

Installation- and instruction manual

SYNCHRO



CE

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TÜV
EN303-5
BAYERN
SZA

certificated by



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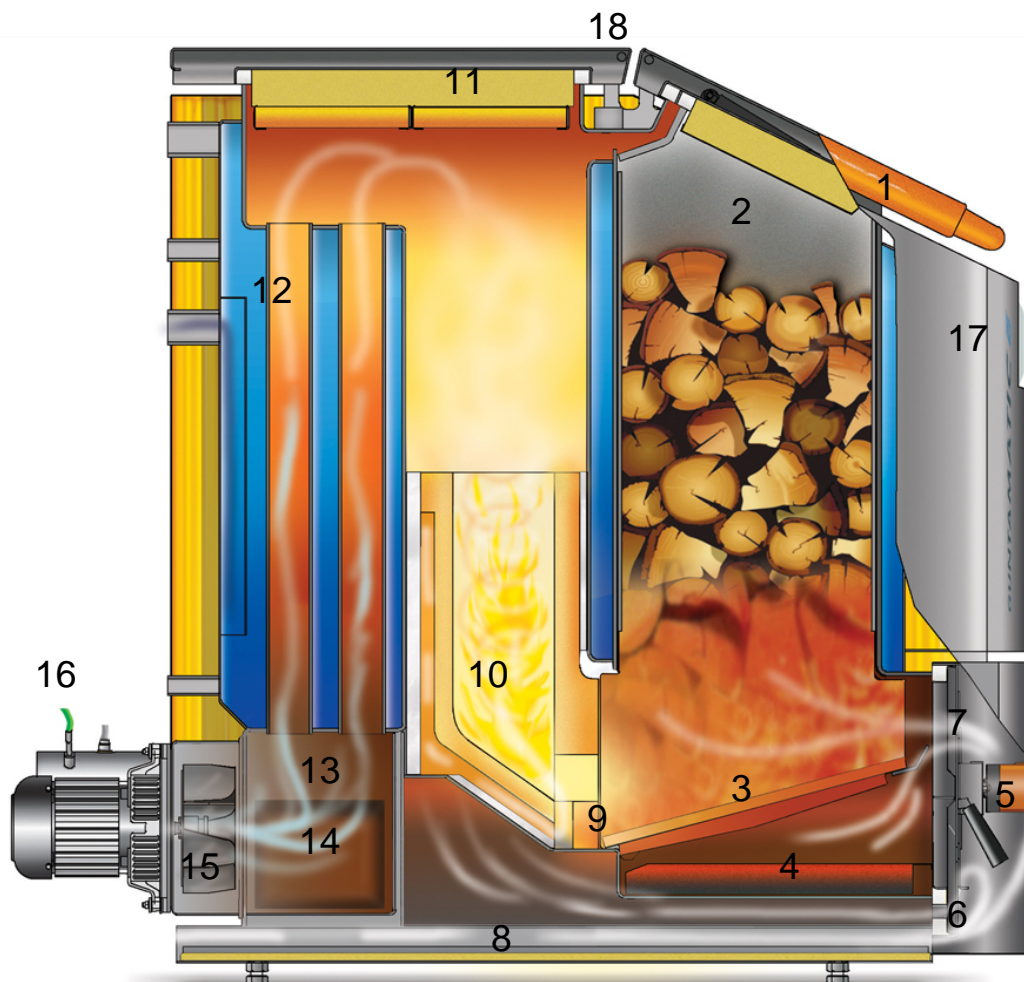
CE explanation

1) INTRODUCTION

The following guide will help you in the assembly and operation as well as the maintenance of the boiler GUNTAMATIC. Please take a few minutes to deal with the comments made therein. With this boiler, GUNTAMATIC provides a product of a long-standing boiler construction experience. It is our wish that the boiler always gives you total satisfaction. Please remember that even the best heating requires care and maintenance.

Your GUNTAMATIC boiler will be grateful.

2) Boiler diagram and components description



- 1) Top filling cover with suction canal
- 2) Filling chamber with protective lining
- 3) Hot cast grate
- 4) Ash storage compartment
- 5) Primary and secondary air motor
- 6) Secondary air
- 7) Primary air
- 8) Pre-heating of ground air
- 9) Secondary air blast pipe
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- 13) Dust removal zone
- 14) Cleaning opening
- 15) Induced draught fan
- 16) Flue gas sensor
- 17) Microprocessor control with menu-guided operation
- 18) Transportation hooks

3) Technical data:

Technical data:	SYNCHRO 30	SYNCHRO 34	SYNCHRO44	
Nominal power:	30	34	44	kW
Lowest power:	-	-	-	kW
Flue consumption:	0,2	0,2	0,2	mbar
Weight:	650	650	660	kg
Water resistance (bei 10K):	9,2	9,2	17,1	mbar
Fuel room	170	170	170	l
Combustion chamber depth	340	340	340	mm
Filling chamber width	540	540	540	mm
Water content	125	125	125	l
Boiler efficiency	92,5	92,2	92,2	%
CO-Emission NL	71	49	49	mg/MJ
Operating pressure max,	3	3	3	bar
Dimensions:				
Width boiler with insulation	740	740	740	mm
Depth boiler with insulation	1195	1195	1195	mm
Height boiler with insulation	1300	1300	1300	mm
Height flue tube outflow	215	215	215	mm
Flue tube diameter	215	150	150	mm

4) Exhaust gas data:

Boiler type	Exhaust gas temperature in°C		CO2 in %		Exhaust gas mass flow Kg/s		Draw required
	Nominal load	Partial load	Nominal load	Partial load	Nominal load	Partial load	mbar
Synchro 30	175-155	155-150	12-13	11-12	0,02	0,010	0,20
Synchro 34	175-155	155-150	12-13	11-12	0,02	0,010	0,20
Synchro 44	185-165	165-160	13-14	11-12	0,028	0,011	0,20

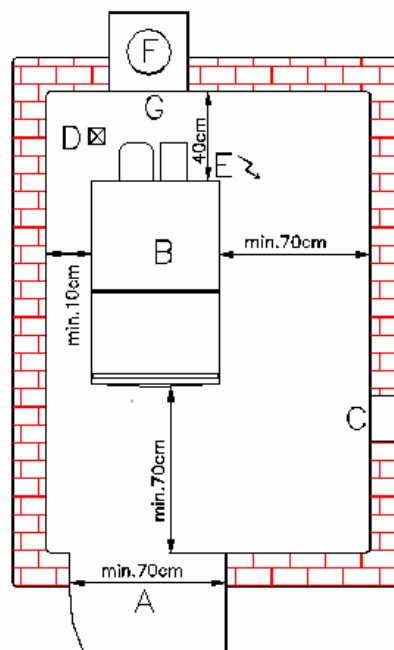
5) Boiler room and installation

Install the four **adjustable feet** on the bottom of the boiler at a **minimum distance of 25 mm** to the ground. After adjusting the feet, install the boiler professionally and **slightly increase the feet at the back**.

- Respect the construction and fire police regulations
- There must be a **min. of 20*20 cm = 400cm²** of fresh air in the boiler room
- Installation surface and the boiler area must be made of **fire resistant materials**
- Note to the operator: **no flammable objects in the proximity** of the boiler and exhaust gas pipes storage

5.1) Minimum space requirements:

- **SPACE AT THE BACK:** min. 40 cm from the wall
- **SPACE ON THE SIDES:** min. 10 cm and 70 cm from the wall
(a lateral cleaning opening must be accessible)
- **SPACE AT THE FRONT:** min. 70 cm



6) Flue and connection:

➡ Important: Use **moisture insensitive, heat insulated fireclay flues**. **Guntamatic takes no responsibility for stainless steel flues!** Brick flues, if they are in order and meet the required standards, will not need to be cleaned up. Ask the relevant sweeps!

➡ Thumb value for the flue size by reorganising the flue system:

SYNCHRO 34	effective height < 7 m	diameter 200 mm
SYNCHRO 34	effective height > 7 m	diameter 180 mm
SYNCHRO 34	effective height > 8,5 m	diameter 160 mm
SYNCHRO 44	effective height < 7m	diameter 200 mm
SYNCHRO 44	effective height > 7m	diameter 180 mm

➡ The smoke pipe is strongly tending upwards, **without unnecessary 90° bends, preferably connected directly** to the flue (sound transmission of the induced draught fan)!

➡ The smoke pipe must **not display any rigid connection** with the boiler – sound transmission!! (Sealing gasket or sealing cord inlay!!)

➡ The smoke pipe must be insulated!!

➡ A flue draw regulator type RK must be installed (ideally in the flue under the smoke pipe entrance, otherwise possible in the smoke pipe disconnected from the boiler)

➡ The flue draw of 20Pa must imperatively be measured during the installation!!!

7) Connection regulations and norm indications

7.1) Complied TYPE - NORMS:

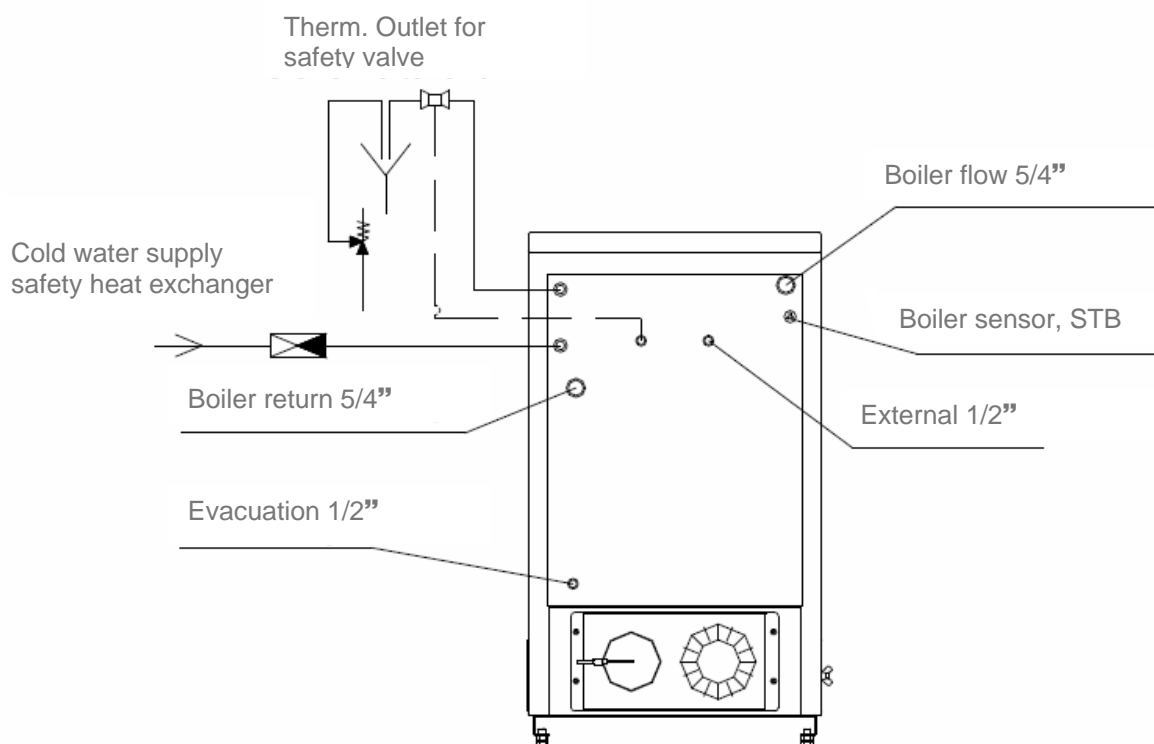
The wood carburettor boiler SYNCHRO is executed in category 3, according to the norm ÖNORM EN 303-5 (CEN/TC7/WG 1 – Dok. N 36-D) of 15.12.1996 as well as the agreement of the Federal States, according to art. 15a BVG. This product also meets the protective measures for small furnaces. The original certificate types of TÜV are available at the manufacturer.

7.2) CONNECTION REGULATIONS and NORM INDICATIONS:

When connecting the boiler to the hot water heater, take note of the following applicable rules, norm- and safety rules, in addition to the local fire and construction police regulations:

EN 303-5:	Directive for the inspection of central heating systems
ÖNORM B8130:	Safety equipment
ÖNORM B8131:	Closed water heaters, technical and safety requirements
ÖNORM B8133:	Technical and safety requirements. Hot water preparation system
DIN 4751 Teil 1:	Technical and safety equipment of heating system with set temperatures up to 110°C (120°C during preparation)
DIN 4751 Teil 2:	Technical and safety equipment of heating system with set temperatures up to 110°C (120°C during preparation); open and closed water heating systems up to 349 kW (300000 kcal/h) with thermostatic protection.
DIN 4751 Teil 4:	Technical and safety equipment of hot water generative devices with flow temperatures up to 120°C; closed water heating circuits with static heights over 15 m or nominal heating output over 350 kW.
DIN 1988:	Drinking water conductor pipe system in site. Regulations for construction and operation.
ÖNORM EN 303-5:	Boiler for solid fuels, hand and automatic loaded up to 300 kW; terms, requirements, testing and labelling.
DGVO §7(2):	Technical requirements for components for the production of hot water with a max. temperature of 110°C, that is loaded by hand with solid fuel.
ÖNORM H 5195-1	Evaluation and suitability of the water heater (minimum requirement for the heating water)
HEAT OUTPUT:	The heating power is selected (set) by a professional according to the local heating system regulation, so that nominal heating output doesn't exceed the ascertained required heat according to DIN 4701 or ÖNORM M7500.

8) Hydraulic connection



8.1) Security heat exchanger

The integrated security heat exchanger is used only for the **PROTECTION against OVERHEATING** of the boiler and musn't be used for the preparation of hot water.

If the overheating protection doesn't work properly (for ex. by water shortage, deficient thermostat valve, ...), the heating system must not be put into operation. The supply pressure must be **at least of 2 bar**.

The max. operating pressure must **NOT** exceed **6 bar**.

Install a structural tested thermostat valve (therm. flow protection) in the connector cable, following the diagrams provided, that has a boiler operating temperature of approx. 95°C. The acquisition and appropriate installation of this **overheating protection** is the heating company's responsibility. The plant operator should be informed that the overheating protection must be tested a n n u a l l y concerning its functioning.

The specified boiler output must **not be exceeded** and the heater must only be used in accordance with our operating instructions. The overheating protection musn't be l o c k a b l e and must be connected with the cold water mains supply. The mouth of the drain pipe must be unobstructed to be ensure easy monitoring, so that there is no interference between the efficiency and with the thermal safety output. The instructions for the **overheating protection** must be followed!

8.2) Return flow bypass

To make the boiler last longer – equipment applied on the system – install an **efficient RETURN FLOW TEMPERATURE BYPASS**.
(for ex.: return flow bypass group RA 60).

In general, **low operation temperatures** considerably affect the durability of the **boiler**. Especially in the area of **water-cooled and rear-mounted heating surface**, where the exhaust gas temperatures are already low, the steam contained in the exhaust gas will be removed by lower deviation of the water dew point and form condensation on relatively cold surfaces. This condensate, the "**condensation water**", can cause corrosion on respective parts of the boiler and thus shorten the boiler's life. Depending on the quality of the fuel containing the exhaust gases, the removed condensation can retain more or less aggressive chemical compounds such as sulfuric acid in sulphureous fuels, which accelerate corrosion.

The water dew point moves depending on the fuel composition and quality of combustion between 40-50° C. Therefore you must make sure that the **continuous operation BOILER RETURN FLOW – TEMPERATURE never drops below 50°C**.

ATTENTION: A return flow bypass must be installed (see enclosed diagrams)!!

9) Start-up and delivery to the operator

The initial start-up of the plant has to be made by the boiler manufacturer or a trained heating installer for ex. technician.

- Installation according to our plant diagram no.:
- Proper installation of **equipment** for the heaters, as well as correct fixation of all parts (Insulation, draught fans, flue gas sensor, servo-motor, door contact switch, etc....)
(...**increase** at the **back**)
- Doors, plaster cover, **flue gas ways** and thick flue door; grate, ash container, correctly inserted
- If possible, the smoke pipe should be connected directly to the flue inferior to 45° (without unnecessary bends at 90°)
- Flue draw regulator correctly installed (preferably near the flue or in the flue directly below flue connection)
- Smoke pipe insulated
- **Expansion vessel** properly covered and connected, pressure relief valve mounted **unlockable**
- Thermal safety outlet connected with retreat idler valve
- **Ventilation and aeration** of the heating room (min. 400 cm² wide opening) **constantly assured**
- Plant filled with water and vented
- **Electrical installation** by control panel and check the plant according to operating and assembly instructions, phase and N correct?!
- Explain to the customers and installer how to **change the fuses and STB**
- **Test programme:** check inputs and outputs functions
- Service level (code: 200) – **start-up:** meet the settings for customer plant
- Explain **basic settings and display** of the operating unit
- Show cleaning and general cleaning in cold conditions

- Explain settings menu only for IT information
- Place 3-4 logs on the grate **over the ash door for the warming-up**; place loosely 5-10 cm of small material and rough wood chips with cardboard or paper; fill the filling room with firewood or rough wood chips in layers with mixed firewood. Close filling doors and ignite under the ash door. Leave the ash door open for approx. 5 min (until approx. 150°C exhaust gas temperature).
- **Return flow bypass:** Return flow temperature **always** over 50°C after switching on the boiler charge pump (KLP)
- Check the function of the general system.
- **Adjust pumps** (Litre output KLP = total heating pumps)
Install the loading pumps on the smallest level possible
- There **must** be a **flue draw regulator!** Measure the draw and set the draw regulator to 2 mm WS = 0,2 mbar = 20 Pa
- Explain **the correct heating with the buffer storage.** (place log on the fire once the buffer storage is loaded below 30 %)
- Explain **correct heating with various firewood** (log size, wood chips,...)
- **Control flashed appearance:** there should be a yellow light (11%-13% CO²)
Exhaust gas temperature after 1 h (170-230°C)
- Possibility to discuss errors and interference causes
- **Inform the operator (customers) about all safety regulations**

10. Electrical connection

ATTENTION: The electrical connection must only be made by an authorized expert according to VDE and ÖVE!!!!

- Before switching off the power switch, disconnect the external power plug (disconnected from the mains)!
- Unscrew the control cover, lift and take the cover off
- Printed circuit boards (boiler-I/O; HK-regulator I/O) with connecting plugs and fuses (see electrical diagram) are included.

10.1) Mains connection:

The plant must be **disconnected from the network** by the supplied **polarised plug connection** (the control panel shouldn't be opened either).

ATTENTION: Right phases of the network connection (L and N) should not be permuted!!!!

(otherwise no short circuit protection function, no safety chain)

The fuse of the supply line has to be 16 A!!!!

10.2) Electrical installation of the boiler:

10.2.1) Prewired connections:

At the back of the boiler:

RGT – sensor (flue gas sensor – non interchangeable resistance)

Boiler sensor (resistance)

Induced draught (230V)

At the front

Primary and secondary air engine (24V)

Under the filling door

TKS 1 (Door contact switch 230V)

10.3) Electrical installation of the pumps, mixer and sensor:

10.3.1) without HK – regulator I/O (if no weather submaster controller has been ordered):

On the basic printed circuit board:

KLP boiler loading pump (230V)

HP0 (230V)

HP1 (230V)

HP2 (230V)

SP storage loading pump (230V)

Buffer sensor P below-T2 (resistance)

Buffer sensor P top-T3(resistance)

Buffer sensor P middle-T5 (resistance)

Storage sensor SP (resistance)

10.3.2) with HK – regulator I/O (if a weather submaster controller has been ordered):

On the basic printed circuit board:

KLP boiler loading pump (230V)

HP0 (no, ZUP, NFA, burner (230V)

Buffer sensor P below-T2 (resistance)

Buffer sensor P top-T3 (resistance)

Buffer sensor P middle-T5 (resistance)

n HK – regulator I/O: **HKP0**

(Moving heating circuit 230V)

HKP 1 (Mixer – heating circuit 1 230V)

HKP2 (Mixer – heating circuit 2 230V)

SLP (Storage loading pump 230V)

Mixer 1 (On=H31; Off=H32 230V)

Mixer 2 (On=H29; Off=H30 230V)

Storage sensor (resistance)

Lead probe 1 (resistance)

Lead probe 2 (resistance)

External sensor (resistance)

Room device 2 (resistance)

Room device 1 (resistance)

Room device 0 (resistance)

10.4) Further indications:

Do not lay the low-voltage conductions in the same pipe as the supply voltage.
Cable for the room sensor RFF25 2x0,75 sheated
Cable for the room station RS100 3x2x0,25 paired, sheated (2 wires reserve)

Resistance value of the lead-, boiler-, external- and storage sensor:

°C	kOhm	°C	kOhm
-20	1,383	10	1,783
-16	1,434	20	1,928
-8	1,537	30	2,078
-4	1,590	50	2,395
0	1,644	80	2,914

10.5) A3 – electrical connection plans in the annex:

11)Control panel description

11.1)Service unit:

The device disposes of a service unit in the menu guidance. All options and queries are in the large display. With “back”, “on”/”off” and “save”, all settings can easily be executed. The heating and hot water can be controlled with the “speed dial” button. Possible errors are highlighted.



1)Mains switch

The mains switch is usually always turned on.

Attention: You must unplug the mains plug when you change a fuse in the mainboard.

2)STB – Security temperature limitation

In the case of excessive plant temperature (over approx.100°C), the button releases and the operation (induced draught fan) will be interrupted.

Once the excessive temperature is gone, you can push the button back in (for ex. with a pen)

3)Display

Top line = display the selected menu window

Bottom line = display button functions

4)Control buttons

The standard display shows the following key features: On/Off – Menu

The menu shows the following key functions: Back (Exit, Cancel) – On/Off – Select, Save (Ok, Select)

5)Handcontrol

Choose the programme by pressing the **speed dial** button (Normal operation, Hot water, Heating, Reduce, Off, Reduce up to, Hot water loading)

6)Auto / Emergency operation

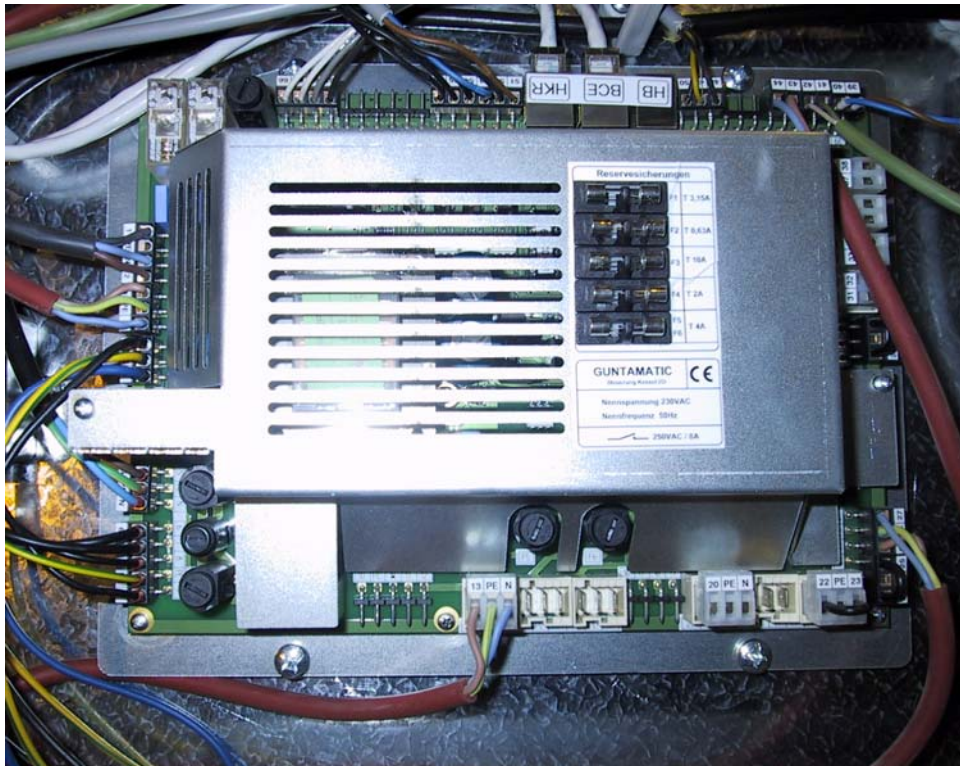
In the “auto“ operation, the pumps, induced draught fan, actuators are controlled by the regulator.

In the “emergency operation“, the pumps and induced draught fan are constantly selected independent of the boiler temperature.

11.2) Changing the fuses:

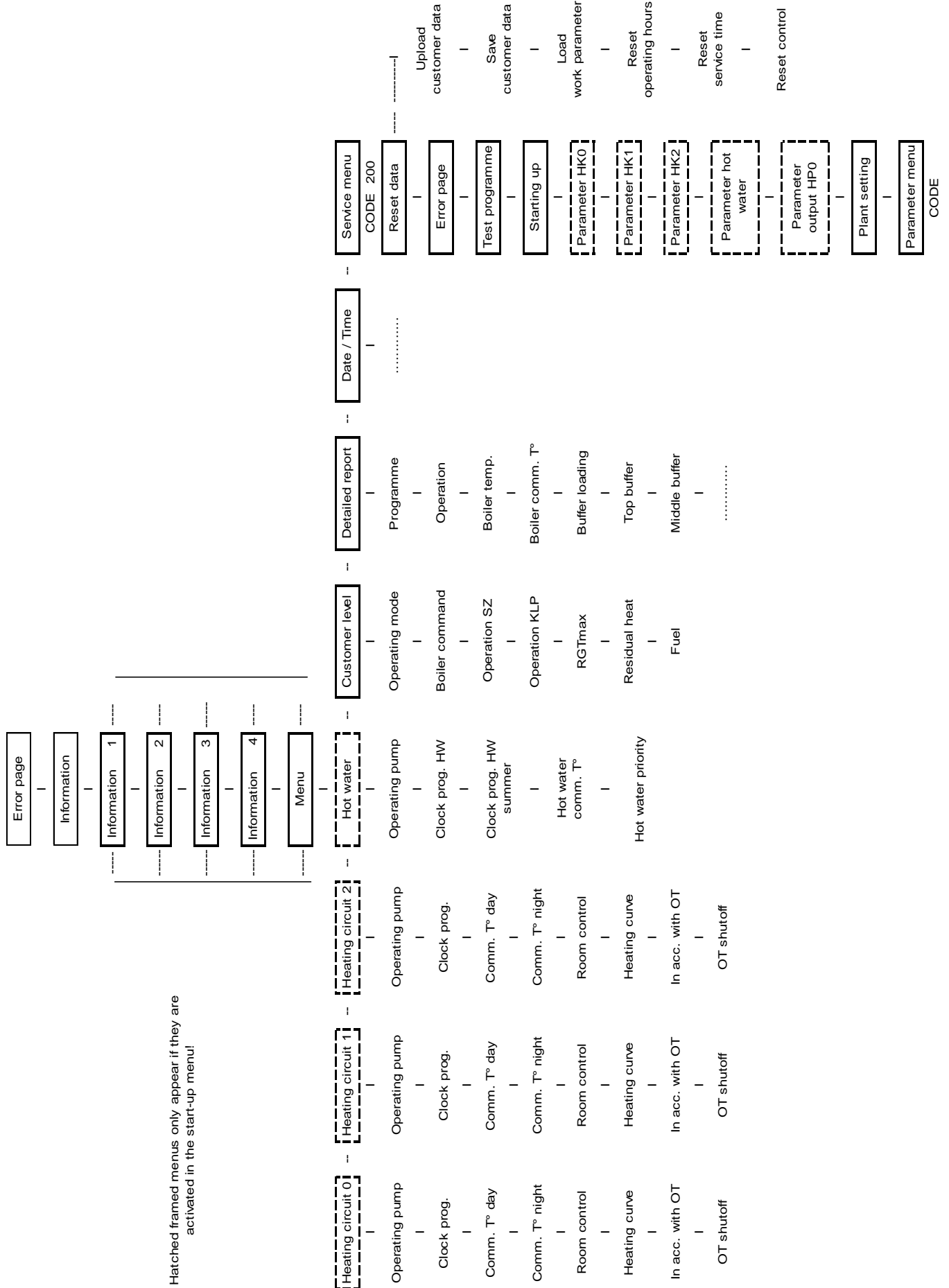
Must only be done by an authorized electrical technician!

- Leave the plant to cool down (boiler temperature under 60°C)
- Before handling, set the mains switch to “OFF” and disconnect the external mains plug (disconnected from the mains)!
- Unscrew the control cover, lift and take the cover off
- Printed circuit boards (boiler-I/O; HK-regulator I/O) with connecting plugs and fuses (see electrical diagram) are included.

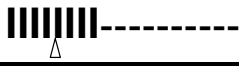
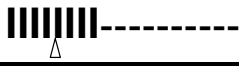
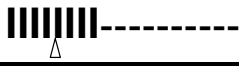


- Picture: boiler-I/O
- The boiler-I/O is secured with 6 fuses (F1-F6)
- The HK-regulator I/O is secured with 2 fuses (F1-F2)
The position and the fused components are evident in the electrical plan
- Push the fuse holder in for 2-3mm with a screw driver and do half a rotation to the left. Both the fuses and the fuse holder will then protude by a few mm.
- Replace faulty fuses and insert new ones in the fuse holder.
- Reattach the fuseholder firmly and using a screw driver, rotate half a turn to the right.

11,3) General chart menu



11.4) Menu structure and composition

SYNCHRO	Information												
<table border="1"> <tr><td>Error page</td></tr> <tr><td>Probe (T5)</td></tr> <tr><td>Buffer middle</td></tr> <tr><td>Discontinuity</td></tr> <tr><td>11.02 08.44</td></tr> <tr><td style="text-align: center;">↓</td></tr> <tr><td style="text-align: right;">Quit.</td></tr> </table>	Error page	Probe (T5)	Buffer middle	Discontinuity	11.02 08.44	↓	Quit.	<p>Window only displayed when there is an error:</p> <p>Resolve disturbance cause, acknowledge error message</p>					
Error page													
Probe (T5)													
Buffer middle													
Discontinuity													
11.02 08.44													
↓													
Quit.													
<table border="1"> <tr><td>Info boiler / buffer</td></tr> <tr><td style="text-align: center;">68°C</td></tr> <tr><td style="text-align: center;">  </td></tr> <tr><td style="text-align: center;">↓</td></tr> <tr><td style="text-align: right;">Menu</td></tr> </table>	Info boiler / buffer	68°C		↓	Menu	<p>Boiler temperature</p> <p>Buffer loading in %</p> <p>Attention: if the buffer loading exceeds the mark, it may no longer be refilled</p>							
Info boiler / buffer													
68°C													
													
↓													
Menu													
<table border="1"> <tr><td>Information</td><td style="text-align: right;">1</td></tr> <tr><td>Boiler temp.:</td><td style="text-align: right;">72°C</td></tr> <tr><td>Operation:</td><td style="text-align: right;">Regulation</td></tr> <tr><td>Programme:</td><td style="text-align: right;">Normal</td></tr> <tr><td>Buffer loading:</td><td style="text-align: right;">80%</td></tr> <tr><td style="text-align: center;">↓</td><td style="text-align: right;">Menu</td></tr> </table>	Information	1	Boiler temp.:	72°C	Operation:	Regulation	Programme:	Normal	Buffer loading:	80%	↓	Menu	<p>Display window:</p> <p>Actual boiler temperature</p> <p>Operational state of the boiler</p> <p>Control of the heating- hot water pump</p> <p>Display of the buffer loading in% (is calculated according to probe T3-T5-T2)</p>
Information	1												
Boiler temp.:	72°C												
Operation:	Regulation												
Programme:	Normal												
Buffer loading:	80%												
↓	Menu												
<table border="1"> <tr><td>Information</td><td style="text-align: right;">2</td></tr> <tr><td>Buffer top:</td><td style="text-align: right;">80°C</td></tr> <tr><td>Buffer middle:</td><td style="text-align: right;">70°C</td></tr> <tr><td>Buffer below:</td><td style="text-align: right;">67°C</td></tr> <tr><td>Boiler load. pump:</td><td style="text-align: right;">100%</td></tr> <tr><td style="text-align: center;">↓ ↑</td><td style="text-align: right;">Menu</td></tr> </table>	Information	2	Buffer top:	80°C	Buffer middle:	70°C	Buffer below:	67°C	Boiler load. pump:	100%	↓ ↑	Menu	<p>Display window:</p> <p>Buffer probe T3 value</p> <p>Buffer probe T5 value</p> <p>Buffer probe T2 value</p> <p>Boiler loading pump runs at 100%</p>
Information	2												
Buffer top:	80°C												
Buffer middle:	70°C												
Buffer below:	67°C												
Boiler load. pump:	100%												
↓ ↑	Menu												
<table border="1"> <tr><td>Information</td><td style="text-align: right;">3</td></tr> <tr><td>Hot water</td><td style="text-align: right;">50°C ON</td></tr> <tr><td>HK0:</td><td style="text-align: right;">ON</td></tr> <tr><td>HK1:</td><td style="text-align: right;">60°C ON</td></tr> <tr><td>HK2:</td><td style="text-align: right;">35°C ON</td></tr> <tr><td style="text-align: center;">↓ ↑</td><td style="text-align: right;">Menu</td></tr> </table>	Information	3	Hot water	50°C ON	HK0:	ON	HK1:	60°C ON	HK2:	35°C ON	↓ ↑	Menu	<p>Display window:</p> <p>Display of the current hot water actual-temperature; HW pump runs</p> <p>Heating circuit 0 pump on</p> <p>Heating circuit 1 lead temperature 60°C Pumpe on</p> <p>Heating circuit 2 lead temperature 35°C Pumpe on</p> <p>(without weather submaster controller, no lead temperature will be displayed)</p>
Information	3												
Hot water	50°C ON												
HK0:	ON												
HK1:	60°C ON												
HK2:	35°C ON												
↓ ↑	Menu												
<table border="1"> <tr><td>Information</td><td style="text-align: right;">4</td></tr> <tr><td>Smoke:</td><td style="text-align: right;">165°C</td></tr> <tr><td>Burning time:</td><td style="text-align: right;">4h</td></tr> <tr><td>Outside T°:</td><td style="text-align: right;">(-10) -4°C</td></tr> <tr><td style="text-align: center;">↑</td><td style="text-align: right;">Menu</td></tr> </table>	Information	4	Smoke:	165°C	Burning time:	4h	Outside T°:	(-10) -4°C	↑	Menu	<p>Display window:</p> <p>Display of the current exhaust gas</p> <p>Display of the burning time from closing the boarding door (TKS) until blazing</p> <p>* Display of the coldest OT of the last 12 hours in brackets and the current OT</p> <p>* Value is only displayed if there is a heating circuit regulator</p>		
Information	4												
Smoke:	165°C												
Burning time:	4h												
Outside T°:	(-10) -4°C												
↑	Menu												

SYNCHRO**Select programme**

In the manual operation (5), the following programmes can be set with the "speed dial" button!

Off	Heating circuits and hot water off
Normal	Heating circuits and hot water time programmed
Hot water	Only HW operation is time programmed HW-summer
Heating	Heating circuits activated out of the time programme
Reduce	Heating circuits off independant from the time programme
Reduce by...	Heating circuits off up to a certain time
HW-reload	HW-loading for 90 min out of the HW time programme

SYNCHRO**Menu**

Menu	
Heating circuit 0	Customer settings for HK0
Heating circuit 1	Customer settings for HK1
Heating circuit 2	Customer settings for HK2
Hot water	Customer settings for hot water operation
Customer level	Customer setting - boiler
Detailed information	Display of all relevant boiler data and pump states
Date / time	Setting date / time
Service menu	Access to the service level only with code (200)
Back ↓ Choices	

Heating circuit 0	1	
Operating pump	Auto	Control of the pump: auto (standard), off, duration
Time programme 0		Time programme for HK0: setting of 3 different heating times possible
Comm. T° day	22.0°C	* Room-command temperature during the current heating time
Comm. T° night	16.0°C	* Room-command temperature out of the current heating time
Thermostat	T 3°C	* Thermostat function of 1-3°C adjustable or on Off = no room control
Heating curve 0	1,3	* Has no control in this circuit
Night from OT	-3°C	* Is beyond the heating time of the outside temperature according to night from OT, so this heating circuit will be continuously operated
OT-shutoff	18°C	*
Back	↓ Choices	The heating circuit will be shut off if outside temperatures on "OT-shutoff"

Heating circuit 1	2	
Operating pump	Auto	Control of the pump: auto (standard), off, duration
Time programme 1		Time programme for HK1: setting of 3 different heating times possible
Comm. T° day	22.0°C	* Room-command temperature during the current heating time
Comm. T° night	16.0°C	* Room-command temperature out of the current heating time
Room control	25%	* Thermostat function of 1-3°C adjustable, or room control 0-100%
Heating curve 1	0.6	* See heating characteristics chart
Night from OT	-3°C	* Is beyond the heating time of the outside temperature according to "Night from OT", the circuit will be temperature regulated according to the "Command T° night"
OT-shutoff	18°C	*
Back	↓ Choices	* The heating circuit will be shut off if outside temperatures on "OT-shutoff"

Heating circuit 2	3	
Operating pump	Auto	Control of the pump: auto (standard), off, duration
Time programme 2		Time programme for HK2: setting of 3 different heating times possible
Comm. T° day	22.0°C	* Room-command temperature during the current heating time
Comm. T° night	16.0°C	* Room-command temperature out of the current heating time
Room control	50%	* Thermostat function of 1-3°C adjustable, or room control 0-100%
Heating curve 2	0,7	* See heating characteristics chart
Night from OT	5°C	* Is beyond the heating time of the outside temperature according to "Night from OT", the circuit will be temperature regulated according to the "Command T° night"
OT-shutoff	18°C	*
Back	↓ Choices	* The heating circuit will be shut off if outside temperatures on "OT-shutoff"

* Parameter is only displayed if there is a heating circuit regulator

Room device RFF25: T 1°C if the command room temperature exceeds by 1°C, the HK-pump will be shut off

Room station RS100: T 2°C if the command room temperature exceeds by 2°C, the HK-pump will be shut off

Possible settings: T 3°C if the command room temperature exceeds by 3°C, the HK-pump will be shut off

Off no room control

0% room control----Regulation 100% of outside temperature

25% room control----Regulation 25% of room influence -75% of outside temperature

50% room control----Regulation 50% of room influence -50% of outside temperature

75% room control----Regulation 75% of room influence -25% of outside temperature

100% room control----Regulation 100% of room control

SYNCHRO

Hot water

Hot water	4
Operating pump	Auto
Time programme	HW
Time prog. HW	summer
Hot water comm	55°C
Hot water priority	NO
Back	↓ Choices

Control of the pupmp: auto (standard), off, duration
 Time programme HW in programme "Normal" - setting of 3 different boiler times possible
 Time programme HW in programme "Hot water" - setting of 3 different boiler times possible
 Setting of the hot water nominal value
 Hot water priority on "NO" parallel operation, (Optional "YES" HW-priority)
 Hot water priority = heating pumps will be turned off during the hot water operation

SYNCHRO

Customer level

Customer level	5
Operating mode:	Reg.
Boiler comm.	80°C
Operation SZ	Auto
Operation KLP	Auto
Sound intensity	Optimal
RGT max	220°C
Residual heat	YES
ZUP	Auto
Back	↓ Choices

Regulation = standard operation; emergency = if primary air engine or controller are deficient
 Boiler command temperature standard at 80°C
 Auto, On, Off- control exhaust draught fan
 Auto, On, Off- control boiler loading pump
 Optimal, Quieter
 If the flue gas temperature exceeds "RGT max", the boiler will be put back under regulation
 YES/NO residual heat will be abstracted from the boiler up to 55°C
 * Display only if HPO is selected as booster pump

** Value is only displayed when a heating circuit regulator is available and the HPO output is programmed as booster pump*

Sound intensity optimal = exhaust draught fan runs, performance-related, between 30 % and 100%

Sound intensity quieter = exhaust draught fan runs, performance-related, between 30% and 75%

Caution: setting "Quiet" can reduce the max. boiler output

SYNCHRO**Service menu**

CODE 200

Service level
Reset data
Error list
Test programme
Starting up
Parameter HK0
Parameter HK1
Parameter HK2
Param. hot water
Parameter HP0
Equipment settings
Parameter menu
Back ↓ Choices

Entrance possible only when the operation is "off"

Menu to configure the system

- * Menu is only displayed when the operation menu HK0 has been activated
- * Menu is only displayed when the operation menu HK1 has been activated
- * Menu is only displayed when the operation menu HK2 has been activated
- * Menu is only displayed when the operation menu "hot water" has been activated
- * Menu is only displayed when the operation menu HP0 has been activated

Access only with CODE

SYNCHRO**Reset data**

Reset data
Customer data load
Customer data store
Value param. load!
Operating hours reset
Service time reset
Control reset
Back ↓ Choices

Stored customer data, in case they need to be read

After setting the plant (putting into operation, time programme...) store the customer data

Basic setting (Eprom) loaded

Operating hours counter is set on 0

After a boiler service, this counter can be set on 0

After the basic setting (Eprom) is loaded, set all counters on 0

SYNCHRO**Error list**

Error list
New start of the HW (Power ON)
10.22 17:02 Display:1
Back ↓ Choices

Error messages stored with error number and time indicated

SYNCHRO Test programme

Test programme	
Heating circuit 0	
Heating circuit 1	
Heating circuit 2	
Hot water	
Back	↓ Choices

Check the components:
 Pumps, Mixer, Servo motors, Induced draught fan, Temperature sensor, Door contact switch and STB
 Access possible only in the programme "OFF"

SYNCHRO Operation

The boiler must be configured for the operation

Operation	
Type:	31KW
Speed pumps	KLP
Buffer available	Yes
HKR available	Yes
HW-circuit available	Yes
Time programme HW	
Time prog.HW summer	
Hot water comm.	55°C
HW priority	No
Operation HK0	Pump
HKP0 release	38°C
Time programme 0	
Room device HK0	None
Operation HK1	Mixer
HKP1 release	38°C
Flow temp.1 max	50°C
Heating curve 1	0.6
Time programme 1	
Room device HK1	None
Operation HK2	None
HKP2 release	38°C
Flow temp.2 max	75°C
Heating curve 2	1.3
Time programme 2	
Room device HK2	None
Operation HP0	None
Customer data saving	
Back	↓ Choices

31KW, 34KW, 44KW
 Off = no speed regulation, KLP = speed regulated, KLP+SLP = speed regulated
 Yes = always with buffer, No = only when buffer sensor is defective
 Yes = if weather submaster controller is available, otherwise = No
 Yes = hot water preparation No = no hot water preparation
 Hot water periods with programme "Normal"
 Hot water periods with programme "Hot water"
 Nominal value setting
 Yes, No (Parallel operation)
 Pump, None
 Minimum temperature (T3 top buffer) for release pumps HKP0
 None, RFF25, RS100
 Mixer, Pump, None
 Minimum temperature (T3 top buffer) for release pumps HKP1
 None, RFF25, RS100
 None, ZUP, NFA, Burner (Output can only be programmed in conjunction with a weather submaster controller)

Setting HP0 only in conjunction with a weather submaster controller

Operation HP0:	ZUP	Release output HP0 as "ZUP" (booster pump): as soon as one of the pumps HKP0-2 or HWP is requisited, the booster pump will runt.
	NFA	Release output HP0 as "NFA" (refill display) if: top buffer "T3" has a smaller requirement temp. from "HK0-2 and HW" AND "Buffer load" has a smaller value "40%" (fix);
	Burner	Release output HP0 as "Burner" (Oil burner output) if top buffer "T3" has a smaller requirement from "HK0-2 and HW" THEN "Burner ON"; by "T3" increase to 10°C (fix) > "Burner OFF"
	None	Output disabled

SYNCHRO**Parameter HK0**

Parameter HK0	
Operation HK0	Pump
Room device HK0	None
Flow temp.0 min	38°C
Flow temp.0 max	75°C
HKP0 release	38°C
Back	↓ Choices

Pump, None
* None RFF25, RS100

*
*

SYNCHRO**Parameter HK1**

Parameter HK1	
Operation HK1	Mixer
Room device HK1	None
Mixer runtime	120Sek
Flow temp.1 min	25°C
Flow temp.1 max	50°C
HKP1 release	38°C
Paralell diff.	0°C
Back	↓ Choices

Mixer, Pump, None
* None RFF25, RS100
* Mixer runtime on position 1-10 (closed-open)
*
*
* Heating curve is postponed to the adjusted value

SYNCHRO**Parameter HK2**

Parameter HK2	
Operation HK2	None
Room device HK2	None
Mixer runtime	120Sek
Flow temp.2 min	25°C
Flow temp.2 max	75°C
HKP2 release	38°C
Paralell diff.	0°C
Back	↓ Choices

Mixer, Pump, None
* None, RFF25, RS100
* Mixer runtime on position 1-10
*
* Heating curve is postponed to the adjusted value

** Parameter is only displayed,
when HKR (weather submaster controller) is available*

SYNCHRO

Parameter hot water (HW)

Param. hot water	
HW circ. Available	YES
HW hyst.	10°C
HWP release	45°C
Boiler exc. inc.	8°C
Back	↓ Choices

By 10°C under HW-nominal value, the HW-preparation will be reactivated if temporally released

For the release of the HW-pump, the "HWP release" value must be available in the boiler

If HW required, the value added to the HW nominal value = boiler nominal value

SYNCHRO

Parameter HP0

Parameter HP0	
Operation HP	NONE
Release HP0	38°C
Back	↓ Choices

Only possible in connection with a weather submaster controller

None, ZUP, NFA, Burner

Release temperature must be in the top buffer (T3)

SYNCHRO

Plant settings

Plant settings	
Type:	30KW
Speed pumps:	KLP
Buffer available	Yes
HKR available	Yes
External sensor	Yes
PC-control	0
Time ABS pump	60Sek
HKP compulsory	100°C
T1 residual heat	55°C
HKP frost TA	-3°C
HKP frost TV	3°C
TÜV function	
Back	Choices

31KW, 34KW, 44KW

KLP, KLP+SLP, Off

Auto, Off

Yes, No

Yes, No

Data transfer to the PC 0 = hyper terminal

Activate all pumps for 60 seconds once a week

All HKP's will be activated over 100°C of the boiler temp. Mixer open till lead temp. Max.

Boiler loading pump runs until the boiler temperature has fallen below the adjusted value

If the outside temperature remains under "HKP Frost TA", the operating state "antifreeze" will be activated, in which the "HKP Frost TV" will be at least sustained in the pipelines (function only in the programme "Off")

During the operation "Regulation", the boiler temp. will increase until the shutdown through STB happens

11.5) Exemples of customer settings

Time programme setting!

Information	1
Boiler temp.:	72°C
Operation:	Regulation
Programme:	Normal
Outside T°:	(-10) -5°C
Prog.	↓ Menu

Press "**Menu**" button

Menu	
Heating circuit 0	
Heating circuit 1	
Heating circuit 2	
Hot water	
Customer level	
Detailed report	
Date / Time	
Service level	
Back	↓ Choices

Select Heating circuit 0 with "**Arrow**", then press "**Select**"

Heating circuit 0	1
Operating pump	Auto
Time programme 0	
Comm. T° day	22°C
Comm. T° night	16°C
Room control	25%
Heating curve 0	1,1
Night from OT	-3°C
OT-shutoff	18°C
Back	↓ Choices

Select Time programme 0 with "**Arrow**", then press "**Select**"

Heating circuit 0	1-2
Mo Tu We Th Fr Sa Su	
1: On 05:00 Off 22:00	
2: On 05:00 Off 22:00	
3: On 05:00 Off 22:00	
Zurück ←	→ Ändern

Select the day with "**Arrow**", "**change**" on the first connection time

Heating circuit 0	1-2
Mo Tu We Th Fr Sa Su	
1: On 05:00 Off 22:00	
2: On 05:00 Off 22:00	
3: On 05:00 Off 22:00	
Zurück	+ - →

Change start duration time (ON) with "+ -", with "Arrow" switch to the non function time (OFF) and modify the time with "+ -", with "Arrow" switch to second start duration time or finish with "Back", press "Back" 3 times again to get back to information

Change hot water command value!

Information	1
Boiler temp.:	72°C
Operation:	Regulation
Programme:	Normal
Outside T°:	(-10) -5°C
Prog.	↓ Menu

Press "**Menu**" button

Menu
Heating circuit 0
Heating circuit 1
Heating circuit 2
Hot water
Back ↓ Choices

Select hot water with "**Arrow**", then press "**Select**" button

Hot water	4
Operating pump	Auto
Time programme HW	
Time prog. HW summer	
HW comm. temp. 55°C	
Back ↓ Choices	

Select hot water command temperature with "**Arrow**", then press "**Select**"

Hot water	4-4
Hot water comm. temp.	
(55)	55 (°C)
Back + - Save	

Change hot water command temperature with "+", "-", finish with "**Save**", press "**Back**" twice again to get back to information

Change the heating curve!

Information	1
Boiler temp.:	72°C
Operation:	Regulation
Programme:	Normal
Outside T°:	(-10) -5°C
Prog.	↓ Menu

Press "**Menu**" button

Menu
Heating circuit 0
Heating circuit 1
Heating circuit 2
Hot water
Back ↓ Choices

Select Heating circuit 0 with "**Arrow**", then press "**Select**"

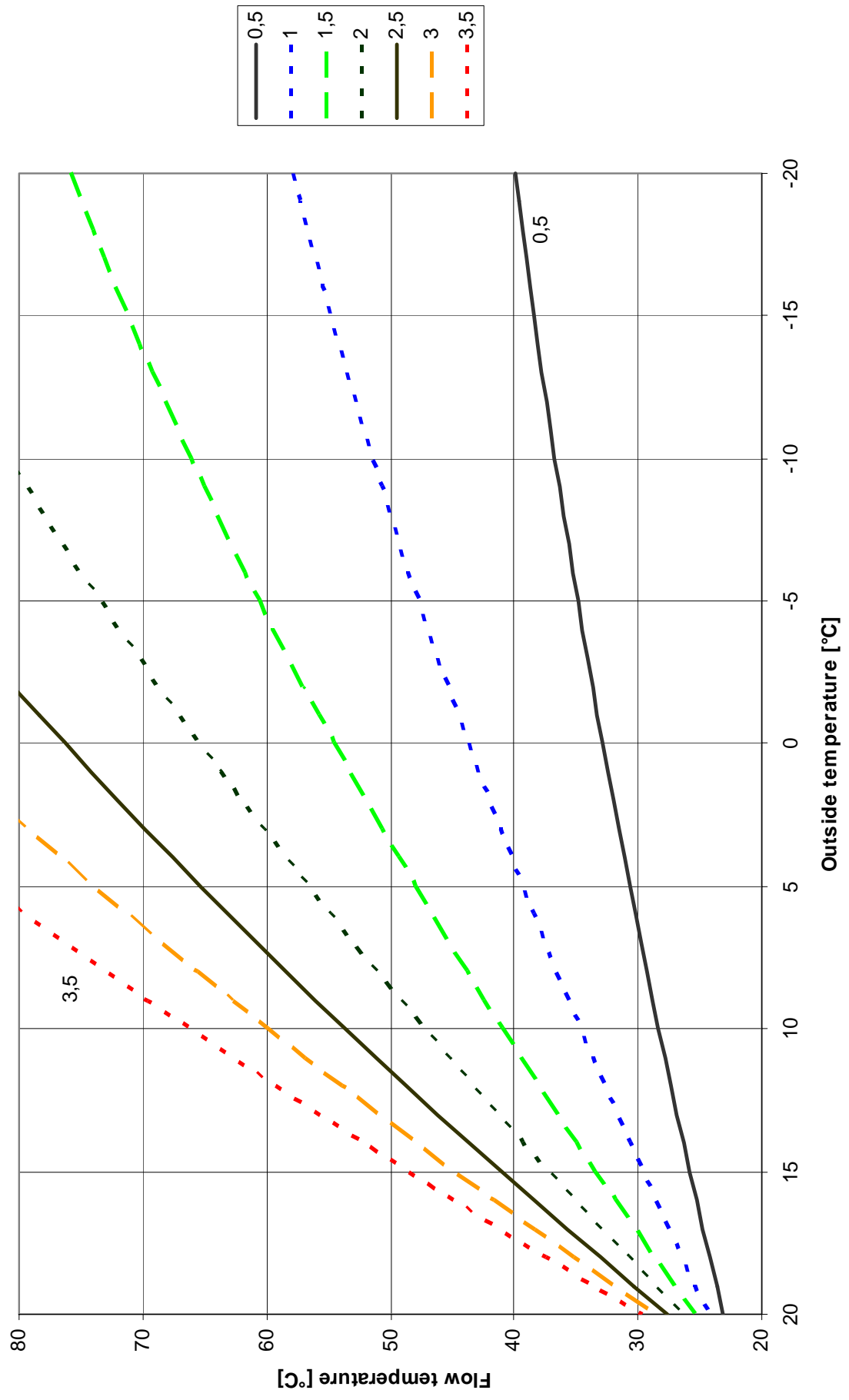
Heating circuit 0	1
Time programme 0	
Comm. T° day	22°C
Comm. T° night	16°C
Room control	25%
Heating circuit 0	1,1
Back ↓ Choices	

Select Heating circuit 0 with "**Arrow**", then press "**Select**"

Heating circuit 0	1-6
Heating circuit 0	
1,2-1,4 > Radiator	
0,5-0,7 > Floor heating	
(1,3) 1,4 ()	
Back + - Save	

Change the value with "+ -", finish with "**Save**", press "**Back**" twice again to get back to information

Heating curve > room command = 22°C



Date / Time setting!

Information	1
Boiler temp.:	72°C
Operation:	Regulation
Programme:	Normal
Outside T°:	(-10) -5°C
Prog.	↓ Menu

Press "**Menu**" button

Menu	
Hot water	
Customer level	
Detailed report	
Date / Time	
Back	↓ Choices

Choose Date/time with "**Arrow**", then press "**Select**" button

Date / Time	7
Th, 31,10,2002	
09:15:10	
Back	Choices

Press "**Change**" button

Date / Time	7
Th, 31,10,2002	
09:15:10	
Back	+ - →

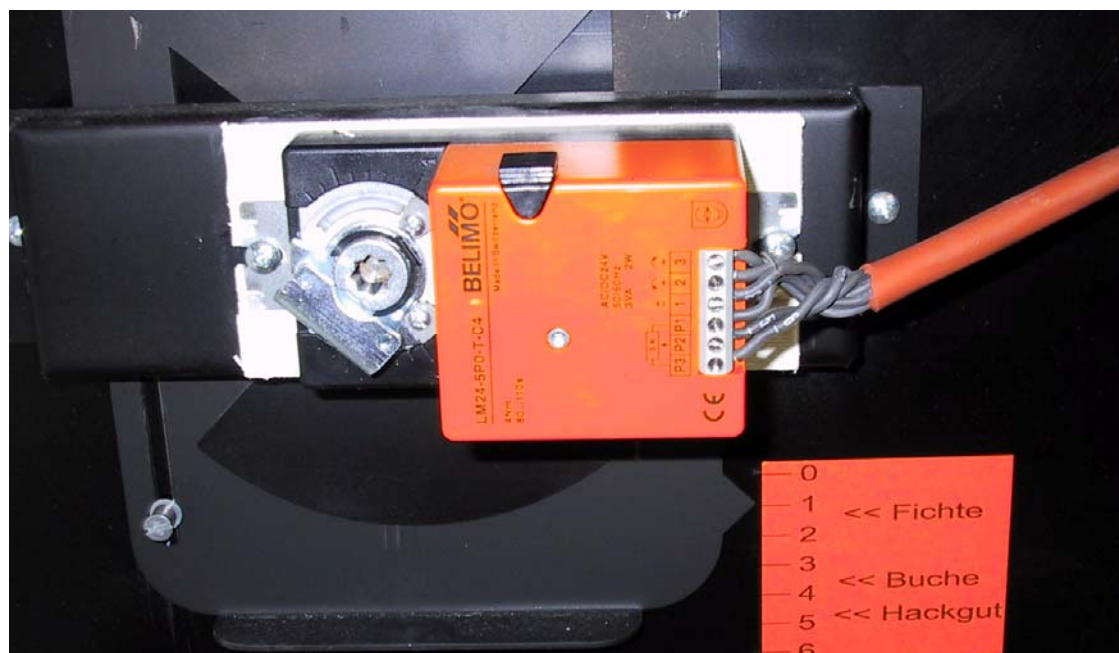
Select desired value with "**Arrow**", change value with "+ -", press "**Arrow**" again until the bottom right button "**Save**" appears

Date / Time	7
Th, 31,10,2002	
09:15:10	
Back	Save

Finish with "**Save**", press "**Back**" twice again to get back to information

12) Fuel coordination:

The primary and secondary air devices must be installed depending on the wood species, size and drying of the fuel. They are installed in the ash container (pull the ash door-covering to the right and open the covering). Air slider will be installed depending on the scale of the fuel.



12.1) IMPORTANT INDICATIONS for the fuel:

- **Firewood** should only be burnt after a drying period of **2 years**.
- **Brushwood** should only be burnt after a drying period of half a year to a year and a half (needles can fall).
- The ideal length of the firewood is approximately **50 cm**.
- Make sure that the wood is **as thick as possible** when inserted.
- Burn the brushwood **in layers** mixed with firewood.
- **Cover** each wood chip- or **brushwood** filling **with a layer of firewood**.
- Always put a layer of **firewood before refilling with wood chips**.
- Insert only as much wood as **what will really be consumed (that the heating system and the buffer can store)**.

12.2) SPECIAL INSTALLATION

For **EXTREME FUELS** like **WOOD CHIPS**, **BRUSHWOOD**, extremely dry firewood or **SAWDUST**, it may be necessary to choose the **“wood chip“ setting in the “customer level“ menu on the service unit**.

13) Warming-up:

13.1) Heating-up procedure:

- Power switch of the service unit to position "ON"
- Switch on the operating switch (LED) the required operating mode in the service unit ("Normal" or in the summer "Hot water")
- **Open filling door, grate slots and fire channel must be free from ashes in the fireclay combustion chamber**
- **Place 3-4 logs with fissured sides on the grate to the top in the rear area (combustion chamber)**
- **Fill firewood loosely (sticks, rough wood chips) for 5-10 cm high with a bit of paper or cardboard**
- **Fill up the boiler with firewood or in layers with firewood and wood chips**
- Close filling doors
- Open ash doors
- Insert (ignite) burning paper at the front above the grate
- Leave the ash doors open about 4-5 min until the boiler burns (exhaust gas temperature over 150°C)
- When the boiler is burning – close ash doors

13.2) IMPORTANT INDICATIONS:

- **Attention: Filling door must be closed, otherwise the combustion regulator will not work.**
- Do not open ash room door during the filling or full or partial load! **(see display indication)**
- **Never open the filling- and ash room doors together during the operation!**
- When the flue is cold, it is possible that the water vapor of the flue gases condenses. As a result, it relieves white smoke from the flue.

14) Heater:

It may only be refilled once the previous load burnt and the buffer is discharged again under 30% (display indication "buffer load")!!!!

14.1) Refilling:

- Lift the filling door briefly without unlocking before putting logs on the fire and follow indications on the display.
- If the display "**Boiler in full fire...**" or "**Buffer loaded...**" appears, please **do not open filling door.**
- Otherwise the low temperature carbonization gases will exhaust through a gap in the filling doors – Beware of deflagration and burns.
- Press the release button at the left and open the filling doors entirely.
- Check whether there is enough ember - otherwise repeat heating procedure.
- Optimally, the flame channel should always be covered with embers.
- Calibrate the refill quantity according to the heat requirement (see display indications or according to the buffer size)
- Close the filling doors immediately

14.2) IMPORTANT: ash emptying:

In order for the combustion system and the grate cooling to function, the ash container shouldn't be completely full. Empty the ashes before heating or refilling. Remove the ashes on the GRATE regularly!

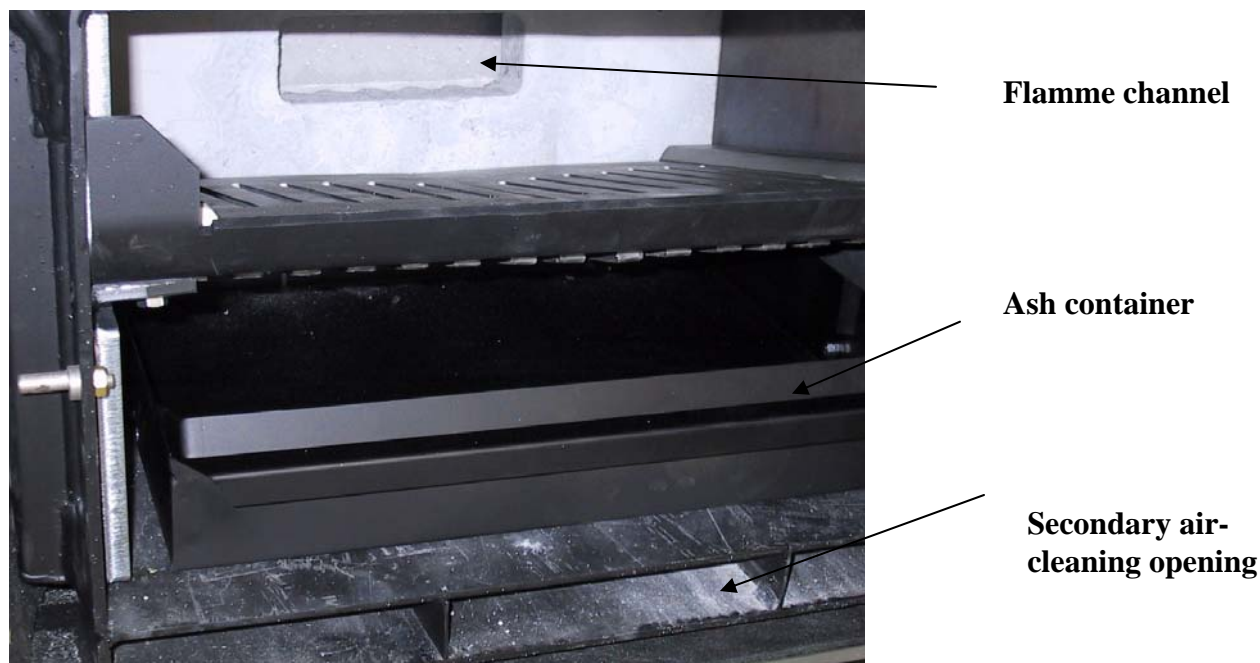
15) Cleaning

In order to ensure an optimum utilization of the fuel, the boiler and the flue gas channel must be cleaned often. Thanks to an elaborate boiler construction, this is realisable without much difficulty.

Carry out every 1 – 2 weeks:

- Clear ashes of **filling room** and grate area
- Clear ashes of **flamme channel** (from the filling room to the combustion chamber)
- Clear ashes of **secondary air channel** (Vertical air channel in the flamme channel)
- Extract the ashes from the rear **through the secondary air cleaning opening** (lower opening in the middle of the ash-door) with a stoker device.
- **Brush the heat exchangers thouroughly depending on the utilization and remove soot and deposits on the sides of the cleaning opening (if there is sound transmission, clean the blower wheel as weel).**

Attention: Unplug the induced draught fan or set SZ to OFF in the customer level



Attention:

Small **wood tar formation** in the filling room is normal. If there is a strong tar formation, the output efficiency is not sufficient (putting logs on the fire too often, buffer too small, power pumps for buffer load too low), or the fuel is not dry enough.

16).General cleaning and annual checking

Cleaning as described in paragraph 15, but also:

- **Attention:** Unplug induced draught fan or set SZ to OFF in the customer level
- Clean induced draught fan; disassemble induced draught fan every 2 years and clean fan wheel and fan box. (Seal the fan before performing)
- Check the doors' seals



17. Pay absolute attention to WARNING NOTICES

ATTENTION: The guidelines from the instruction manual must be absolutely respected!

CAUTION: Health risk, deflagration risk, excessive temperature!!
The power switch is always on.
(Can only be off in the inoperable state!!)

WARNING: Health risk, deflagration risk, excessive temperature!!
In case of failures, the disturbance causes must be corrected by means of the advice dispatches before the operation goes on with the button "Quit"!!

WARNING: Danger of injury from combustions! **The boiler must be cleaned only when it is cold!** (Exhaust gas temperature < 50°C)

WARNING: Risk of burns! Empty the ash container only in cold state!

CAUTION: Risk of burns!
Never touch unprotected hot boiler parts!

CAUTION: Danger of injury from rotating parts: **The fan may only be touched if disconnected from the mains (off)!!**

WARNING: Danger of injury from combustions! **Follow the advice on the display before opening the filling door!**

WARNING: Do not store flammable items in the proximity of the boiler.
Please follow the fire regulations.

WARNING: The filling room door must not be opened during the heating.
Please follow the advice message in the information level!

Warning: The frost protection function can only be executed in the plant, if there is heat in the buffer or in the boiler.

18. Procedure in case of dysfunctions

18.1 Button can not be switched on:

- Check power supply (external power plug)
- **Check fuses** in the supply line and in the SYNCHRO's printed circuit board (PCB) control panel
- **Check the power supply cable between the PCB**

18.2 Smoke emission in the BOILER ROOM:

Possible causes:

- Smoke pipe is leaking
- Flue draw regulator is mounted backwards or is too small
- Flue is blocked or no discharge

18.3 Procedure in case of deflagration:

The deflagration can be caused by heating with very short and dry wood chips. In that case, select "fuel from wood chips" in the customer level. Additionally you should place 2-3 layers of logs in between. If necessary, ask a professional.

18.4 Overheating – error message "T1 boiler temperature interruption" and (or) STB released

- Ensure **heat dissipation** by switching on the KLP at 65°C, buffer can absorb heat.
- **Determine the cause of the overheating** (for frequent incidences you should call in an expert)

18.5 Draught fan too loud:

Possible causes:

- Is the draught fan dirty?
- Are the draught fan or wings loose?
- Is there any sound generation by arches or rigid smoke pipe junction in the flue?
- Store draught fan defective – request replacement engine

18.6 Primary- secondary air engine doesn't work:

Possible causes:

- Flapper valve stuck (unlock, check ease of movement)
- Check the connection of the controller and of the engine.
- Engine defective

Corrective if the engine is defective:

- Unlock engine manually (black knob on the engine) and put on neutral position
- Request new engine, exchange

18.7 Controller defective:

Corrective if the controller is defective:

- Press the emergency button (pos. 6) in the service unit (point 11 in the control panel description)
- Function: Primary- secondary air engine manually to 50%
Induced draught fan runs at 100%, all pumps run
- Exchange controller

18.8 Gas spring is no longer functioning properly:

Please note: The gas spring is filled with high pressure gas. This mustn't be opened by force or exposed for a long time to temperature over 100°C.

Replace logs on the fire when the filling is burnt up to 20-25 cm; close the filling door just after.

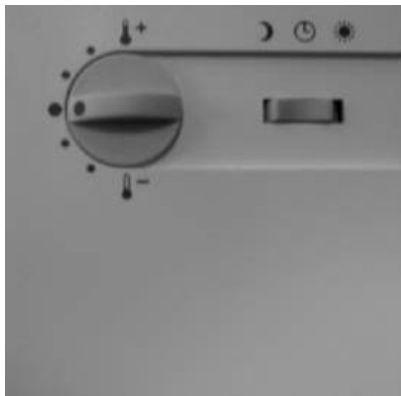
Corrective if the gas spring is defective:

- Exchange gas spring

Error messages

Category	Release	Disturbance text	Confirmation	Possible cause
Error	No external sensor connected or connection to the faulty sensor	Probe (TA) outside temperature disconnection	Button	No connection
Error	External sensor short-circuited	Probe (TA) outside temperature disconnection	Button	Probe broken
Error	No lead sensor for heating circuit 1 connected or connection to faulty sensor	Probe (TV1) lead temp HK1 disconnection	Button	No connection
Error	Lead sensor for heating circuit 1 short-circuited	Probe (TV1) lead temp HK1 short circuit	Button	Probe broken
Error	No lead sensor for heating circuit 2 connected or connection to faulty sensor	Probe (TV2) lead temperature HK2 disconnection	Button	No connection
Error	Lead sensor for heating circuit 2 short-circuited	Probe (TV2) lead temp HK2 short circuit	Button	Probe broken
Error	No connection to room device heating circuit circuit 0	Probe (TRF0) room device HK0 disconnection	Button	No connection
Error	Connection to room device heating circuit 0 short-circuited	Probe (TRF0) room device HK0 short circuit	Button	Room device defective
Error	No connection to room device heating circuit 1	Probe (TRF1) room device HK1 disconnection	Button	No connection
Error	Connection to room device heating circuit 1 short-circuited	Probe (TRF1) room device HK1 short circuit	Button	Room device defective
Error	No connection to room device heating circuit 2	Probe (TRF2) room device HK2 disconnection	Button	No connection
Error	Connection to room device heating circuit 2 short-circuited	Probe (TRF2) room device HK2 short circuit	Button	Room device defective
Error	Releasing security temperature limiter	Attention high temperature STB dropped	None	Boiler probe defective, KLP is not running, low buffer "T2" greater than 85°C
Error	Actual value variation should be greater than 5% when longer than 500 seconds	Primary engine (A1) doesn't work	Button	Check ease of movement of the engine, check connection of the engine and PCB
Error	Boiler probe disconnected	Probe (T1) boiler temperature disconnection	Button	No connection
Error	Boiler probe short-circuited	Probe (T1) boiler temperature short circuit	Button	Probe broken
Error	Probe (T2) low buffer short-circuited	Probe (T2) low buffer short circuit	Button	Probe broken
Error	Probe (T2) low buffer disconnected	Probe (T2) low buffer disconnection	Button	No connection
Error	Probe (T3) top buffer short-circuited	Probe (T3) top buffer short circuit	Button	Probe broken
Error	Probe (T3) top buffer disconnected	Probe (T3) top buffer disconnection	Button	No connection
Error	Probe (T5) middle buffer short-circuited	Probe (T5) middle buffer short circuit	Button	Probe broken
Error	Probe (T5) middle buffer disconnected	Probe (T5) middle buffer disconnection	Button	No connection
Error	Probe (T4) hot water short-circuited	Probe (T4) hot water short circuit	Button	Probe broken
Error	Probe (T4) hot water disconnected	Probe (T4) hot water disconnection	Button	No connection
Error	Probe (RG) exhaust gas temperature short-circuited	Probe (RG) exhaust gas temperature short circuit	Button	Exhaust gas probe broken
Error	Probe (RG) exhaust gas temperature disconnected	Probe (RG) exhaust gas temperature disconnection	Button	No connection
Error	Manual control board not connected	Manual control board not connected	Button	No or bad connection
Error	Errors in the data transmission between control and boiler board	Check error-data transmission connection cable	Button	No or bad connection
Error	HK-modul has been released in the parameters but not connected	Check error-data transmission connection cable	Button	No connection
Error	Boiler board defective / plug connection out of order	HK-module not connected	Button	No connection
Error	Boiler board defective / plug connection out of order	Wrong Atmel version IO19D3_V	None	No or bad connection
Error	Boiler board defective / plug connection out of order	Wrong Atmel version IO19D5_V	None	No or bad connection

Room sensor and remote control RFF25



Function:

In addition to the sensor element, the remote control can correct precisely the input room temperature at + / - 3°C at the boiler regulation.

Selector switch for the respective heating circuits:

Normal (Clock – according to time programme)

Heating (Sun – on a continuous day-set temperature)

Reduce (Moon – heating circuit on OFF) provided that the temperature doesn't fall below the value **Night on OT**, otherwise it will be regulated on the set-night temperature.

In order for the operating modes switching to work, the boiler control must be set on the programme **Normal**.

In the heating circuit menu, the parameter Room control can meet the following settings:

T 1°C	By exceeding the set-room temperature by 1°C, the heating circuit pump will be switched off
T 2°C	By exceeding the set-room temperature by 2°C, the heating circuit pump will be switched off
T 3°C	By exceeding the set-room temperature by 3°C, the heating circuit pump will be switched off
Off	No room control
0% room control	Regulation 100% by outside temperature
25% room control	Regulation 25% by room control – 75% by outside temperature
50% room control	Regulation 50% by room control – 50% by outside temperature
75% room control	Regulation 75% by room control – 25% by outside temperature
100% room control	Regulation 100% by room control

Connection:

Unattach the front knob, loosen mounting screw and remove the body.

Connect terminal 1 and 2 (cable 2 x 0,75)

Site:

Install the remote control at a height of 1 m – 1,5 m on an inside wall. The most appropriate room is the one where the occupier stays most often. In this room, the radiators shouldn't be equipped with thermostat valves.

The teleguidance with room control shouldn't be situated in a strong solar radiation area or in reach of a masonry heater.

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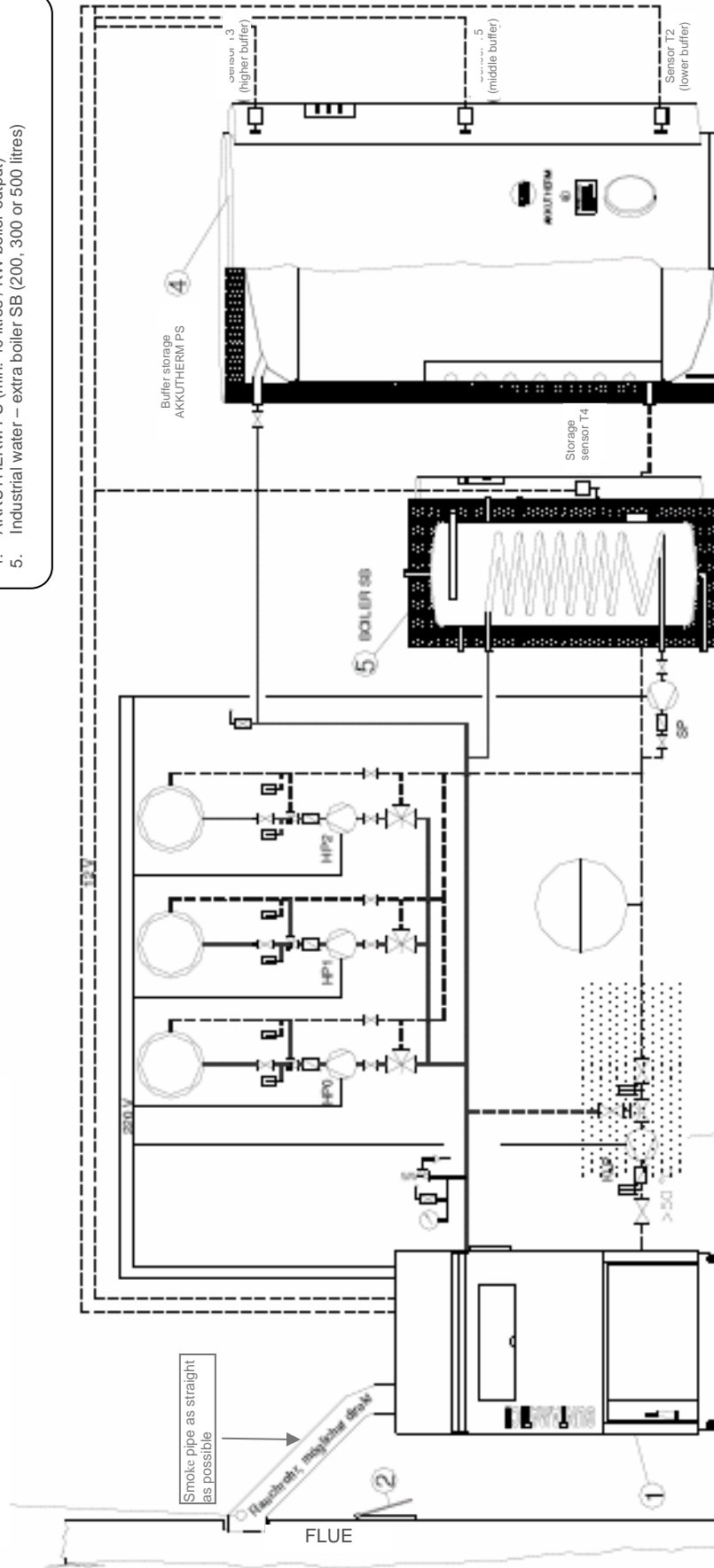
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 homepage: www.guntamatic.com

Attached diagram SYNCHRO – Buffer storage (AKKUTHERM PS) hot water storage (SB) without weather controlled regulator

Synchro diagram 1
 (Electrical plan in accordance with the instruction and installation manual)

- GUNTAMATIC COMPONENTS**
1. SYNCHRO 34 / 44
 2. Draw regulator RK (size depending on flue diameter)
 3. Return flow bypass group RA60 (5/4" , with pump 32-60)
 4. AKKUTHERM PS (min. 40 litres / KW boiler output)
 5. Industrial water – extra boiler SB (200, 300 or 500 litres)

ATTENTION:
 No starter connection between boiler and smoke pipe (fibreboard, sealing cord....)



Heat of the future

Hydraulic diagram: SYNCHRO with buffer storage and hot water storage with weather controlled regulator

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GUNTAMATIC COMPONENTS

1. SYNCHRO 34 / 44
2. Draw regulator RK (size depending on flue diameter)
3. Return flow bypass group RAG0 (5/4", with pump 32-60)
4. AKKUTHERM PS (min. 40 litres / KW boiler output)
5. Industrial water – extra boiler SB (200, 300 or 500 litres)
6. Weather controlled regulator: MK 231 (for 1 mixed circuit)
MK 261 (for 2 mixed circuits)
7. Servomotor SM70 (for all conventional mixing valves)
8. If desired: max. 1 room sensor RFF 25 per mixed circuit
9. If desired: max. 1 room station RS 100 per mixed circuit

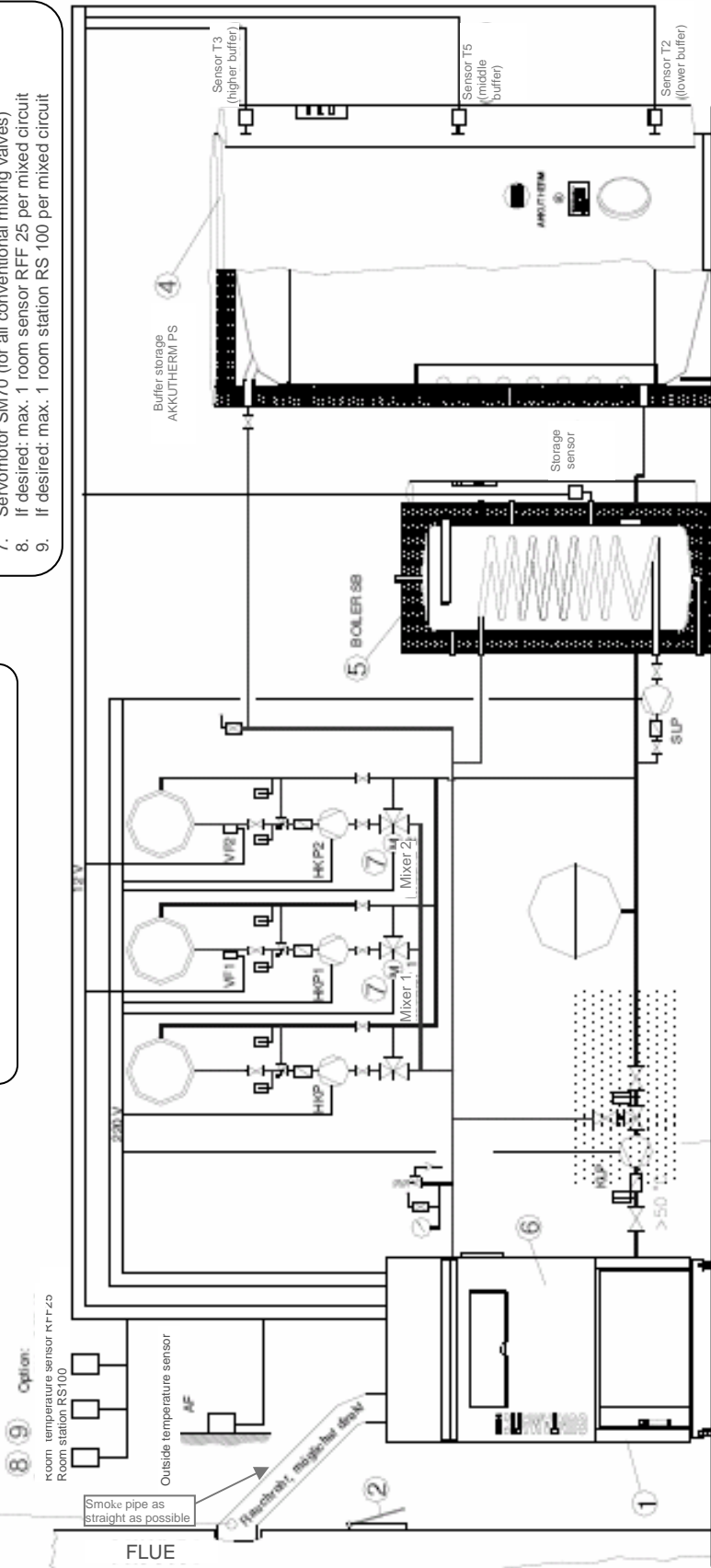
Attached diagram SYNCHRO – Buffer storage (AKKUTHERM PS) hot water storage (SB) with weather controlled regulator

Synchro diagram 2
 (Electrical connexion in accordance with the instruction and installation manual)

ATTENTION:

No starter connection between boiler and smoke pipe (fibreboard, sealing cord....)

Attention:
 In addition to the mixed circuit, HKPO output may be used as time control. (A mixer control is not possible with this output. If necessary, a thermostat set-up for the pump can be installed thanks to a room unit RFF 25.)



Heat of the future

The integrated interlocking burner is available from software BMK-SYNCHRO 2.0.

If the new Eprom is set in subsequently, a reset control must be performed.

The system has to be re-configured (startup menu).

The Eprom 2.0 is only suitable for the hardware 2.0.

(System from July 2006; sticker on the rear display "suitable for Eprom 2.0")

1) Interlocking burner integrates:

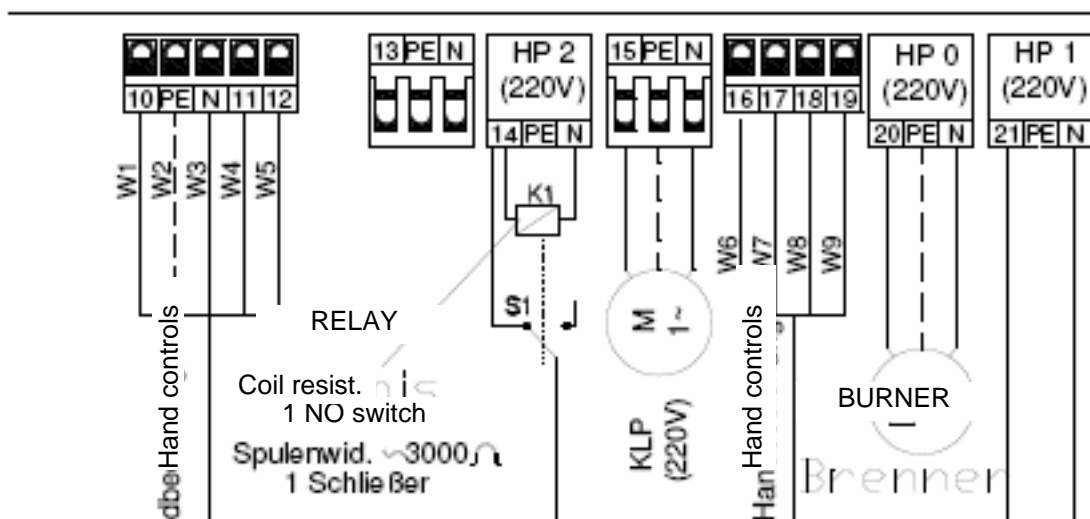
(only applicable if the weather controlled regulator is installed in the BMK or Synchro)

1.1) Installation according to circuit diagram: BMK-Synchro 16 and BMK-Synchro 16-probe (for thermal gas)

1.2) As the HP2 output is a Triac output, the mixer engine would be suitable for the control by a Triac output.

(For ex. Kromschöder SM70, Kromschöder SM40C, Belimo LR230 A, Wita SM40C)

If the mixer engines are not suitable for a Triac output, then the HP2 output (terminal 14) must be led on a standard relay.



Attention:

The relay is only needed in the mixer control;

not necessary when the HP2 output is used as a heating pump output!

1.3) Installation according to diagram Synchro 16:

As the selector valve is an essential 3-way mixer

Operation HPO = interlock

1.4) Installation according to diagram Synchro 16-probe (for thermal gas):

As the selector valve is an essential 3-way mixer

Operation HPO = interlock

In the HPO parameter menu, the "delay" parameter must be set on 4 minutes.

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- GUNTAMATIC COMPONENTS**
1. Wood carburettor Synchro
 2. Draw regulator RK (size depending on flue diameter)
 3. Return flow bypass group RA60 (5/4" , with pump 32-60) H39-001
 4. AKKUTHERM PS (min. 40 litres / KW boiler output)
 5. Industrial water – extra boiler SB (200, 300 or 500 litres)
 6. Weather controlled regulator: MK 231 (for 1 mixed circuit) S30-021
MK 261 (for 2 mixed circuits) S30-022
 7. Servomotor SM70
 8. If desired: max. 1 room sensor RFF 25 S70-006
1 room station RS100 S60-003
 9. Oil or gas boiler
 10. Mixer (1" - 3Weg AUF/ZU)
 11. Boiler sensor T4 oil art. no. S70-004

Attached diagram SYNCHRO, oil or gas boiler – buffer storage AKKUTHERM, boiler, outside temperature controller MK231 / (261) in the Synchro

Diagram no. SYNCHRO 16
Electrical plan in accordance with the instruction and installation manual Attention : not suitable for thermal gas

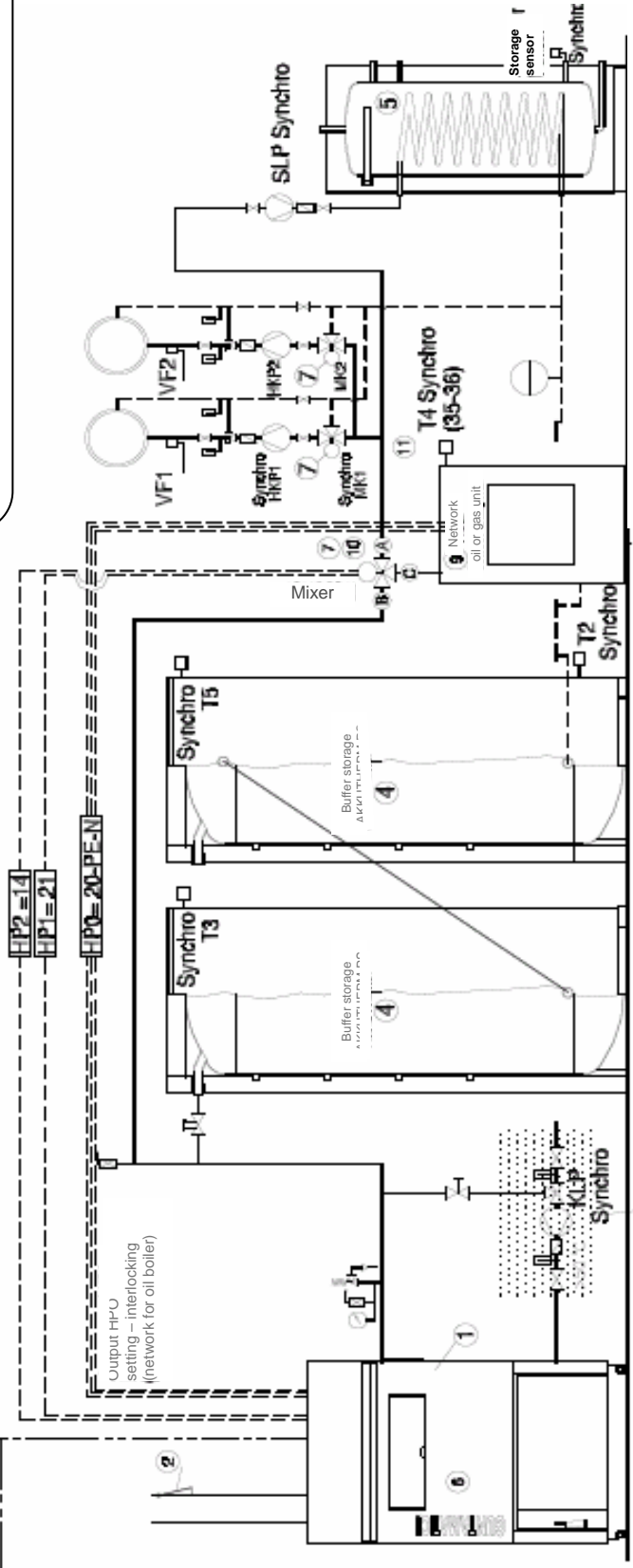
OPTION :
Room temperature sensor RFF25
Room station RS100

Outside temperature sensor
MK AF

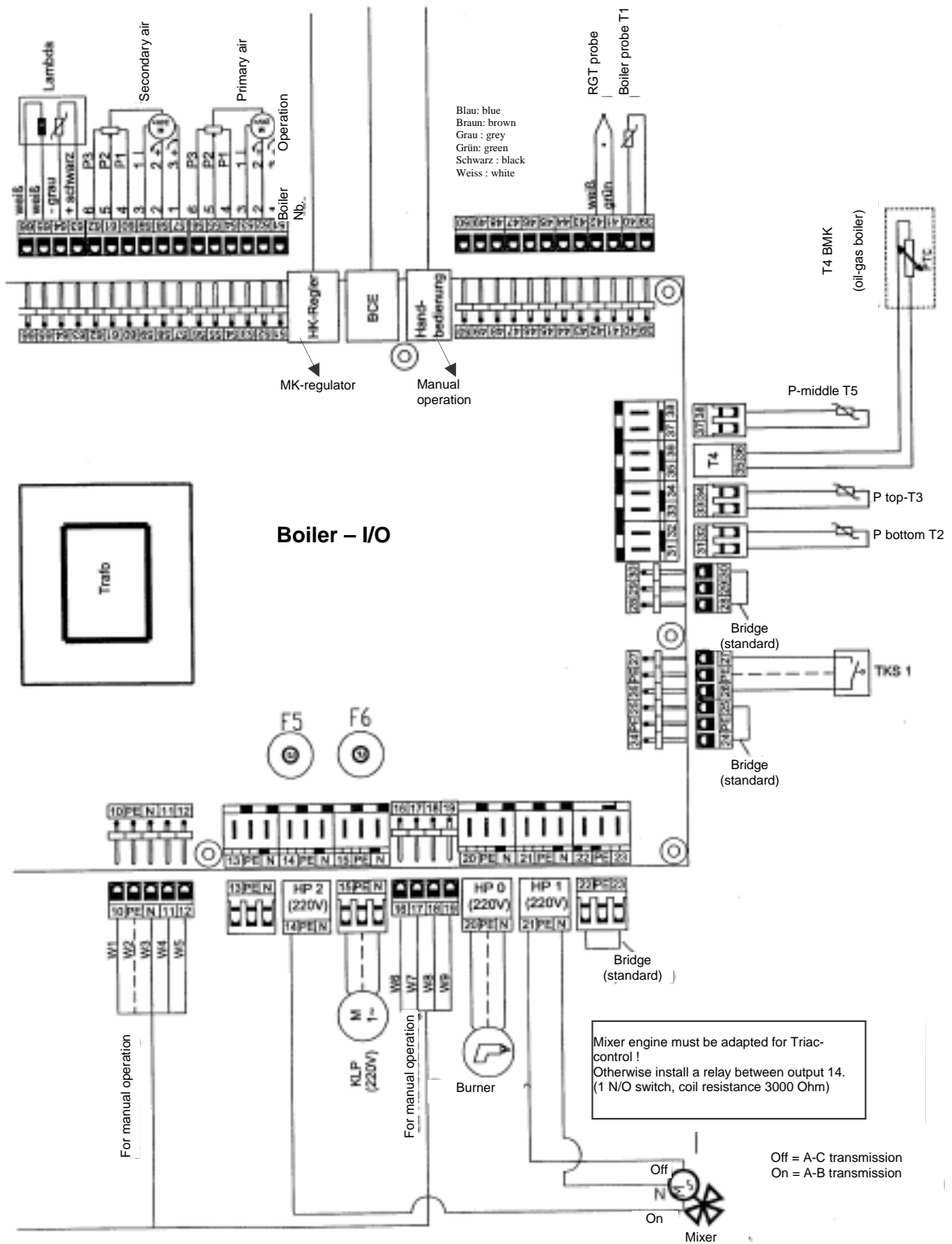
Function : if higher buffer (T3) < required temperature and the RGT < 130°C (RGT=burner) then the oil burner will be controlled over the HPO output (interlock). During this phase the mixer will be controlled simultaneously. Consequently, the burner will start working with the mixer on position A-C. Simultaneously the boiler temperature in the gas boiler (T4) will be used as a start-up temperature if it exceeds 45°C (T4 – burner).

If T3 > requirement or T4 > requirement + 6°C (diff. burner) or RGT (BMK) > 130°C (RGT – burner), the HPO output (interlock) will be out of service again. If the boiler temperature in the oil boiler (T4) falls below 45°C (T4 – burner) – 3°C, the output HP2 will be controlled during 3 minutes (LZ – interlock). Simultaneously the probe value T3 (buffer higher) will be reused as a start-up temperature.

Output – burner = A – C passage (buffer interlock)
Output HP2 = A – B passage



Heat of the future



DESIGNATION: Electrical plan: BMK – Synchro
 Diagram: BMK 16
 Integrated burner interlocking
 (only if MK regulator is integrated in the BMK or Synchro)



Attached diagram SYNCHRO, oil or gas boiler – buffer storage AKKUTHERM, boiler, outside temperature controller MK231 / (261) in the Synchro

Diagram no. SYNCHRO-16-sonde (also suitable for thermal gas)

Function: if higher buffer (T3) < required temperature and the RGT < 130°C (RGT=burner) then the oil burner will be controlled over the HPO output (interlock). During this phase the mixer will be controlled simultaneously. Consequently, the burner will start working with the mixer on position A-C. Simultaneously the boiler temperature in the gas boiler (T4) will be used as a start-up temperature if it exceeds 45°C (T4 – burner).

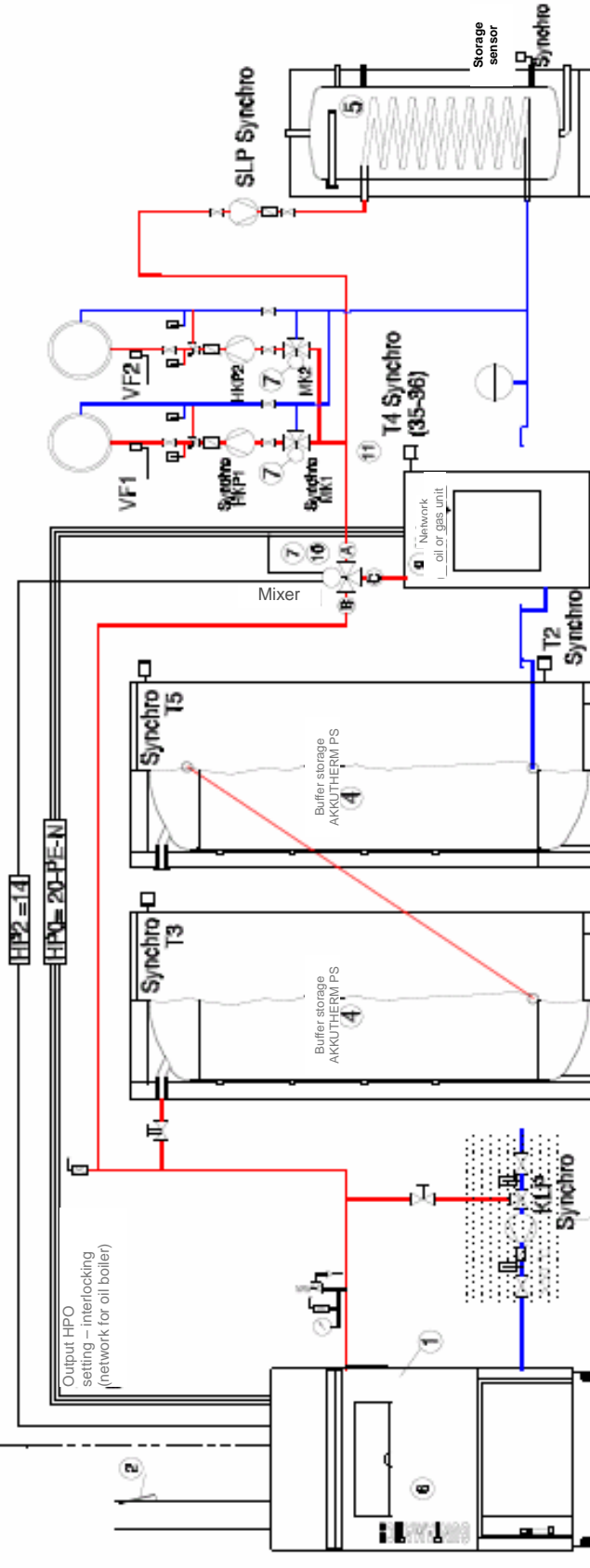
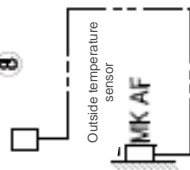
If T3 > requirement or T4 > requirement + 6°C (diff. burner) or RGT (BMK) > 130°C (RGT – burner), the HPO output (interlock) will be out of service again. If the boiler temperature in the oil boiler (T4) falls below 45°C (T4 – burner) – 3°C, the output HP2 will be controlled during 3 minutes (LZ – interlock). Simultaneously the probe value T3 (buffer above) will be reused as a start-up temperature.

Output – burner = A – C passage (buffer interlock)
Output HP2 = A – B passage

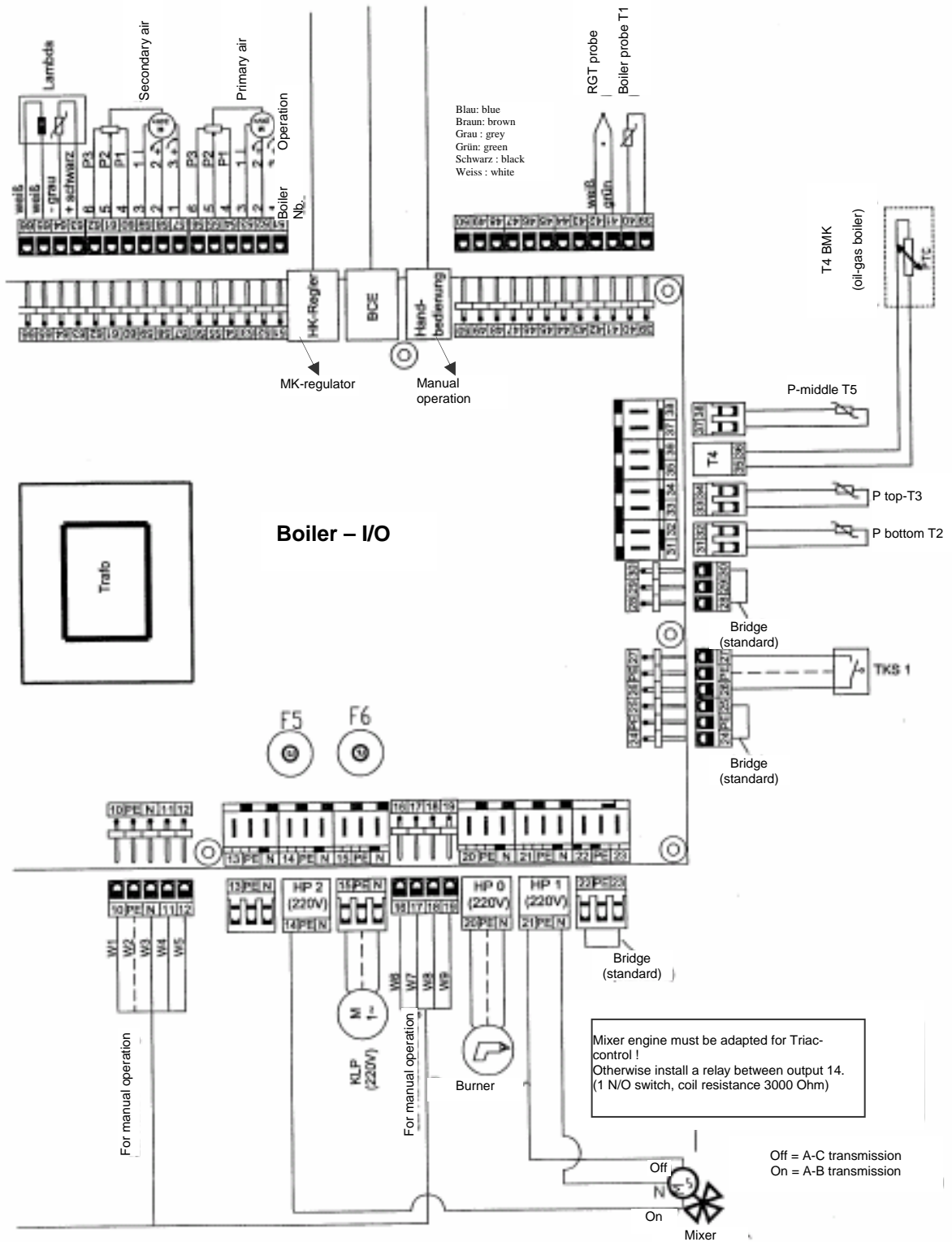
GUNTAMATIC COMPONENTS

1. Wood carburettor Synchro
2. Draw regulator RK (size depending on flue diameter)
3. Return flow bypass group RA60 (5/4", with pump 32-60) H39-001
4. AKKUTHERM PS (min. 40 litres / KW boiler output)
5. Industrial water – extra boiler SB (200, 300 or 500 litres)
6. Weather controlled regulator: MK 231 (for 1 mixed circuit) S30-021 MK 261 (for 2 mixed circuits) S30-022
7. Servomotor SM70
8. If desired: max. 1 room sensor RFF25 S70-006 1 room station RS100 S60-003
9. Oil or thermal gas
10. Mixer (1" - 3Weg AUF/ZU)
11. Boiler sensor T4 oil art. no. S70-004

OPTION:
Room temperature sensor RFF25
Room station RS100



Heat of the future

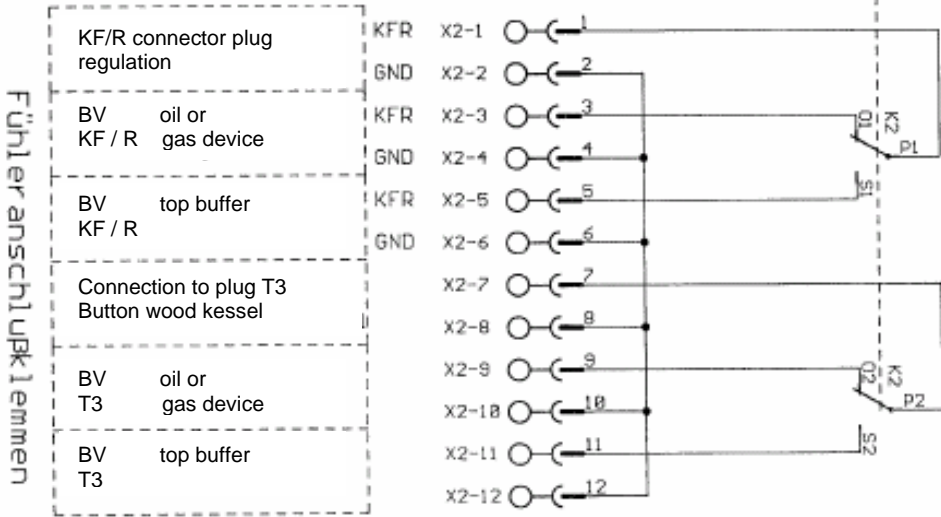
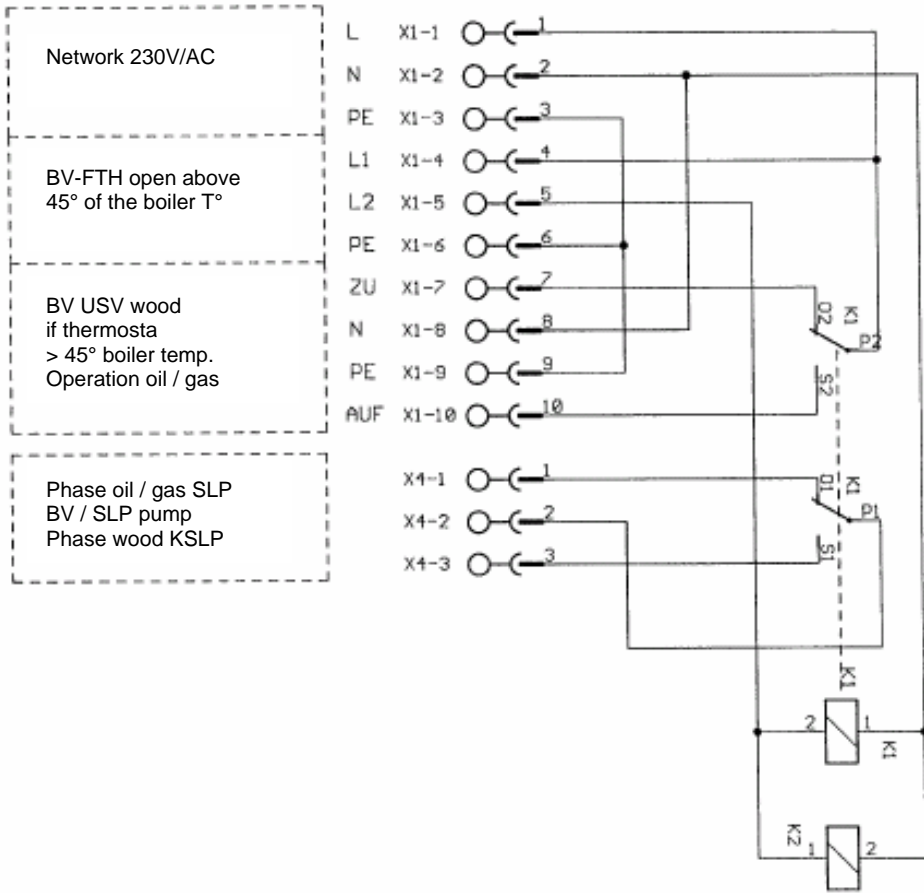


Attention : In the parameter menu HPO,
 the "delay" must be set on 4 minutes!

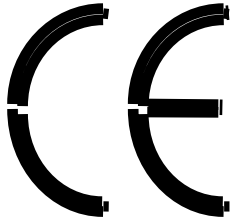
DESIGNATION: Electrical plan: BMK – Synchro
 Diagram: BMK 16
 Integrated burner interlocking
 (only if MK regulator is integrated in the BMK or Synchro)

Burner interlock

The electrical connection must only be done by an authorized company.
 You must follow the ÖVE regulations and the local connection conditions.



Out of service when oil boiler is over 45°C



GUNTAMATIC

The

GUNTAMATIC Heiztechnik GesmbH

Bruck - Waasen 7

A - 4722 Peuerbach, Ob.Öst.

explains that the product

POWERCHIP

complies with the production-line following the relevant regulations:

EG- Machinery directive	89/392/EWG
EG--Low voltage directive	73/23/EWG
EG- Electromagnetic compatibility directive	89/336/EWG

Applied harmonized standards:

EN 292 Safety of machinery

Other standards applied:

ÖNORM EN 303-5

Admitted and tested with ÖNORM EN 303-5 by:

BLT-Wieselburg – Accredited test- and checkpoints

Peuerbach, 23.07.2004

Place and date of exhibition

Prok. Ing. Günther Huemer
Management

GUNTAMATIC

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