
| 70 °C             | 2.735       |
| 80 °C             | 2.914       |

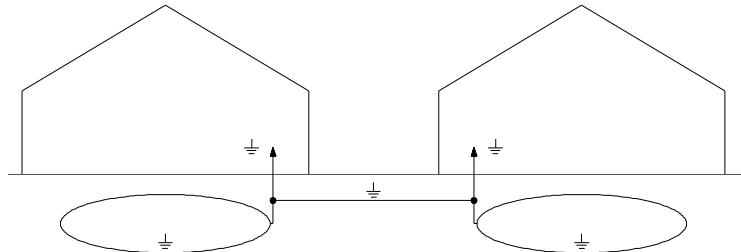


### 3.2 Wiring requirements

BS-03-02-00-00-01-IAEN

Surge protection

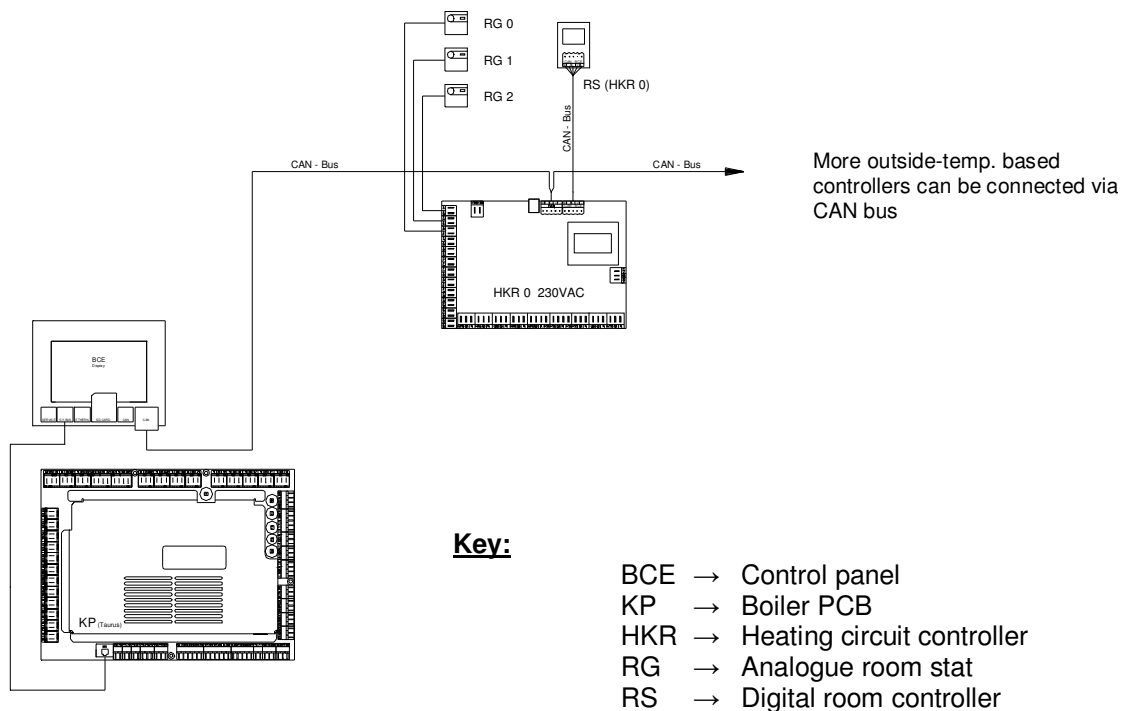
Where CAN bus cables run between different buildings, the earthing conductors of the buildings must be connected to each other for potential equalisation purposes. If the earthing conductors cannot be inter-connected, a 10 mm rustless ring earth must be laid along with the CAN bus cable in the ground. The earthing conductors and ring earth must then be connected to one another.



Sensor 2 x 1 mm<sup>2</sup>

Analogue room stat RFF 2 x 1 mm<sup>2</sup>

CAN bus connecting cable 2 x 2 x 0.5 mm<sup>2</sup> twisted pair, shielded



Wiring CAN bus in line

Whenever possible, always wire the CAN bus "in line", i.e. from the display and control unit to heating circuit controller 0 then from there to heating circuit controller 1, and so on. If wired in a star pattern, the overall length of the CAN bus must not exceed 100 metres. Wire the CAN bus +/- and H/L connections with twisted-pair cable in each case.

### 3.3 Electrical connections

BS-03-03-00-00-01-IAEN

The electrical connections to the boiler system on site may only be made by an approved electrical installer observing all the applicable regulations. In addition, it is essential that electrical system components are protected against damage from heat radiation.

All boiler system internal wiring is wired up at the factory ready for use. The work required on site by the electrical installer consists only of connecting the mains power and wiring up and connecting the system components such as thermal store, CAN bus, heating circuit pumps, mixer valve motors, etc.

#### Mains power supply

230 V, 50 Hz, 13 A fuse

BS-03-03-00-01-01-IAEN

The mains power must be connected by means of the standard non-reversible power socket on the rear panel of the boiler. It must be possible to isolate the system entirely from the mains without opening the switch panel cover, e.g. by means of an automatic circuit-breaker.



**Correct polarity of the boiler's mains power connection must be ensured. The live (L) and neutral (N) phases must not be reversed as otherwise the short-circuit protection and safety system function cannot be guaranteed.**

#### Opening switch panel

Before the switch panel is opened, the boiler mains lead must be unplugged from the power supply. The system must not be live.

BMK-03-03-00-02-01-IAEN

- Undo the securing screw on the back of the black controller cover;
- Lift the controller cover slightly at the back and slide it upwards to remove it;
- The circuit board with the associated connectors and fuses (see electrical wiring diagram) is located underneath it in an easily accessible position.
- When connecting the cable, the cable duct provided at the back must be used

#### Outside-temperature based controller

The MKR outside-temperature based heating circuit controller set is offered as an option and activated on the boiler circuit board if required. The MK261 wall controller set, on the other hand, can only be fitted externally and connected to the system via the CAN bus. Operation and configuration is via the boiler control panel.

BS-03-03-00-03-01-IAEN

#### Set MKR

The heating circuit controller can be used to control a DHW cylinder, a pumped heating circuit (HC0) and two mixed heating circuits (HC1, HC2).

Wall controller set MK261

The wall controller set MK261 must be connected to the (external) power supply at terminal H35 and connected to the control panel via the CAN bus.

The wall controller can be used to control a DHW cylinder, a pumped heating circuit and 2 mixer-valve heating circuits.



**Pay special attention to the section "Wiring requirements, Wiring CAN bus in line".**

Analogue room stat

The room stat should be connected to the relevant heating circuit controller input at terminals 1 and 2 (see electrical wiring diagram).

Digital room controller

The room controller must be connected to the boiler (control panel) or wall controller set MK261 via CAN bus.

BS-03-03-00-05-01-IAEN

Surge protection

We recommend the installation of a power surge protector in the building's consumer unit.



**Pay special attention to the section "Wiring requirements, Surge protection".**

Earthing

The entire system is to be joined to the earth circuit conductor via the connected piping system according to the regulations.



**When connecting the earth circuit conductor pay particular attention to keeping the connecting runs as short as possible.**

Emergency power supply

Only use regulated generators.

## 4 Final checks/Commissioning

BS-04-00-00-00-01-IAEN

### Final checks

- After completing installation of the system, check again that all joints and pipes are properly tightened and not leaking.
- Check that all covers are fitted and secured.
- Check that the fitting of all connections (water, flue, electrical, ...) has been done correctly.
- Check that all required safety signs and instructions are attached and hand over all documentation (operating and installation instructions) for the system.
- Check that all electrical connections have been properly wired before connecting the system to the power supply.
- Clean the system and clear up the installation site.
- Always leave the boiler room clean.

### Initial commissioning

Commissioning must only be carried out by GUNTAMATIC or a qualified specialist. The precondition is that the flue technician, heating installer and electrician have cleared the system for operation. The authorised GUNTAMATIC specialist will carry out the following work during commissioning:

- Check the entire system
- Check the electrical functions
- Adjust the programmer to the system
- Commission the system
- Explain to the user how the system functions and how to operate and clean it
- Record the details of the customer and the system and complete the commissioning log



**Important** →

Any deficiencies identified must be recorded in writing and rectified within the following 4 weeks in order to maintain guarantee entitlement.

**The fully completed commissioning checklist must be sent to GUNTAMATIC immediately as otherwise the guarantee will be void.**



**Important** →

These installation instructions should not be destroyed after commissioning but kept permanently with the system together with the operating instructions.

## 5 Standards/Regulations

BS-05-00-00-01-IAEN

The boiler is designed as a Class 3 appliance as defined by the draft standard ÖNORM EN 303-5 (CEN/TC7/WG 1 – Doc. N 36-D) of 15/12/1996 and the agreement of the [Austrian] Federal States according to Art. 15a BVG, in accordance with the Austrian fire safety regulations, safety systems, CE and on safety measures for small combustion heating systems and the combustion heating system approval regulations (LGB.33/1992) of the Austrian Federal State of Steiermark. The original design approval certificates (BLT Wieselburg, IBS Linz) are available for inspection at the manufacturer's offices. When connecting the boiler, the following general, standard and safety regulations must be followed in addition to the local fire safety and building control requirements:

- ÖNORM EN303-5 Boilers for solid fuels, manually and automatically stoked, with outputs up to 300 kW; terms, requirements, testing and identification;
- ÖNORM H 5195-1 Assessment and suitability of the heating water (minimum requirements for the heating water);
- ÖNORM M 7510 Guidelines for the inspection of central heating systems;
- ÖNORM M 7550 Central heating boilers up to 100°C – Terms, requirements, tests, standard identification;
- ÖNORM B 8130 Safety systems;
- ÖNORM B 8131 Sealed water-circulation heating systems, safety requirements;
- ÖNORM B 8133 Safety requirements, domestic hot water systems;
- pr TRVB H 118 Technical Directive on Preventative Fire Safety
- DIN 4751-1 / Safety systems for heating systems with flow temperatures up to 110°C (120°C in course of preparation);
- DIN 4751-2 / Water-circulation heating systems – sealed heating systems with thermostatic safety systems and flow temperatures up to 120°C – safety systems;
- DIN 4751-4 / Safety systems for domestic hot water systems with flow temperatures up to 120°C; sealed water-circulation heating systems with static heads over 15 m or rated heat outputs over 350 kW;
- DIN 1988 Mains water piping systems on building plots, technical regulations for construction and operation;
- DGVO §7(2) Technical requirements for systems for producing domestic hot water with a temperature not higher than 110°C which are stoked by hand with solid fuel;
- HEATING OUTPUT: The heating output is to be selected (set) by the engineer in accordance with the local heating system regulations so that the rated heat output does not exceed the heat requirement determined according to DIN 4701 or ÖNORM M7500;
- Swiss Clean Air Regulations (LRV)
- Swiss Regulations on Small Combustion Heating Systems
- VKF Fire Safety Directive for Heating Systems (Switzerland)
- SIA 384 (Switzerland)

## 6 Plumbing diagrams

BMK-06-00-00-00-01-IAEN

- Diagram no.: **BMK-02-1** BMK without outside-temp. based controller  
1 PS thermal store, ECO DHW cylinder
- Diagram no.: **BMK-04-1** BMK with outside-temp. based controller  
2 PS thermal stores, ECO DHW cylinder
- Diagram no.: **BMK-07-3** BMK with outside-temp. based controller  
1 PSF thermal store, 1 PS thermal store
- Diagram no.: **BMK-16-8** BMK with interlock and outside-temp. based controller in SYNCHRO  
2 PS thermal stores, ECO DHW cylinder, oil/gas boiler (also suitable for gas combination boilers)
- Diagram no.: **BMK-05-1** BMK with interlock and outside-temp. based controller in oil/gas boiler  
2 PS thermal stores, ECO DHW cylinder, oil/gas boiler (not suitable for gas combination boilers)

### 6.1 Information on integrated interlock

Boiler interlock can only be programmed if the boiler is equipped with an outside-temperature based controller.

#### System plumbing diagram

The interlock function is designed precisely for the system configuration shown in diagram SY-16-X. The function is only guaranteed if the system is plumbed precisely according to the diagram.

#### Mixer valve

If a mixer valve is fitted, it essential to ensure that only absolutely "zero-leakage mixer valves" are fitted.

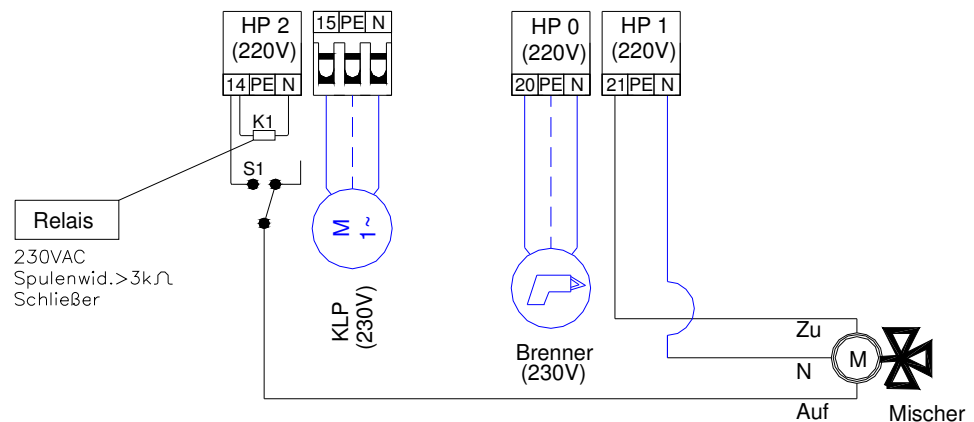
#### Mixer valve motor

As the output HP 2 is designed as a Triac output, the mixer valve motor should be suitable for "Triac control" (e.g. Kromschroder SM70, Belimo LR230A, ...).

#### Additional relay

If so-called "humming noises" occur with a mixer valve motor that is not suitable for Triac control, output HP 2 (terminal 14) must be connected via a conventional relay.

The relay is not necessary if a Triac-output compatible mixer valve is fitted or if the output is used to operate a pump.



**Plumbing diagram for BMK without outside-temp. based controller**  
 PS thermal store, ECO DHW cylinder

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# GUNTAMATIC

Diagram no. **BMK-02-1**

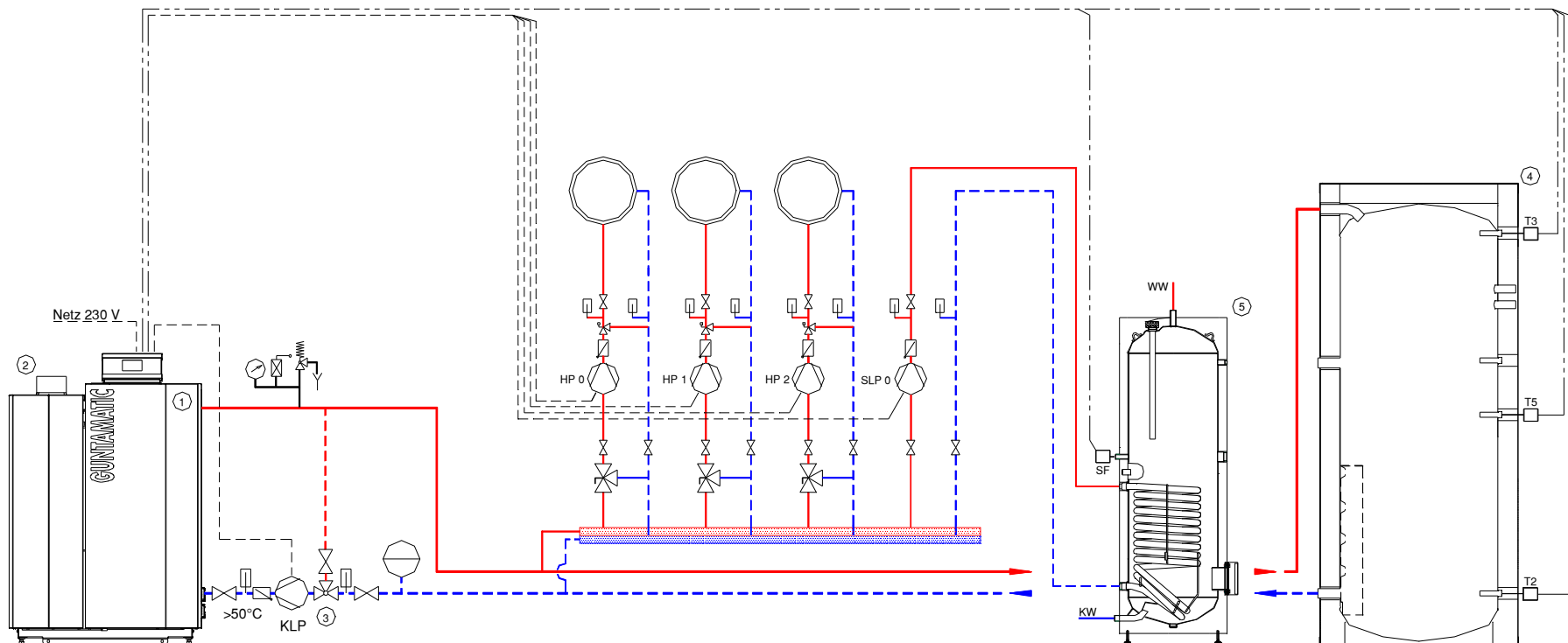
Electrical connections as per operating and installation instructions

Pump operation by timer programme is possible

**CAUTION:** No rigid connection between flue and flue connecting pipe

**GUNTAMATIC components**

- |   |                   |
|---|-------------------|
| 1. BMK boiler   |                   |
| 2. Flue draught regulator RE (size to suit flue diameter) | As price list     |
| 3. Return boost set RA60 EnergieA                         | Art. no.: H39-003 |
| 4. Thermal store PSB                                      | As price list     |
| 5. DHW cylinder ECO                                       | As price list     |



**Plumbing diagram for BMK with outside-temp. based controller**  
2 PS thermal stores, ECO DHW cylinder

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# GUNTAMATIC

Diagram no. **BMK-04-1**

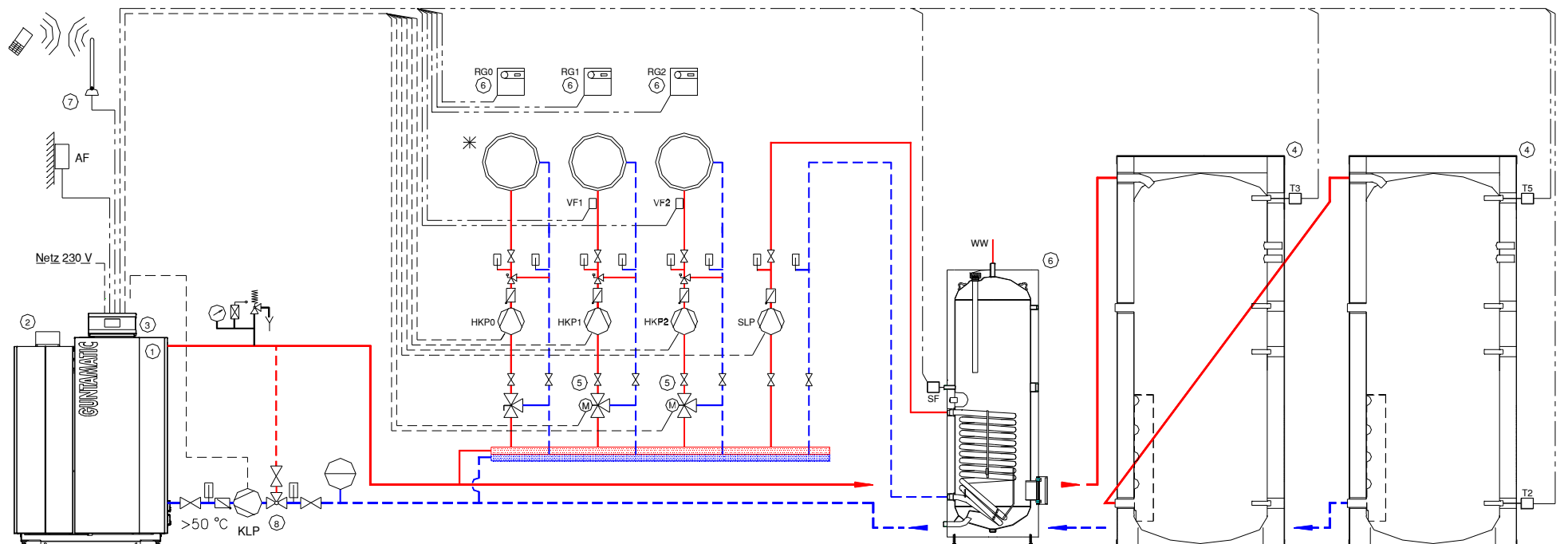
Electrical connections as per operating and installation instructions

The output HKP0 can also be used solely for timer-based control in addition to the mixer-valve circuits. Operation of a mixer valve from this output is not possible. If required, thermostat control of the pump can be programmed with the aid of an RFF25 room stat.

**CAUTION:** No rigid connection between flue and flue connecting pipe

**GUNTAMATIC components**

- |   |                   |
|---|-------------------|
| 1. BMK boiler   |                   |
| 2. Flue draught regulator RE (size to suit flue diameter) | As price list     |
| 3. Outside temp. based controller set MKR                 | Art. no.: S30-031 |
| 4. Thermal store PSB                                      | As price list     |
| 5. Mixer valve positioner motor SM70                      | Art. no.: S50-501 |
| 6. Room stat RFF25  | Art. no.: S70-006 |
| 7. GSM module   | Art. no.: S15-002 |
| 8. Return boost set RA 60 EnergieA                        | Art. no.: H39-003 |





**Plumbing diagram for BMK with outside-temp. based controller**  
 1 PSF thermal store inc. water supply unit and 1 PS thermal store

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# GUNTAMATIC

Diagram no. **BMK-07-3**

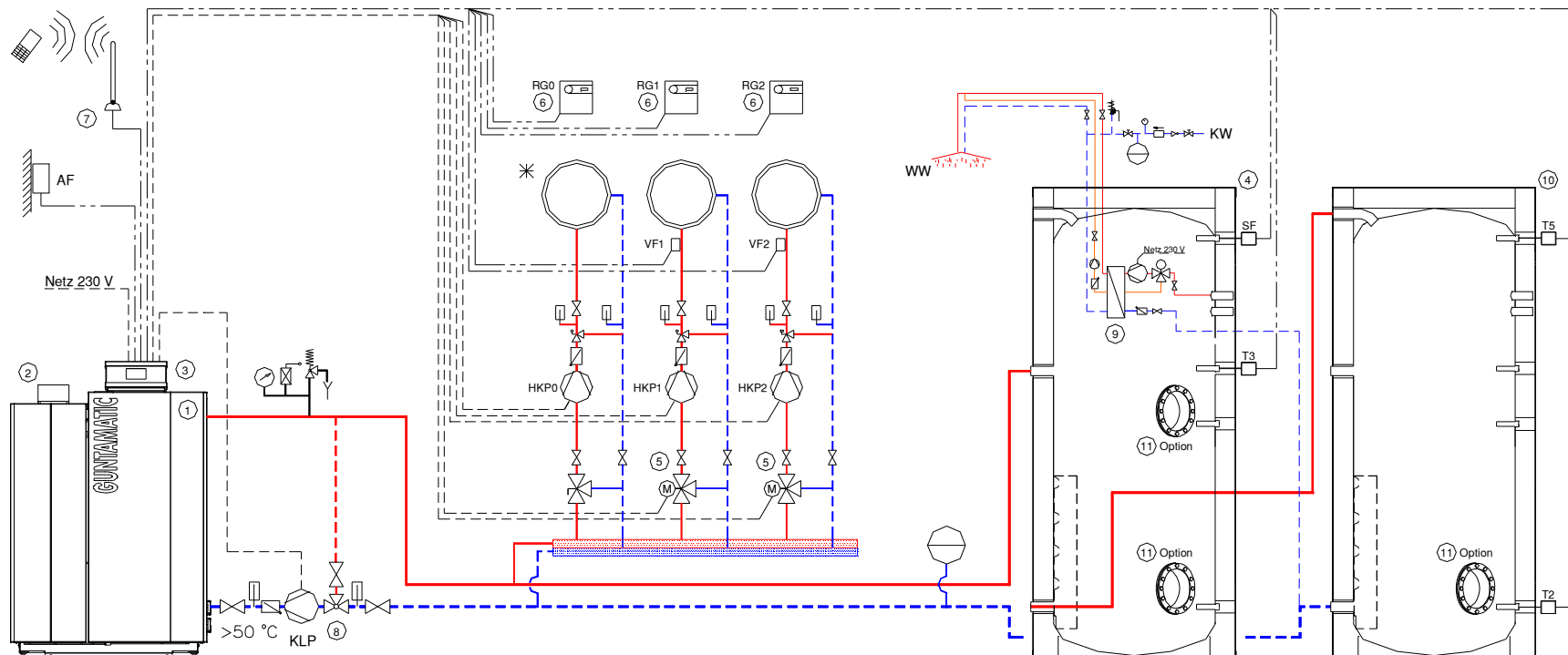
Electrical connections as per operating and installation instructions

The output HKP0 can also be used solely for timer-based control in addition to the mixer-valve circuits. Operation of a mixer valve from this output is not possible. If required, thermostat control of the pump can be programmed with the aid of an RFF25 room stat.

**CAUTION:** No rigid connection between flue and flue connecting pipe

**GUNTAMATIC components**

- |  |                   |
|--|-------------------|
| 1. BMK boiler  |                   |
| 2. Flue draught regulator RE (size to suit flue diameter)        | As price list     |
| 3. Outside temp. based controller set MKR                        | Art. no.: S30-031 |
| 4. Thermal store PSF   | As price list     |
| 5. Mixer valve positioner motor SM70                             | Art. no.: S50-501 |
| 6. Room stat RFF25   | Art. no.: S70-006 |
| 7. GSM module  | Art. no.: S15-002 |
| 8. Return boost set RA60 EnergieA                                | Art. no.: H39-003 |
| 9. <b>Option:</b> Secondary return pump                          | Art. no.: 045-250 |
| 10. Thermal store PSB  | As price list     |
| 11. <b>Option:</b> 12-hole flange and ridged pipe heat exchanger |                   |



**Plumbing diagram for BMK with outside-temp. based controller in BMK boiler and interlock**  
 2 PS thermal stores, ECO DHW cylinder and oil/gas boiler

**CAUTION:** With software version V2.1 or later also suitable for gas combination boilers

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# GUNTAMATIC

Diagram no. **BMK-16-8**

Electrical connections as per operating and installation instructions

**Function:** If the thermal store top temperature (T3) is < the required temperature and the flue gas temperature is < 130 °C (FGT, burner), the oil/gas boiler is started up via output HP0 (Interlock). At the same time, the mixer valve is operated for 3 minutes via HP1 (Interlock RT). As soon as the oil/gas boiler exceeds 45 °C (T4, burner), the T4 sensor reading is used as the enabling variable. If T3 is > required temperature or T4 is > required temperature +6 °C (burner diff.) or FGT (BM boiler) > 130 °C (FGT, burner), output HP0 (Interlock) is switched off again. If the temperature in the oil/gas boiler (T4) falls 3 °C below 45 °C (T4, burner), output HP2 is operated for a period of 3 minutes (Interlock RT) provided the flue gas temperature at the BMK/SYNCHRO boiler is higher than the burner FGT, or T3 (thermal store top) is greater than the required temperature. At the same time, if the oil/gas boiler temperature drops 3 °C below burner T4 (45 °C), the T3 sensor reading (thermal store top) is referred to again for enabling.

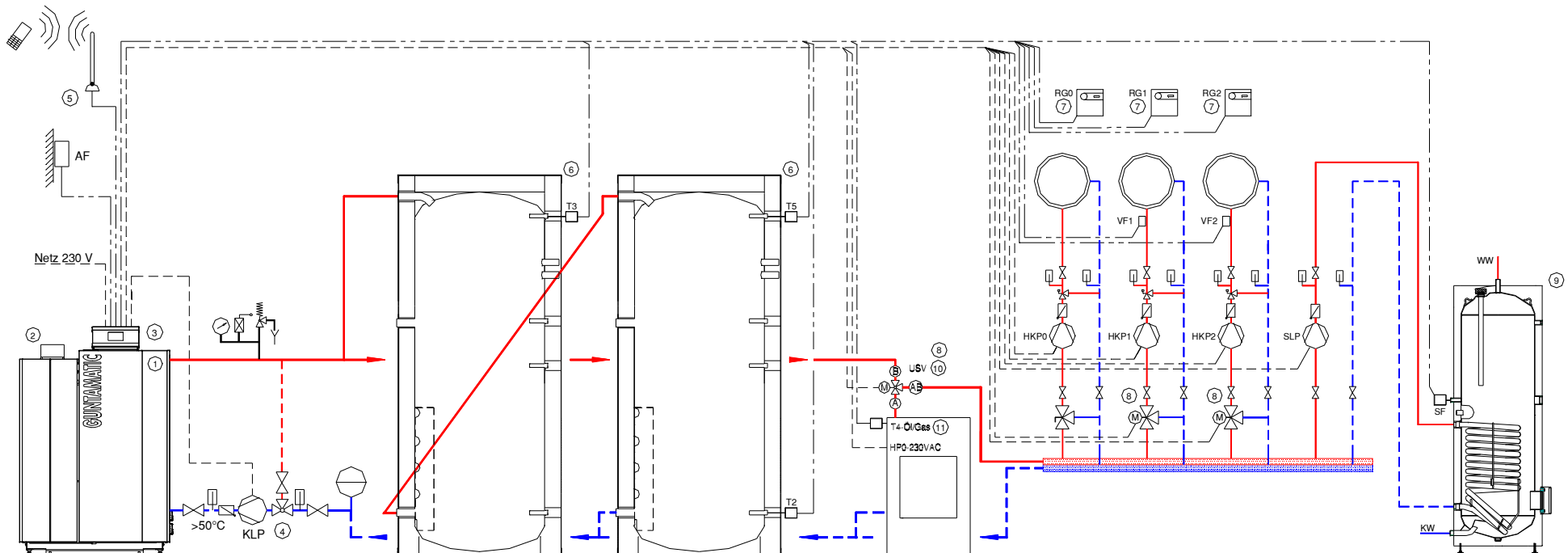
**CAUTION:** When operating a gas combination boiler, the HP0 parameter "**Burner delay**" must be set to 2-3 minutes.

Output HP 1 = A – AB connected = Oil/gas boiler mode (Terminal H25 → Command Closed)

Output HP 2 = B – AB connected = Thermal store mode (Terminal H26 → Command Open)

**GUNTAMATIC components**

1. BMK boiler
2. Flue draught regulator RE (size to suit flue diameter) As price list
3. Outside temp. based controller set MKR Art. no.: S30-031
4. Return boost set RA 60 EnergieA Art. no.: H39-003
5. GSM module Art. no.: S15-002
6. Thermal store PSB As price list
7. Room stat RFF25 Art. no.: S70-006
8. Mixer valve positioner motor SM70 Art. no.: S50-501
9. DHW cylinder ECO As price list
- Alternatively:** PSF600 thermal store inc. water supply unit As price list
10. 3-way mixer valve, 1 1/4" (zero-leakage valves only) Not supplied
11. Oil/gas boiler sensor T4 Art. no.: S70-004



**Plumbing diagram for BMK with outside-temp. based controller in oil/gas boiler and interlock**  
 2 PS thermal stores, ECO DHW cylinder, oil/gas boiler and external interlock

**CAUTION:** Not suitable for gas combination boilers.

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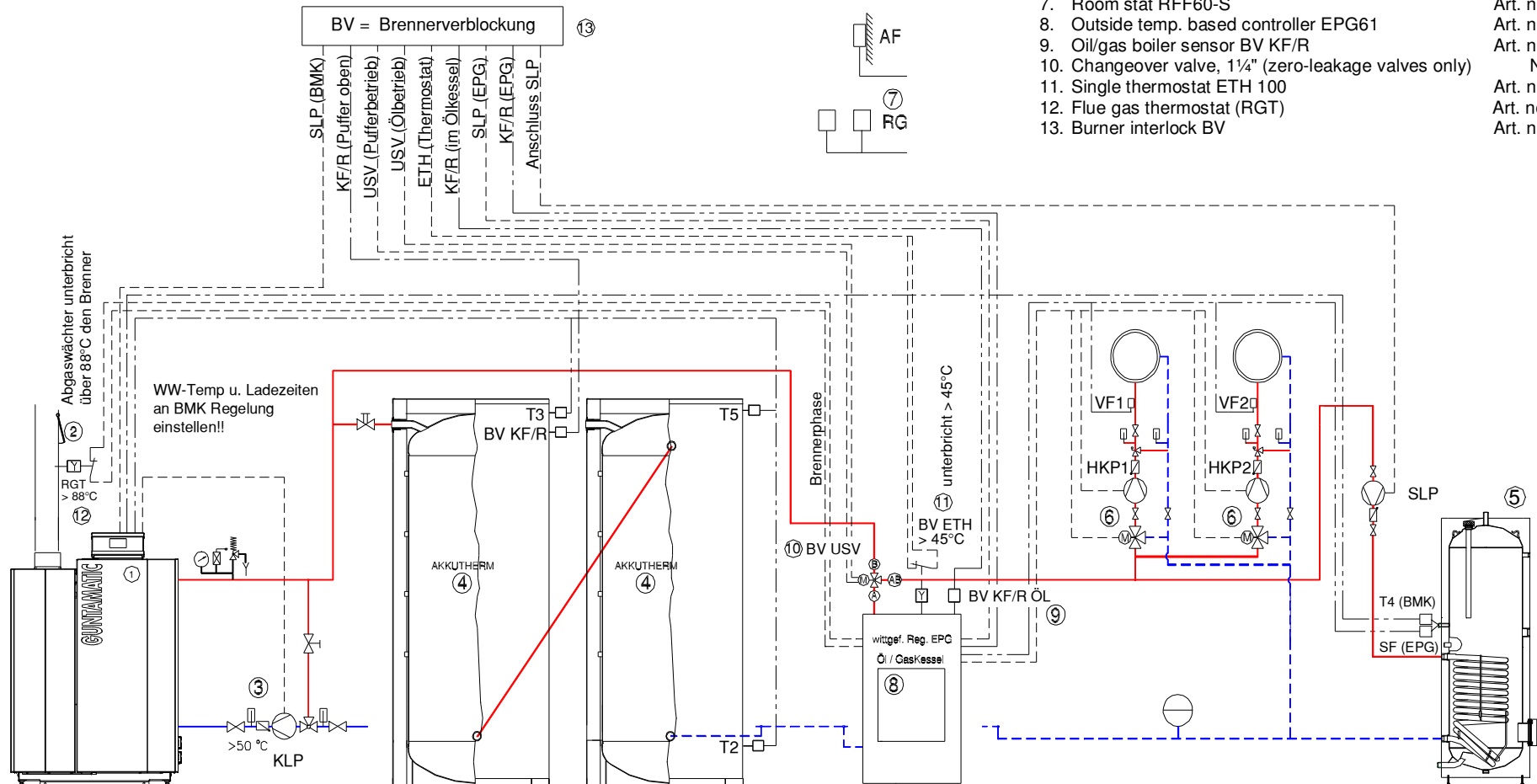
# GUNTAMATIC

Diagram no. **BMK-05-1**

Electrical connections as per operating and installation instructions

**GUNTAMATIC components**

- |   |                   |
|---|-------------------|
| 1. BMK/NIBRA boiler                                       |                   |
| 2. Flue draught regulator RE (size to suit flue diameter) | Not supplied      |
| 3. Return boost set RA 60 EnergieA                        | Art. no.: H39-003 |
| 4. Thermal store PSB                                      | As price list     |
| 5. DHW cylinder ECO                                       | As price list     |
| 6. Mixer valve positioner motor SM70                      | Art. no.: S50-501 |
| 7. Room stat RFF60-S                                      | Art. no.: S70-007 |
| 8. Outside temp. based controller EPG61                   | Art. no.: S30-017 |
| 9. Oil/gas boiler sensor BV KF/R                          | Art. no.: S70-004 |
| 10. Changeover valve, 1/4" (zero-leakage valves only)     | Not supplied      |
| 11. Single thermostat ETH 100                             | Art. no.: S40-110 |
| 12. Flue gas thermostat (RGT)                             | Art. no.: H00-801 |
| 13. Burner interlock BV                                   | Art. no.: S00-040 |

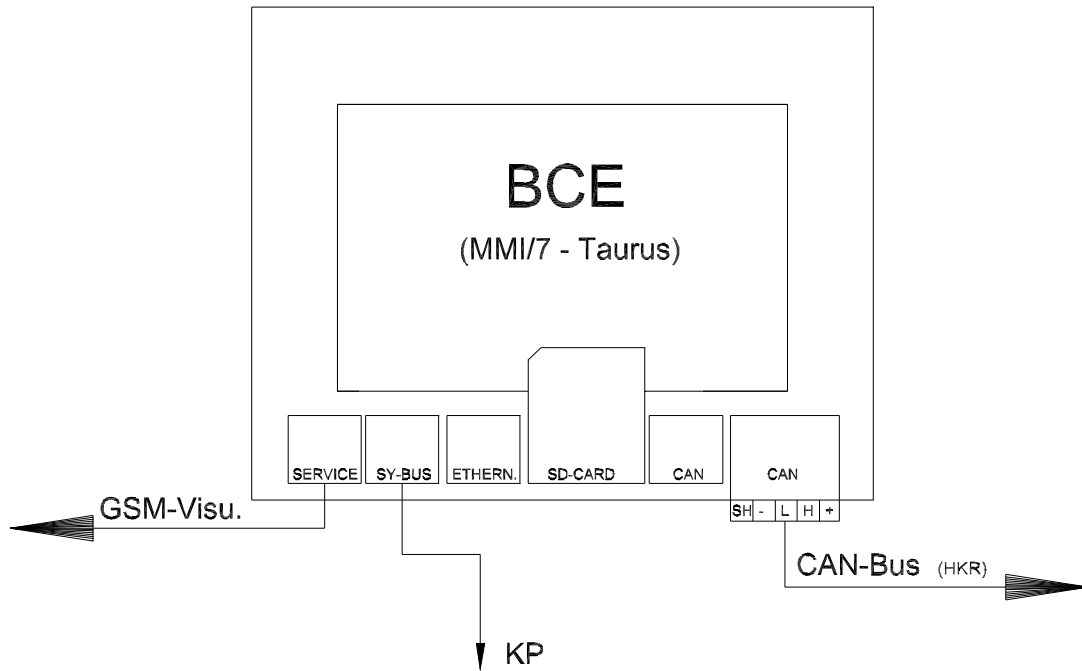


## 7 Electrical wiring diagram

### 7.1 Control panel (BCE) (wire only with flexible cables fitted with cable ends)

SY-07-01-00-00-01-IAEN

- BCE** = Display and control unit (touch screen)
- Service** = Connection socket
- SY-BUS** = Connection socket/cable connection betw. BCE and boiler PCB
- Ethern.** = Connection socket (inactive)
- SD-Card** = Slot for SD memory card
- CAN** = Connection socket for CAN bus
- CAN-Bus** = Cable connection between BCE and digital room controller or wall controller
- GSM** = Facility for connecting a GSM module
- Visu.** = Facility for connecting a graphical boiler interface
- KP** = Cable connection to boiler circuit board (SY bus)



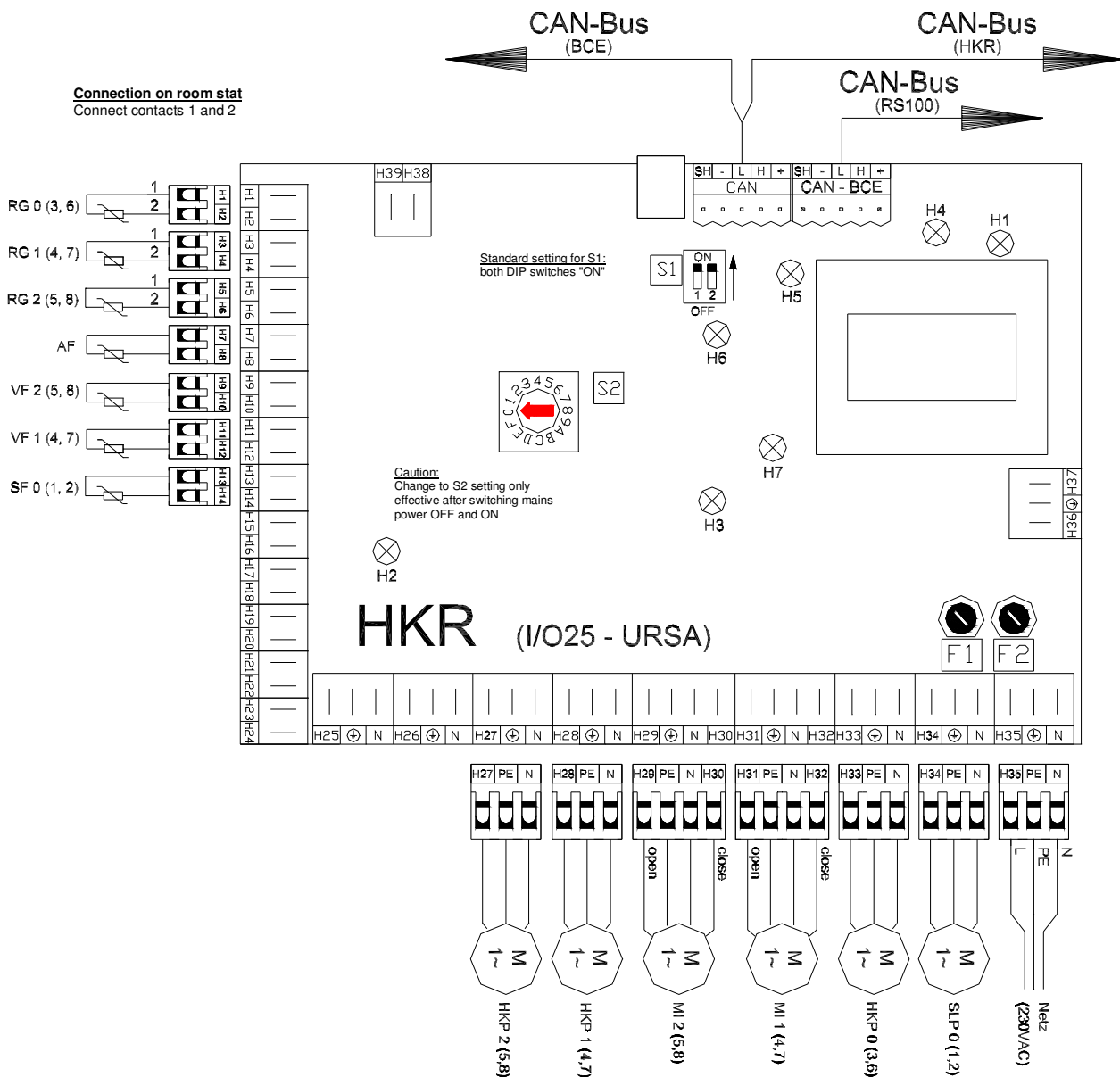
## 7.2 Wall controller set MK261 (use only flexible cables for wiring)

BS-07-02-00-00-01-IAEN

|                            |  |  |
|----------------------------|--|--|
| <b>RG 0-8</b>              | = Analogue room stat input for HC 0 - 8                  | Connector: H1/H2 – H3/H4 - H5/H6         |
| <b>AF</b>                  | = <b>Connect only if not connected on boiler PCB</b>     | Connector: H7/H8                         |
| <b>VF 1, 2, 4, 5, 7, 8</b> | = Flow sensor input for heating circuit 1, 2, 4, 5, 7, 8 | Connector: H9/H10 - H11/H12              |
| <b>SF 0-3</b>              | = Cylinder sensor input for DHW cylinder 0, 1, 2         | Connector: H13/H14                       |
| <b>HKP 0-8</b>             | = Output for heating circuit pump 0 - 8                  | Connector: H27/PE/N (H28/PE/N, H33/PE/N) |
| <b>MI 1, 2, 4, 5, 7, 8</b> | = Output for mixer valve 1, 2, 4, 5, 7, 8                | Connector: H29/PE/N/H30 (H31/PE/N/H32)   |
| <b>SLP 0-3</b>             | = Output for cylinder charging pump 0, 1, 2              | Connector: H34/PE/N                      |
| <b>Netz</b>                | = Power supply input (230VAC)                            | Connector: H35/PE/N                      |
| <b>BCE</b>                 | = Connection for display and control unit                | Connector: CAN                           |
| <b>HKR</b>                 | = Connection for an additional wall controller           | Connector: CAN                           |
| <b>RS</b>                  | = Connection for digital room controller                 | Connector: CAN-BCE                       |

| Function of LEDs                                  |                 |
|---|-----------------|
| Controller on, CAN bus cable correctly connected: |                 |
| LED → H5 (green)                                  | should light up |
| LED → H6, H7 (orange)                             | should flash    |
| Mains power and fuse F1 are OK                    |                 |
| LED → H1, H4 (green)                              | should light up |
| LED → H2, H3 (green)                              | should flash    |

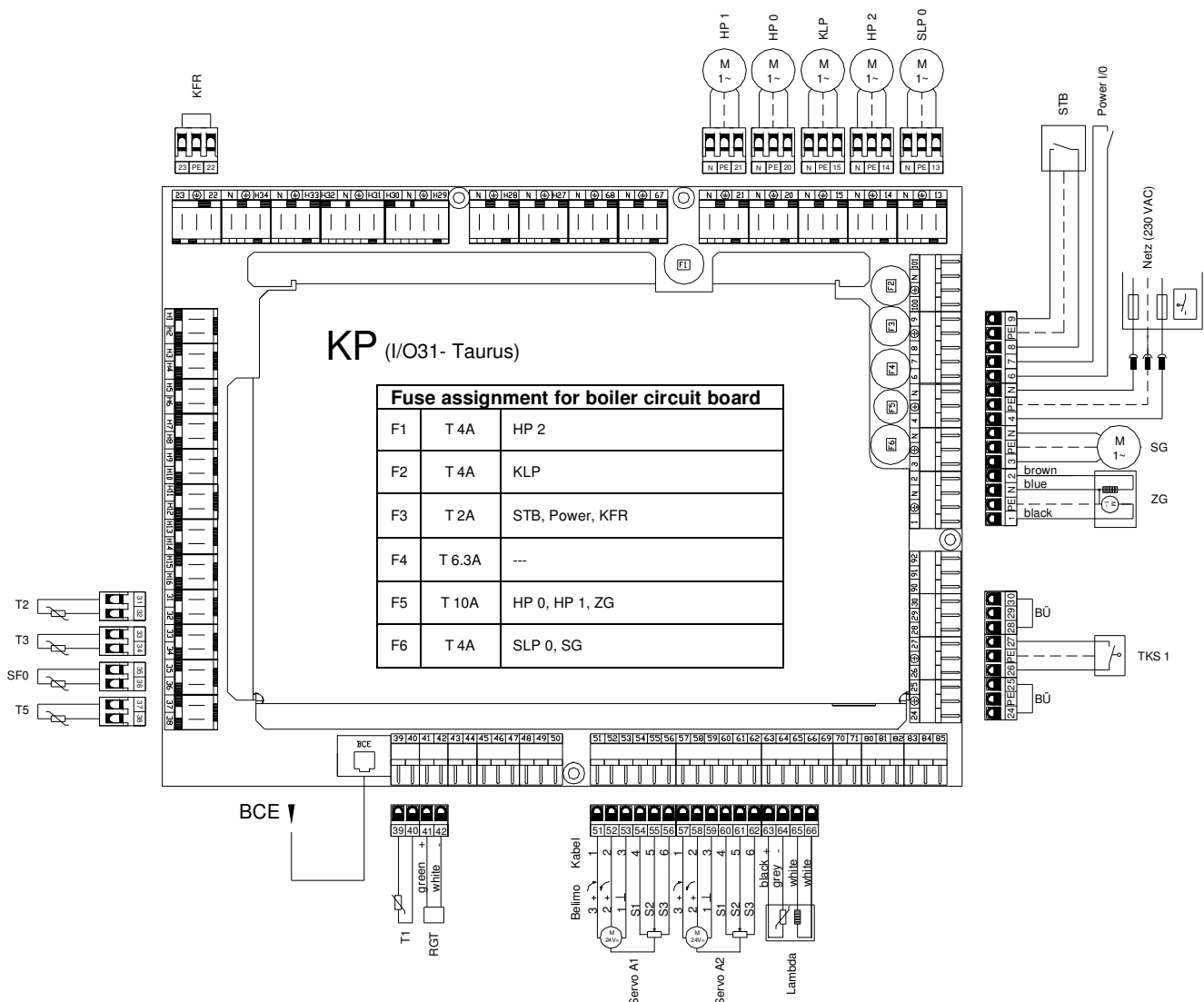
| Fuse assignment for wall controller |         |  |
|-------------------------------------|---------|--|
| F1                                  | T 0.63A | Power supply for electronics           |
| F2                                  | T 6.30A | HKP 0, HKP 1, HKP 2, MI 1, MI 2, SLP 0 |



### 7.3 Boiler circuit board w/o outside-temp. based controller (use only flexible cables for wiring)

BMK-07-03-00-00-01-IAEN

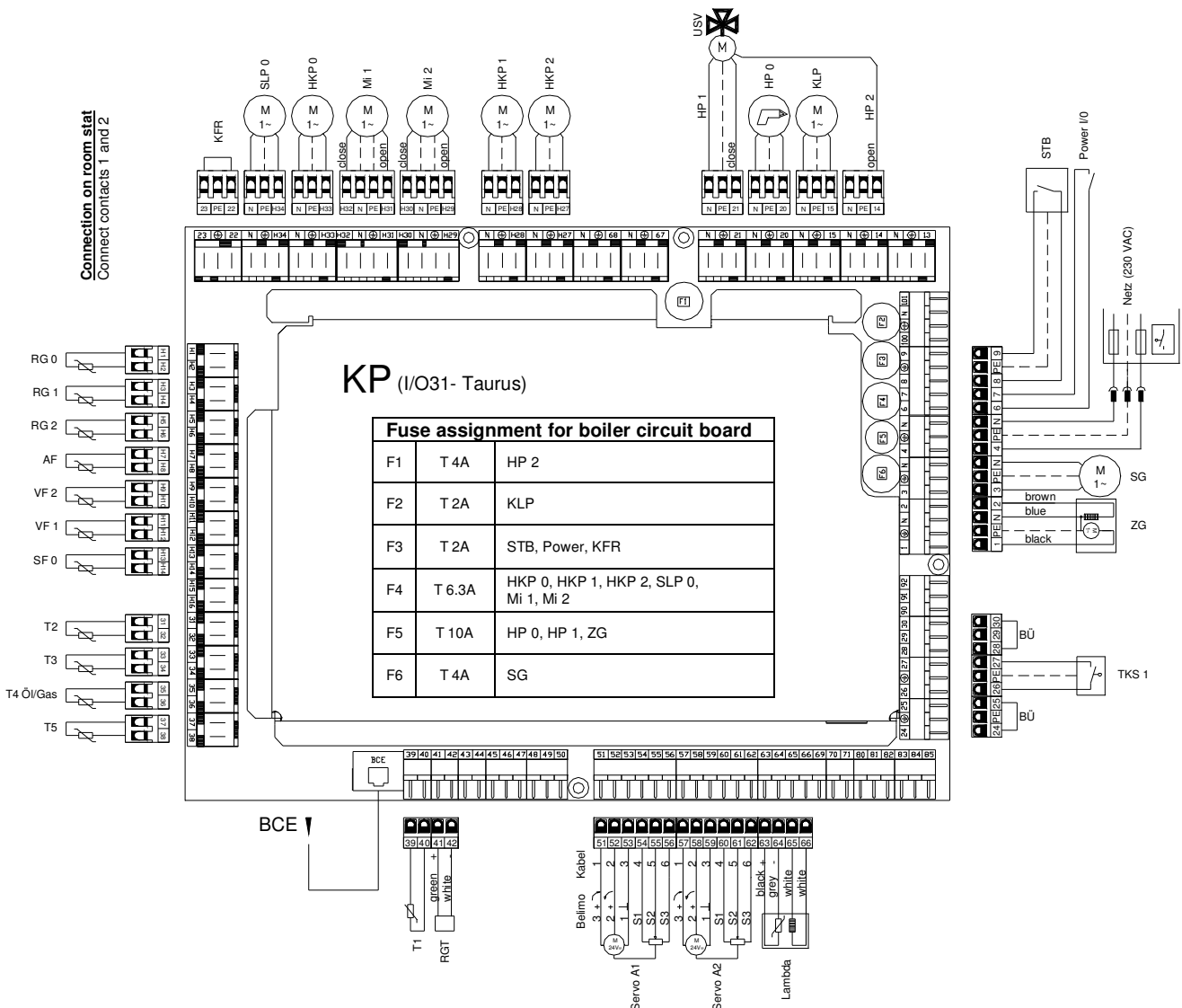
- |                  |   |                              |
|------------------|---|------------------------------|
| <b>T1</b>        | = Boiler sensor input                                   | Connector: 39/40             |
| <b>T2</b>        | = Thermal store bottom sensor input                     | Connector: 31/32             |
| <b>T3</b>        | = Thermal store top sensor input                        | Connector: 33/34             |
| <b>SF0</b>       | = DHW cylinder sensor input                             | Connector: 35/36             |
| <b>T5</b>        | = Thermal store middle sensor input                     | Connector: 37/38             |
| <b>RGT</b>       | = Flue gas temp. sensor input (ensure correct polarity) | Connector: 41/42             |
| <b>Servo A1</b>  | = Output for primary air servo motor                    | Connector: 51/52/53/54/55/56 |
| <b>Servo A2</b>  | = Output for secondary air servo motor                  | Connector: 57/58/59/60/61/62 |
| <b>Lambda</b>    | = Oxygen sensor input                                   | Connector: 63/64/65/66       |
| <b>TKS 1</b>     | = Input for door switch                                 | Connector: 26/PE/27          |
| <b>ZG</b>        | = Ignition fan output (1=Fan, 2=Igniter)                | Connector: 1/PE/N/2          |
| <b>SG</b>        | = Flue draught fan output                               | Connector: 3/PE/N            |
| <b>Netz</b>      | = Power supply input (230VAC)                           | Connector: 4/PE/N            |
| <b>STB / I/O</b> | = STL/Power input/output                                | Connector: 6/7/8/PE/9        |
| <b>SLP 0</b>     | = Output for DHW cylinder charging pump 0               | Connector: 13/PE/N           |
| <b>SLP 2</b>     | = Pump output for heating circuit 2                     | Connector: 14/PE/N           |
| <b>KLP</b>       | = Output for boiler charging pump (thermal store pump)  | Connector: 15/PE/N           |
| <b>HP 0</b>      | = Pump output for heating circuit 0                     | Connector: 20/PE/N           |
| <b>HP 1</b>      | = Pump output for heating circuit 1                     | Connector: 21/PE/N           |
| <b>KFR</b>       | = Boiler enabling switch input                          | Connector: 22/PE/23          |



### 7.4 Boiler circuit board with outside-temp. based controller (use only flexible cables for wiring)

BMK-07-04-00-00-01-IAEN

- RG 0 (1, 2)** = Analogue room stat input for HC 0 (1, 2)
  - AF** = Outside sensor input
  - VF 2 (1)** = Flow temperature sensor input for heating circuit 2 (1)
  - SF 0** = Cylinder sensor input for DHW cylinder 0
  - T1** = Boiler sensor input
  - T2** = Thermal store bottom sensor input
  - T3** = Thermal store top sensor input
  - T4 Öl/Gas** = Boiler sensor input (oil/gas boiler)
  - T5** = Thermal store middle sensor input
  - RGT** = Flue gas temp. sensor input (ensure correct polarity)
  - Servo A1** = Output for primary air servo motor
  - Servo A2** = Output for secondary air servo motor
  - Lambda** = Oxygen sensor input
  - TKS 1** = Input for door switch
  - ZG** = Ignition fan output (1=Fan, 2=Igniter)
  - SG** = Flue draught fan output
  - Netz** = Power supply input (230VAC)
  - STB / I/O** = STL/Power input/output
  - HP 2** = Changeover valve output (OPEN command = Thermal store mode)
  - KLP** = Output for boiler charging pump (thermal store pump)
  - HP 0** = Programmable special output (burner)
  - HP 1** = Changeover valve output (CLOSED command = Oil/gas mode)
  - KFR** = Boiler enabling switch input
  - HKP 2 (1, 0)** = Output for heating circuit pump 2 (1, 0)
  - Mi 2 (1)** = Output for mixer valve 2 (1)
  - SLP 0** = Output for cylinder charging pump 0
- Connector: H1/H2 (H3/H4, H5/H6)
  - Connector: H7/H8
  - Connector: H9/H10 (H11/H12)
  - Connector: H13/H14
  - Connector: 39/40
  - Connector: 31/32
  - Connector: 33/34
  - Connector: 35/36
  - Connector: 37/38
  - Connector: 41/42
  - Connector: 51/52/53/54/55/56
  - Connector: 57/58/59/60/61/62
  - Connector: 63/64/65/66
  - Connector: 26/PE/27
  - Connector: 1/PE/N/2
  - Connector: 3/PE/N
  - Connector: 4/PE/N
  - Connector: 6/7/8/PE/9
  - Connector: 14/PE/N
  - Connector: 15/PE/N
  - Connector: 20/PE/N
  - Connector: 21/PE/N
  - Connector: 22/PE/23
  - Connector: H27/PE/N (H28/PE/N, H33/PE/N)
  - Connector: H29/PE/N/H30 H31/PE/N/H32
  - Connector: H34/PE/N



### 7.5 External boiler interlock (use only flexible cables for wiring)

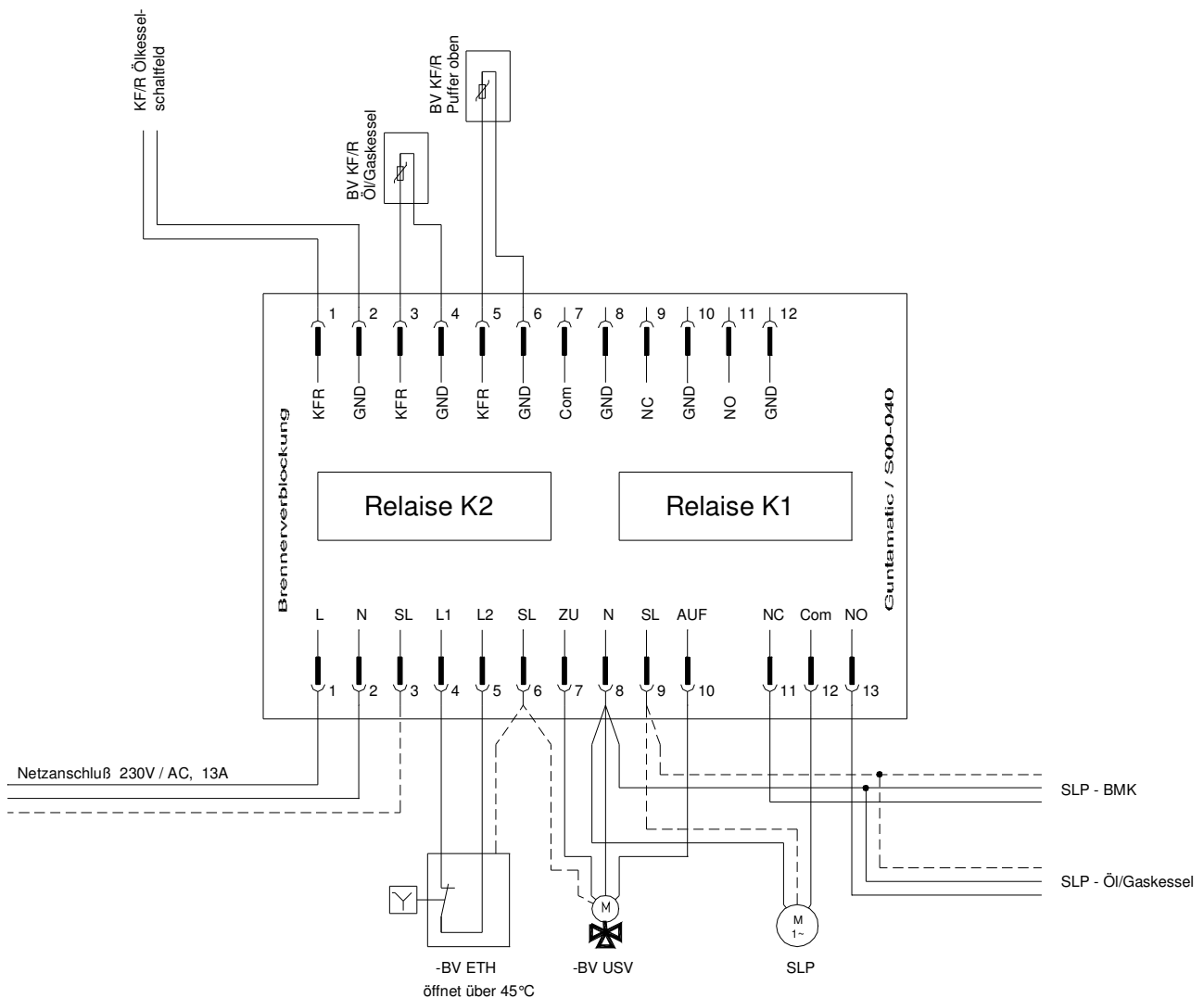
SY-07-05-00-00-01-IAEN

The electrical connections may only be made by a qualified electrician. The ÖVE regulations (Austria) and the local wiring regulations must be precisely followed.



**Caution:**

It is imperative to ensure correct allocation of phases to terminals. The power supply feed for the woodburning boiler and for the oil/gas boiler must be taken from the same electrical circuit. If that is not possible, intermediate connection of relays is required.







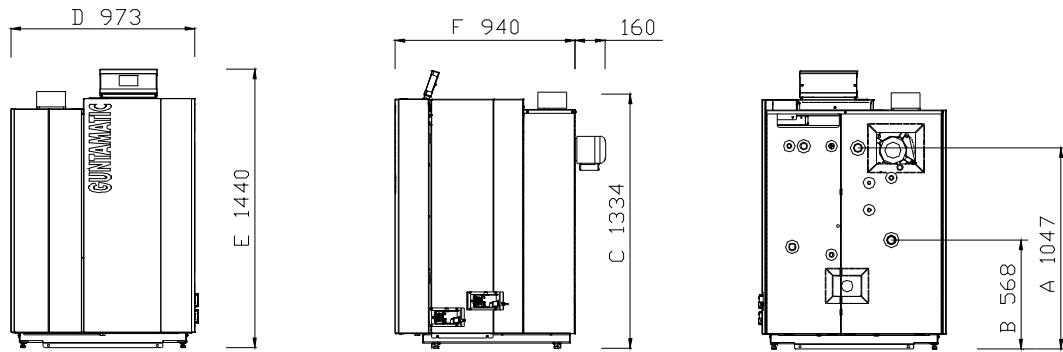


## 8 Technical data

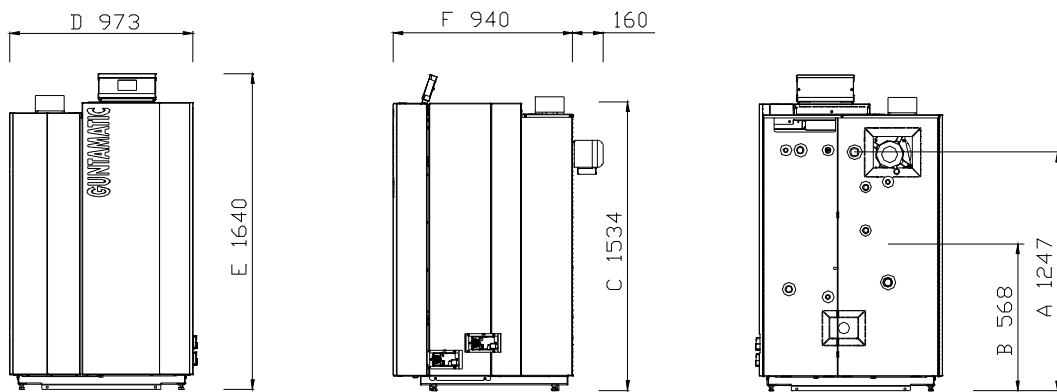
### 8.1 BMK

BMK-08-01-00-00-01-IAEN

#### BMK 20/30



#### BMK 40/50



| Type                               | BMK 20/30  | BMK 40/50   |        |
|------------------------------------|------------|-------------|--------|
| Rated output                       | 20 / 30    | 40 / 50     | kW     |
| Minimum output                     | 15 / 15    | 20 / 20     | kW     |
| Boiler efficiency                  | 90 / 90    | 90.9 / 91.5 | %      |
| Fuel capacity                      | 166        | 215         | litres |
| Fuel box width                     | 370        | 370         | mm     |
| Fire box depth                     | 580        | 580         | mm     |
| Water capacity                     | 125        | 175         | litres |
| Max. operating pressure            | 3          | 3           | bar    |
| Water system resistance (at 10 K)  | 3.8 / 8.1  | 15.4 / 24.1 | mbar   |
| Transportation weight              | 630        | 730         | Kg     |
| Weight of heat exchanger           | 240        | 320         | Kg     |
| Weight of lower section            | 350        | 350         | Kg     |
| Flue connecting pipe dia.          | 150        | 150         | mm     |
| Required flue draught              | 20         | 20          | Pa     |
| Flue draught fan                   | 0.12       | 0.12        | kWh    |
| Flow and return                    | 1¼"        | 1¼"         | Inches |
| Dimension A (flow)                 | 1047       | 1247        | mm     |
| Dimension B (return)               | 568        | 568         | mm     |
| Dimension C (flue pipe connection) | 1334       | 1534        | mm     |
| Dimension D (width)                | 973        | 973         | mm     |
| Dimension E (height)               | 1440       | 1640        | mm     |
| Dimension F (depth)                | 940        | 940         | mm     |
| Boiler dimensions w/o insulation   |            |             |        |
| Width                              | 965        | 965         | mm     |
| Height                             | 1310       | 1510        | mm     |
| Depth                              | 795        | 795         | mm     |
| Power supply                       | 230 V/13 A | 230 V/13 A  | V/A    |

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